FAMILY TIES IN LICENSED PROFESSIONS IN ITALY

A report for the

Fondazione Rodolfo Debenedetti

by

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The economics of occupational licensing and family ties

Michele Pellizzari

1 Introduction

Occupational licensing consists of the legal requirement to hold a formal, usually government-issued, authorization to offer a specific good or service to consumers. Other forms of regulation are also possible. For example, certification, which identifies qualified professionals as those who have passed a specific test or exam, but does not forbid the offering of the same goods or services by non-certified operators.

Recent data for the US show that approximately one third of all employed workers are occupied in a job that requires a license, a number that goes up to 35% including milder forms of regulation, such as certification or mere registration (Kleiner and Krueger, 2011). To our knowledge, data about the extent of occupational licensing in European countries are not available but, given the notion that European labour markets are usually more regulated than their American analogs, it is reasonable to expect a even higher incidence of this phenomenon in the EU.

Anecdotal evidence as well as media reports also suggest that occupational licensing, in particular, is a widespread phenomenon and one that has important implications on the functioning of the entire economy (Il Sole 24 Ore, 2001, 2008). Furthermore, several competition authorities have investigated the market of professional services, such as lawyers or accountants, under the suspicion that occupational licensing may result in anti-competitive practices, thus reducing supply and increasing prices (European Commission for the Efficiency of Justice (CEPEJ), 2010; European Commission, 2004; Autorità Garante della Concorrenza e del Mercato, 2009; Nicoletti, 2001).

Despite the above mentioned evidence, the academic economic literature is surprisingly scant on the issue of occupational licensing. The theoretical analysis is limited to some key but relatively old contributions, such as Stigler (1971); Shapiro (1986); Maurizi (1974); Leland (1979). Kleiner (2000) in his survey could not

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find one single article about occupational licensing published in three top journals (*American Economic Review, Journal of Political Economy and Quarterly Journal of Economics*) over the years 1995-2000. More recently, several empirical contributions have been made, mainly focused on documenting the anti-competitive effects of occupational licensing (Avrillier et al, 2010; Haas-Wilson, 1986; Kleiner and Kudrle, 2000; Wanchek, 2010; Pagliero, 2010a,b; Thornton and Weintraub, 1979; Timmons and Thorton, 2010; Timmons and Thornton, 2008; Kugler and Sauer, 2005; Pellizzari and Pica, 2011). To the best of our knowledge, there is no study that tries to evaluate the potential positive effects of occupational licensing on the quality of services.

A key feature of occupational licensing is that it is often associated with high levels of intergenerational transmission of occupations, as in Laband and Lentz (1992, 1985); Lentz and Laband (1989); Pellizzari and Pica (2011). Many licensed professionals appear to have relatives in the same profession and, although this is a common feature of all occupations, it is present in licensed or otherwise regulated occupations to a larger extent.

In this book we analyze these two issues - occupational licensing and family connections - jointly, using detailed data on all registered workers in several professions in Italy. Specifically, we first construct measures of the importance of one's surname in defining participation in the profession and, then, we compare such measures across professions, geographical areas and, when possible, over time (see Chapter 5). Next, in Chapter 5, we try and compare indicators of the quality of services offered by different professions in different areas of the country with our measures of familism. In fact, if the mechanism that generates the high degree of homonymity in professional registers is some kind of human capital formation within the family, especially with regards to occupation-specific skills, one should expect to find that in areas with more familism the quality of professional services, being produced by more able professionals, is higher. On the contrary, if families matter exclusively because they lower barriers to entry, then one should find a negative (or a zero) relationship between our measures of the importance of surnames and the quality of services.

In this introductory chapter we simply provide a brief overview of the literature on occupational licensing (Section 2) and family ties (Section 3), emphasizing the interlinks between the two.

2 The economics of occupational licensing

The economic rationale for regulating certain professions more than others generally lies in problems of asymmetric information. In markets with asymmetric information and with heterogeneous producers the consumer might not be able to acquire sufficient information to be able to select the right producer or a sufficiently good one. In such a situation, barriers to entry and other forms of regulation by increasing entry costs may induce low productivity producers not to enter the market, thus guar-

anteeing a higher minimum and average quality of services (Stigler, 1971; Shapiro, 1986; Leland, 1979; Maurizi, 1974; Fridman and Kuznets, 1945).

A practical example might help clarifying this important point. In almost any city in industrialized countries there are several bakers in each neighborhood, each producing breads of different types and quality. Consumers are also heterogeneous and have preferences over the different types of bread, however, one needs to explore the market in order to uncover the characteristics of each baker and make one's own choice. Collecting information about producers is something that most people do on a daily basis mostly through repeated purchases, e.i. people buy bread from different bakers and choose the one they like best.

Additionally, asymmetric information also generates moral hazard. Specifically, the inability of the consumer to evaluate the intrinsic quality of the purchased good or service may give producers an incentive to reduce their effort.

For obvious reasons, there are markets in which the process of information gathering is particularly cumbersome or costly, for example because repeated purchases are not possible, as in the market for health or legal services. One cannot be treated by several doctors for the same disease and choose her preferred professional on that basis and, similarly, ask for the assistance of several lawyers for the same legal proceeding. These types of strategies for acquiring information about producers may have too serious consequences (death or incarceration) to be seriously considered by consumers.

Hence, in markets where informational problems are particularly cumbersome it might be useful to introduce regulations aimed at guaranteeing a minimum standard of quality among producers, so that even the worse professionals in the market would be able to offer an acceptable service with potentially sizable welfare gains for consumers. Typically, such regulations consist of various forms of barriers to entry, such as qualification requirements (specific college degrees or professional schools) and entry exams. Often access to a profession is also subject to a compulsory training period. Moreover, the enforcement of professional codes of conduct should further reduce the extent of moral hazard.

All these requirements are aimed at both selecting (or inducing self-selection of) the most able candidates and encouraging the production of high quality services. Notice that this interpretation is based on a view of the economy with producers who are heterogeneous exclusively along the productivity dimension (or their marginal cost of effort). The recent paper by Pellizzari and Pica (2011) shows that, when barriers to entry are also heterogeneous across agents, the effect of liberalization policies (i.e. lowering the common component of the barriers) on the quality of professionals depends crucially on the correlation between individual productivity and the idiosyncratic component of the barriers. Specifically, if the best workers are also those who face the highest barriers a liberalization is likely to improve the average quality of active professionals, vice versa if barriers to entry and productivity are negatively correlated.

In any instance, imposing barriers to entry in a sector of the economy necessarily limits competition, by impeding free entry in the market. Lack of competition reduces consumer welfare by inducing higher prices and lower supply than in a per-

fectly competitive equilibrium. Notice also that in most cases occupational licensing is associated with other restrictions, such as price floors, which are normally perceived as additional restrictions to competition.

So, there is a clear trade-off associated with occupational licensing: on the one hand it may improve welfare by improving the quality of output in the presence of information asymmetries; on the other hand, it reduces welfare by impeding free entry and thus limiting competition. Hence, the key policy issue is where to strike the balance in such a trade-off. Information is imperfectly distributed in all markets but occupational licensing is adopted only where such imperfections are particularly serious and, at least in principle, one wants to do that in a way that reduces the negative effects on competition to the minimum.

Looking at the institutional arrangements of many licensed occupations (see Chapter 3), one is under the impression that preserving a good competitive market has not been the primary issue in the design of regulations. In general, together with entry requirements (exams, training periods, et.) that, at least in principle, reflect the need to guarantee a minimum standard of quality to licensed professionals, most regulated professions are also characterized by a number of other restrictions such as price floors or bans on advertising, whose economic rationale is harder to justify. Moreover, very often it is members of the same profession who are directly involved in the organization and marking of the qualification exams, a situation that generates an obvious conflict of interest (Broscheid and Teske, 2003; European Commission, 2004; Leland, 1979).

At least from the theoretical perspective, well designed regulation might actually increase competition. In fact, one common feature of markets with asymmetric information is the concentration of demand on few established producers, whose reputation provides a credible signal of their quality and ethics. Hence, it is particularly hard for incumbents to attract clients and enter the market. In this sense, asymmetric information is itself a form of barrier to entry and occupational licensing, by guaranteeing the minimum quality of all qualified producers, may lower such barrier and improve competition. Similarly, if professional associations are able to credibly enforce the codes of conduct, they may reduce the disincentives for consumers to buy from new producers, knowing that in case of misconduct they will be adequately compensated by the association.

Somewhat surprisingly, most of the economic literature in this area has been focused on documenting and measuring the detrimental effects on competition (Avrillier et al, 2010; Haas-Wilson, 1986; Kleiner and Kudrle, 2000; Wanchek, 2010; Pagliero, 2010a,b; Thornton and Weintraub, 1979; Timmons and Thorton, 2010; Timmons and Thornton, 2008; Kugler and Sauer, 2005), although it would be very surprising to find none of such effects and the key question is how much we are willing to reduce competition in order to solve informational issues.

Obviously, the trade-off between selecting high quality professionals at the cost of limiting competition disappears when, as in Pellizzari and Pica (2011), barriers to entry induce a negative sorting of low productivity agents into the market. In Chapter 5 we will try and address this question using a new methodology.

To conclude this section, it is perhaps worth mentioning the role of government intervention. In principle, the information imperfections that we discussed earlier on could be addressed endogenously by the market, either by consumers exchanging information among themselves or by producers who acknowledge the profitability of signaling their higher quality and put in place certifications or associations that are capable of generating such a signal. In fact, we do see lots of such initiatives in many non regulated markets, especially making use of new technologies. For example, buyers rate sellers on websites such as Ebay and there is now a tradition of setting rather strict quality standards by producers autonomously, as in the case of the many ISO standards. However, coordination problems as well as the risk of widespread frauds suggest that, in specific and delicate cases when the cost of receiving bad services (e.g. health or legal services) is particularly high, government intervention through direct legislation might be preferable.

3 The economics of family connections

The paucity of research on the economics of occupational licensing contrasts sharply with the wealth of studies that analyze the role of the family in the working of the economy, both in the developing and the industrialized world (see for instance Alesina and Giuliano (2010)).

As we outlined in the introduction to this chapter, the reason why family connections are important when considering occupational licensing is twofold. On the one hand, several studies document that human capital formation takes place not only within institutions of formal education (schools and universities) but also and to an important extent within the family (Heckman, 2007). Hence, one may think that the offspring of parents (or other relatives) who are already employed in a profession may receive, directly or indirectly, some occupation-specific human capital from their family (Lentz and Laband, 1989; Laband and Lentz, 1985, 1992).

Additionally, there is a very large literature that documents the importance of family (and friends) in the job search process (Pellizzari, 2010; Calvo-Armengol and Jackson, 2004; Ioannides and Loury, 2004; Loury, 2006). In frictional labour markets, one's network of relatives and acquaintances provides an important source of information about job vacancies and may also disclose to the searching parties (unemployed workers and employers with vacancies) information that would otherwise be unobservable, such as the ability or honesty of the candidate or the quality of the work environment at the offered job.

These various mechanisms are reflected in the many studies that document the high degree of intergenerational transmission of occupations and employers, but also of educational attainment and earnings more generally (Corak and Piraino, 2010; Solon, 1992; Bjrklund et al, 2006; Chadwick and Solon, 2002; Aydemir et al, 2009; Solon, 2002; Charles and Hurst, 2003; Grawe and Mulligan, 2002; Restuccia and Urrutia, 2004; Han and Mulligan, 2001).

In the context of licensed occupations there are very good reasons to think that the scope for both human capital formation within the family as well as the provision of contacts and information that facilitate entry are higher.

Most workers employed in licensed occupations are effectively self-employed and are therefore less likely to have rigid working hours that help separating one's professional and family lives. As a consequence, it is common for those professionals to often work from home or during weekends, thus exposing their children more directly than other employees to the content, challenges and successes of their jobs (Michelacci and Silva, 2007). That, coupled with the obvious role model that parents represent for their children, is likely to trigger, even informally and at young ages, a powerful mechanism of human capital formation, especially with regard to occupation specific skills.

Furthermore, as children eventually start formal training or preparation to the qualification process, parents can obviously provide more specific advise and support, for example by indicating which are the best schools or training institutions or by being a source of professional contacts to find one's first job.

Finally, and perhaps most importantly, one of the key challenges that young professionals face in most licensed occupations in which self-employment is the norm is the creation of a sufficiently large portfolio of clients. In this sense, having a older relative already in the profession can be a powerful source of contacts for potential clients, especially at the time when the older relative retire and can pass on to the young family member his/her entire set of clients. Although, to our best knowledge, there is no hard evidence on such a process of intergenerational transmission of clients, anecdotal stories are countless. Notice also that the mechanisms through with family ties influence the market may well vary across professions. For example, it seems to be against the practice of professional psychologists to share information about clients.

Another mechanism through which families can be a powerful determinant of access to a licensed profession consists of various types of nepotist or corporative practices. Especially when established members of the profession are directly involved in the preparation and marking of the qualification exams, there are various ways one can influence them to favour one or more specific candidates. There is strong evidence of this types of practices in other equally protected professions although not necessarily licensed, such as politicians and academics (Dal Bo et al, 2009; Durante et al, 2011).

Furthermore, corporative practices may lead to, and often have succeeded in obtaining specific pieces of legislation that explicit favour family members in accessing one's same profession. In Italy, for example, pharmacists can leave their license to their sons or daughters, even if these are not professional pharmacists, in which case they will have to hire one to work and manage the shop (see Chapter 3).

Importantly, the mechanism that links families to occupations has crucial implications for the quality of services and, consequently, on the relevance of the policy trade-off outlined in the previous section 2. If human capital formation within the family is the prevalent mechanism that underlies the observed intergenerational patterns of correlation in occupations, then one should expect family connected pro-

fessionals to be, on average, better quality than their non connected colleagues. On the other hand, if family connections are merely used to reduce barriers to entry, through either perfectly legitimate support in accessing iIn markets with asymmetric information family there is one additional important effect associated with nformation about jobs and clients or less legitimate nepotist or corporative practices or even plainly unlawful favoritism at the qualification exams, then one should expect connected professionals to be lower quality than their colleagues, on average.

If the latter situation (i.e. low quality of family connected professionals) prevails, than it is hard to think of any reasonable argument in favor of occupational license.

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Institutional aspects of licensed occupations in Italy

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1 Introduction

In Italy, there are currently 27 different licensed professions, all characterized by an exclusive right to provide specific services. Some of them (like notaries, architects and engineers) were officially recognized at the beginning of the century, while others were only introduced in recent years, pointing to an increase of the total number of licensed professions over time (see Table 9 in the Appendix).

The exact number of licensed professionals is not easily available. However, an estimate can be obtained by looking at the occupation breakdown in the Italian Labour Force Survey. Using the 3-digit classification of occupations, we estimate that the sector of professional services employed about 1.3 million people in 2009, corresponding to 5.8% of the total Italian workforce[1]. Since these professions typically require high educational attainments, licensed professionals tend to be overrepresented among high-skill workers. According to our estimate, in Italy they account for 28% of total high-skill employment.

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[1] These figures only represents an approximation of the real dimension of the sector of licensed professions. The following ISCO-88 categories (3-digits classification) are included: 211 Physicists, chemists and related professionals", 214 "Architects, engineers and related professionals", 221 "Life science professionals", 222 "Health professionals (except nursing)", 223 "Nursing and midwifery professionals", 241 "Business professionals" (including accountants), 242 "Legal professionals" and 244 "Social science and related professionals" (including psychologists and social work professionals). These categories also include some professions without licence. Therefore the figures in the text are likely to slightly overestimate the real number of licensed professionals. An alternative estimation can be drawn from the Bank of Italy's Survey on Household Income and Wealth for the year 2008. According those data, licensed professionals are about 4% of the workforce (14% of high-skilled employment).

In Italy, licensed professions are subject to a pervasive public regulation. Moreover, professionals are organized into associations (*"Ordini professionali"*), which are officially recognized by public bodies and are governed by a self-regulated authority. Membership in professional associations is compulsory for all qualified professionals. Therefore, unlike other countries, in Italy registration with professional councils is a key element of occupational licensing allowing practitioners to enjoy legal recognition and qualify to practice[2].

Professional associations are in charge of implementing existing rules and of elaborating new regulations, often to be subsequently endorsed by public authorities. All associations enforce codes of conduct (*"Codice deontologico"*) [3] to ensure standards in terms of competence and accountability of their members. As discussed in Section 3, codes of conduct typically include several restrictions on the economic conduct of members of the profession.

Codes of conduct also regulate disciplinary procedures. Professional associations are thus responsible for monitoring the conduct of their members and they may deal with complaints from clients or other professionals about inadequate performance or improper behavior of members of the profession[4]. Disciplinary committees that can impose sanctions such as monetary fines, suspensions or even strike off practitioners from official registers (which is equivalent to prevent someone from exercising the profession)[5].

According to OCED indicators of regulatory conditions in the professional services (see Figure 1, Section 4), Italy ranks very high, among the countries with the highest levels of regulation. Given the extent of existing regulation, both the Italian Antitrust Authority and the European Commission have addressed to the Italian government opinions on the regulatory framework of licensed professions, advocat-

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[2] Other forms of regulation are also possible. For instance, in the UK most professionals register with chartered bodies issuing professional certifications, but membership is not compulsory and for each profession there may be a number of such chartered bodies.

[3] For further information, see specific codes of conduct (Consiglio Nazionale dei Dottori Commercialisti e Esperti Contabili, 2010; Consiglio Nazionale dei Geologi, 2010; Consiglio Nazionale Forense, 2008; Federazione Nazionale dei Collegi delle Ostetriche, 2010; Consiglio Nazionale degli Architetti, Paesaggisti, Pianificatori e Conservatori, 2009; Consiglio Nazionale dei Consulenti del Lavoro, 2008; Consiglio Nazionale del Notariato, 2008; Federazione Nazionale degli Ordini dei medici chirurghi e degli odontoiatri, 2006; Consiglio Nazionale degli Psicologi Italiani, 2006; Consiglio Nazionale dei Farmacisti, 2005).

[4] For lawyers, for example, the local bars are responsible for disciplinary proceedings and their judgements can be appealed before the national bar council (CNF - Consiglio Nazionale Forense). Customers can submit a lawsuit against the lawyer for misconduct or damages caused by an inappropriate professional performance of the lawyer. They can also ask the local bar to examine the proportionality of the fees demanded by the lawyer.

[5] Data on sanctions are not easily available (most professional associations do not give information on this regard). According with the data we collected from the professional association of pharmacists, in 2010 51 pharmacists were suspended, while only 2 were permanently expelled. As for lawyers, available statistics for 2008 from (European Commission for the Efficiency of Justice (CEPEJ), 2010) report 406 proceedings before the national bar council. However, the sum of all proceedings initiated by all local bars is probably much higher, but the are no available data on that.

ing the elimination of unjustified constraints to competition in this sector. In particular, the Italian Antitrust Authority conducted two fact-finding investigations on regulation in the field of professional services (Autorità Garante della Concorrenza e del Mercato, 1997) and on the implementation of the "Bersani reform" (Autorità Garante della Concorrenza e del Mercato, 2009). Both investigations identified several legislative provisions creating distortions to competition, without being justified by the general interest. They also concluded that the role of professional associations should be reduced. In particular, the Authority stated that the extent of regulation of professional services should not exceed what is strictly needed to correct specific market failures.

Regulation currently covers many aspects of professional activities, going from admission requirements to conduct regulations. In the following paragraphs (Section 2 and 3) we will analyze rules regulating the entry into licensed professions and limitations to the conduct of qualified professionals. The concluding paragraph (Section 4) looks at the regulatory framework of professional services in an international perspective.

2 Entry barriers

Direct entry restrictions to licensed professions may include educational attainments, experience qualifications and professional examinations required to become a full member of a professional body.

These restrictions are usually justified in terms of an *ex ante* quality control on newcomers, but may also act to deter entry into a profession (see Chapter 1 - Paragraph 1.2).

The following paragraph considers individually the main categories of entry barriers to Italian licensed professions:

1. Compulsory practice
2. Specialization courses
3. Professional exams
4. Quantitative restrictions

Each section provides a brief overview of the category in question and gives indications about the licensed professions having stricter rules on entry.

2.1 Compulsory practice

A period of training is usually required before taking the professional exam necessary to be admitted in a licensed profession. This training consists in a period of work under the supervision of a member of the profession. At the end of the period, the apprentice usually receives a certificate of attendance. The main justification be-

hind this requirement is that apprentices need to acquire practical on-the-job training before entering the profession.

Table 1 reports information about the practice length. As you can see, differences among professions can be quite large. For instance, accountants require a period of training of three years, while other professions such as pharmacists, doctors and geologists are less demanding in terms of experience qualifications and compulsory practice lasts six, three and six months respectively. Other licensed professions are in the middle with notaries, lawyers and labour consultants requiring two years of apprenticeship and psychologists one year.

In addition to the length, there are other factors which contribute to make training more or less flexible for apprentices. First, for some professions the admission process is more strictly connected with universities. In these cases, either the period of apprenticeship is considered as part of a general curriculum, as for midwives and architects, or students are allowed to start the training while they are not yet graduated, as in the case of accountants[6]. Second, some professions require apprentices to be enrolled in a special register. This is the typical condition for journalists: in order to become a professional journalist, one should before start training and join the apprentice's register (*"registro dei praticanti"*) for at least 18 months; indeed, before doing that, the same person must have been a free lance journalist (and being enrolled in the corresponding register, the *"elenco dei pubblicisti"*) for at least three additional years. Also lawyers, accountants and labour consultants adopt a similar procedure. Third, other licensed professions limit the number of apprentices that a professional can train; for instance, accountants and labour consultants can have a maximum of two apprentices, which can be exceptionally raised to three for accountants.

Additional requirements apply to other professions: in the case of notaries, at least one year of training must be spent in a notary's office approved by the National Council and young doctors are required a period of training that last three months, each month being spent in a different medical division: one in surgery, one in general medicine and one in the office of a doctor operating with the national health service.

Finally, one should consider that most licensed professions typically do not require the trainee to be paid and, at most, they suggest to provide a fellowship (see for instance, Consiglio Nazionale dei Dottori Commercialisti e Esperti Contabili (2010)). Especially for professions with a long training period, this can represent a burdensome indirect constraint in terms of opportunity costs to the apprentice.

2.2 Specialization courses

Specialization schools are intended to offer continuous learning to the members of licensed professions. This is the case of labour consultants and psychologists, whose

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[6] An agreement has to be signed between the University and the council of the profession.

Table 1 Compulsory practice in selected licensed professions.

Profession	Compulsory practice
Architects	6 months (also during university)
Architects junior	6 months (also during university)
Accountants	3 years (of which 2 years during specialization courses, if specific agreement with university)
Accountants junior	3 years (or 2 years during specialization courses, if specific agreement with university)
Doctors	3 months
Geologists	No
Geologists junior	No
Journalists	18 months (or 24 months course in a school of journalism)
Labour consultants	2 years
Lawyers	2 years
Midwives	Periodical practical training during university
Notaries	18 months (max 6 months during university)
Pharmacists	6 months
Psychologists	1 year (6 months section B of the register)

Source: codes of conduct of the licensed professions and Autorità Garante della Concorrenza e del Mercato (2009).

schools organize courses for their members. Sometimes, attendance of specialization schools is necessary to access specific subfields in a profession. For instance, psychologists need to attend these schools in order to become psychotherapists.

In some cases, these courses can replace the compulsory practice. For instance, since 1993 the National Council of Journalist approved a direct admission to the professional exam for those who carry out their period of training in the so-called schools of journalism. These schools must adhere to some strict requirements (Consiglio Nazionale dei Giornalisti, 2007 (last update 2010) in order be officially recognized by the Council and they offer a limited number of places that are allocated to students who pass an ad-hoc admission test. Similar schools were also introduced for lawyers in 1997. Obtaining a degree from one of these schools, whose courses normally lasted 2 years, allowed apprentices to sit the qualification exam without taking the training period. However, a subsequent regulation in 2001 established that a period of one year of apprenticeship is still required. For doctors, attending a specialization school is a necessary condition for employment in public hospitals.

However, the number of available slots is usually limited[7]. Finally, notary schools, directly managed by the local councils, offer voluntary (and rather expensive) two-year courses which do not replace the mandatory training period but are very successful in preparing candidates for the qualification exam, to the point that these schools are often suspected of increasing one's chances to pass the qualification exam due to collusive practices with the examination commission[8].

2.3 Professional exams

Before entering the formal register of any profession (*"Albo professionale"*), applicants are required to pass a state examination in order to qualify to practice and become a full member of the profession. The State examination[9] is usually structured as one or more written tests and one oral examination. However, as it is shown in Table 2, the exam format varies significantly across professions in terms of frequency, location (centralized or decentralized), composition of the commission and pass rates.

For most licensed professions, the state examination takes place once a year simultaneously in all locations. Notaries are an exception, as the frequency of their exams has been very irregular. For example, over the last four and a half years there have been 3 exam sessions, spaced by 19, 16, and 24 months respectively. The latest exam (December 2010) was cancelled due to irregularities during the written tests and at the time of writing still has to be repeated.

For lawyers and notaries, the results of the written tests are published months after the exam actually takes place and oral interviews also take several weeks to be completed. Therefore, it may take more than a year to complete the whole examination procedure.

The exam location varies across professions. For those professions that are are under the responsibility of the Ministry of Education[10], examinations take place in selected universities located in provinces where a professional council is also present[11]. For lawyers, qualification exams are organized regionally by the courts of

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[7] In academic year 2009/2010, 5000 slots were offered.

[8] Notary schools are sometimes suspected of colluding with the exam commission to improve their students' chances to pass the exam. Such allegations were evidently confirmed in the latest exam session in 2010, when the text of the exam, which is supposed to be kept secret, turned out to be identical to the mock exam which was given to the students of a prestigious school in Rome as practice. Somehow the news spread among all the candidates and the entire session was suspended to avoid revolt.

[9] The state examination is formally organized by the competent state authorities, although professional councils have a strong influence on examination procedures. For example, several members of examination commissions are members of professional councils (see the sixth column of Table 2).

[10] For example, among those analysed in this report: architect, accountant, pharmacist, geologist, doctor and psychologist.

[11] Ministerial Decree of September 9, 1957 (Art.3).

appeal, while for labour consultants the examination sites are located in the regional offices of the Ministry of Labour. For journalists and notaries the examination is centralized in Rome.

Also the composition of examination commissions significantly varies across professions. Although the members of commissions are formally appointed by the ministries, professional councils normally have a strong influence on this matter. For example, the presidents of the exam commissions for professions regulated by the Ministry of Education are nominated by the ministry, whereas the other four members are selected within four terns of names prepared by the local council[12]. Such terns of names usually include university professors, managers of public bodies and members of professional councils, but there are no fixed quotas for these profiles. As a consequence, it may well happen that incumbent professionals are the majority within some commissions.

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[12] Different professions have different composition rules. For instance, the terns of names for the examination commission of accountants must include people from the following occupations (Decree nr. 654 of 24 October 1996): a) university professors; b) judges from court of appeals (or higher judicial levels); c) general directors from regional tax offices; d) Managers of banks, industrial or commercial companies with at least 200 employees; e) registered professionals with at least 10 year experience. The terns of names are proposed by the local professional councils, but at least one of the terns must be composed of university professors and a second one of people from categories b), c) and d). The ministry then appoints the actual members of the commissions by choosing within the four groups of names.

Table 2 **Features of professional exams in selected licensed professions (Part 1).**

Profession	Examination features	Frequency	Location	Where to sit	Examination commission	Administrative body
Architects	1 practical, 2 written and 1 oral test	Annual (2 sessions)	Qualified university	all qualified locations	The ministry appoints the president and the remaining 4 members (by choosing within 4 terns of names prepared by professional councils)	MIUR
Accountants	1 practical, 2 written and 1 oral test	annual (2 sessions)	Qualified university	All qualified locations	Ditto as above	MIUR
Doctors	2 tests with multiple choice questions; 3 months practice	Annual (2 sessions)	Qualified university	All qualified locations	Ditto as above	MIUR
Geologists	2 written, 1 practical, and 1 oral test	Annual (2 sessions)	Qualified university	All qualified locations	Na	MIUR
Journalists	1 written and 1 oral test	Annual (2 sessions)	Centralised in Rome	Rome	7 members: 3 professional journalists from the council (tenure ¿ 10 years); 2 university professors; 1 publisher; 1 judge appointed by the president of the court of appeals in Rome	Ministry of Justice
Labour consultants	2 written and 1 oral test	Annual	Regional bodies of the Ministy of Labour	Only region of residence	Formally appointed by the regional bodies of the Ministry; 3 out of 7 are members of the professional council	Ministry of Labour and Social Policy
Lawyers	3 written and 1 oral test	Annual	Courts of appeals	court of appeals of the last 6 months of practice	Members decided by the professional councils (then formally appointed by the Ministry of Justice)	Ministry of Justice
Midwives	1 practical and 1 written test	Annual (2 sessions)	Qualified university	All qualified locations	between 7 and 11 members; at least 2 from the professional council	MIUR
Notaries	3 written and 1 oral test; age limit: 50 years; resit maximum 3 times	Irregular	Centralised in Rome	Rome	15 members: 6 judges, 3 law professors, 6 notaries (appointed by the Ministry of Justice)	Ministry of Justice
Pharmacists	1 written, 3 practical and 1 oral test	Annual (2 sessions)	Qualified university	all qualified locations	Ditto as above	MIUR
Psychologists	3 written and 1 oral test	Annual (2 sessions)	Qualified university	all qualified locations	Ditto as above	MIUR

Notes: "MIUR" is the Italian acronym for the Ministry for Education, Universities and Research. The Ministry for Education, Universities and Research defined "qualified locations" in the Ministerial Decree of September 9, 1957 (art.3).
Source: codes of conduct and specific documents from National and Local Councils of the licensed professions and MIUR.

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Finally, the pass rates of the entry exams differ strongly across professions and even across geographical areas within the same profession. As shown in Table 2, there are large differences in the pass rates of qualification exams across professions, going from the very low rate of notaries (about 4 per cent of successful candidates) up to 98 per cent for doctors. As shown in the last columns of Table 3, remarkable differences also exist across exam locations. For example, in 2008 the pass rate accountants ranged from 8% in Venice to 100% in Catania and Naples. The same year, the pass rate of architects ranged from 18% in Palermo to 74% in Bari. This phenomenon generates migration of apprentices across different exam locations in order to sit the exam where pass rates are usually higher.

In the past, this practice was particularly common among lawyers, whose state examination is among the most selective tests, with an average pass rate of 26 per cent in 2008. After a highly publicized scandal on July 2000[13], the rules were changed and since 2003 courts of appeals are randomly paired (conditional on size) and one marks the written papers of the other (while oral interviews are still held and marked locally).Prior to this reform each court marked its own papers. Apparently, this intervention did reduce the variation in pass rates, although some differences still remain (Basso, 2009; Pellizzari and Pica, 2011).

2.4 Quantitative restrictions

In Italy, the pharmacy and notary professions are subject to quantitative entry restrictions based on demographic or geographic criteria.

For notaries, in particular, the maximum number of notary seats (*"sedi notarili"*) is fixed. By the Italian law, the total number of notary positions depends on "population, level of economic activity, size of the geographical area and available means of communication". More importantly, each notary seat must correspond to a population of at least 7000 inhabitants and a minimum annual income of 50,000 Euros, computed on the average income of the last three years[14]. The overall distribution of notary seats may be revised every 7 years by decree of the Head of the State, after consultation with the notary professional council[15]. However, a new seat can only be created if it corresponds to at least 7000 inhabitants and a minimum annual income depending on the average turnover of notaries in a specific district, regardless of the actual demand for notary services in different areas of the country. The

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[13] In the 1997 exam venue in Catanzaro, in the south of the country, all exam papers were found to be identical for 2.295 out of 2.301 candidates. The scandal became public on July 2000, after an investigation conducted by the Guardia di Finanza.

[14] Law nr. 80 of 14 May 2005, reforming the original provisions of the "Legge Notarile" (Legge 16 febbraio 1913 n. 89). The income threshold of 50,000 Euros is likely to be not-binding since, accordingly with the last revision of the overall distribution of notary seats, the average income of Italian notaries corresponds to 114,897 Euros per year.

[15] Until the 2005 reform, revisions of the overall seats' distribution occurred every 10 years.

Table 3 Features of professional exams in selected licensed professions (Part 2).

Profession	Candidates	Qualified	Pass rate	Maximum pass rate	Minimum pass rate
Accountants	8848	4221	48%	100% Catania Napoli	8% Venezia
Accountants junior	156	88	56%	100% Catania	17% Venezia
Architects	8766	4288	49%	74% Bari	18% Palermo
Architects junior	933	524	56%	94% Napoli	13% Palermo
Doctors	7003	6848	98%	100% 14 locations	88% Pescara
Geologists	682	425	62%	91% Napoli	36% Bari
Geologists junior	24	9	38%	Na	Na
Journalists	201	156	78%	-	-
Lawyers	35319	9120	26%	56% Napoli	16% Caltanissetta
Notaries	5000	292	6%	-	-
Pharmacists	4187	4042	97%	100% Ancona Catania Cagliari Reggio E. Pisa Sassari Siena Trieste	86% Roma
Psychologists	6384	4940	77%	95% Milano	64% Pavia

Source: specific documents from National and Local Councils of the licensed professions and MIUR.
Notes: exam locations with less than 5 candidates are not considered in computing the minimum and maximum pass rates. Data refer to year 2008 (exceptions: lawyers, year 2009; journalists: year 2010). During the last state examination for notaries in 2008 (for 350 notary seats), 5.000 applicants were registered, 3.216 people actually participated to the written test and 292 qualified to practice (source: www.notaio.org).

last revision occurred in 2009 (three years later the expected revision date), with the introduction of 467 new notary seats.

As a consequence of this provision, apprentices who pass the state examination cannot freely chose where to establish their businesses. The successful candidates

can only express a preference over the list of available seats. They are then assigned to a specific seat on the basis of the results of their exams.

Moreover, the ministerial decree concerning the state examination usually opens a number of positions that is lower than currently vacant seats and the number of candidates passing the exam is usually lower than the number of opened seats. As a result of these mechanisms, the number of active notaries is always below the number of formally available seats. For instance, in 2008, the latest revision of the overall distribution of notaries increased the total number of notary seats up to 6,152, by introducing 467 new positions. However, in 2011 the public register of notaries only includes 4,451 notaries.

Unlike the other professional services in this study, pharmacists registered with local professional councils are mostly engaged in retail trade. For that reason, ownership of a pharmacy is a key element of this profession. In Italy, a complex set of rules introduces strict quantitative restrictions to the establishment and ownership of pharmacies.

Despite the fact that the European Commission has formally requested Italy to amend its legislation [16], ownership of pharmacies is only reserved to pharmacists. In particular, current legislation bans pharmacists from having more than one pharmacy and restricts the maximum number of pharmacies that may be owned by groups of pharmacists to four. In addition, the four pharmacies must be located in the same province. The Italian law also imposes strict quantitative restrictions on the number of pharmacies and even their location is highly regulated. In fact, market entry of a new pharmacy depends on the number of residents in the municipality and the existence of other pharmacies in close proximity. A ratio of 1 pharmacy each 5,000 inhabitants applies to municipalities with less than 12,500 inhabitants, while bigger municipalities are allowed to have a ratio of 1 pharmacy each 5,000 inhabitants. An additional pharmacy may be established if the number of residents exceeds the above population parameters by at least 50 per cent. Finally, in each municipality the distance between two different pharmacies cannot be shorter than 200 meters.

These quantitative restrictions are usually justified with the argument that they increase the profitability of businesses located in scarcely populated municipalities, thus limiting the redistribution of services away from these areas. However, in densely populated municipalities, where there is no danger of under-supply of services, this kind of limitation is harder to justify.

For a regularly registered pharmacist, there are only three ways to become an owner of a pharmacy: i) participating in a public competition based on qualifications for the allocation of new or vacant pharmacies (despite quantitative restrictions, this is apparently the most common way of setting-up a new pharmacy); ii) buying an existing license (according to the Autorità Garante della Concorrenza e del Mercato (1997), this is a quite infrequent event); iii) to inherit an existing outlet from your family. Indeed, under the Italian legislation, members of a deceased pharmacist's family who are not themselves pharmacists can take charge of their relative's

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[16] Two infringement proceedings were opened in 2006 and 2008 on account of restrictions imposed by Italian national legislation on the acquisition of holdings in and ownership of retail pharmacies.

pharmacy for up to ten years, conditional on hiring a registered pharmacist as employee. This last provisions is particularly contradictory, since it clearly shows that professional qualifications are not essential for the ownership of a pharmacy.

3 Conduct regulations

Depending on the profession, conduct regulations may include restrictions on price setting, limitations on advertising, provisions on the organizational structure of professional firms and inter-professional collaborations. These restrictions may be imposed by law or by self-regulatory arrangements of professional associations. In practice, these arrangements are often translated into laws by ministerial decree, thus delegating regulatory power to professional associations. In Italy, most of the rules regulating professional activities are integrated in a code of conduct (*"Codice deontologico"*). These codes traditionally include obligations of loyalty, professional competence, trustworthiness, and confidentiality, but they also introduce several restrictions on the economic conduct of members of the profession.

Concerns have been raised that conduct regulations on practitioners already operating in the market of professional services, may have the effect of restricting competition, by raising the price and limiting variety and innovation in professional services.

In a recent general investigation on professional services, the Italian Antitrust Authority stated that the self-regulatory power of professional councils should only address the issue of assuring standards of competence, ethical behaviour, and personal accountability, while other restrictions concerning the economic conduct of professionals should be removed from professional codes (Autorità Garante della Concorrenza e del Mercato, 2009).

In the following paragraph we discuss the main restrictions regulating the conduct of members of licensed professions:

1. Fixed or recommended prices
2. Advertising regulations
3. Competition between colleagues and multi-disciplinary practices

Each section provides an overview of the main limitations and describes which licensed professions in Italy tend to implement stricter rules on conduct and business organization of professionals. We will particularly look at recent changes introduced by a 2006 regulatory reform (the so-called *"Legge Bersani"*), aimed at improving competition in professional services.

3.1 Fixed or recommended prices

Among all restrictions on professional conduct, restrictions on prices may have the strongest effect on competition. Even recommended prices, setting average or minimum fee schedules, may have the effect of homogenizing market prices by facilitating collusion practices.

Professional associations often argue that fixed prices protect the quality of services, the argument being that lower expected profits would discourage high-quality professionals from entering (or staying into) the market. This view is challenged by the recent results in Pellizzari and Pica (2011), who show that among lawyers the best professionals are those who face the highest barriers to entry so that the Bersani intervention in 2006 has in fact led to an improve in the quality of services, especially among young professionals.

Professional associations also suggest that recommended prices provide consumers with useful information about the average costs of services and may guide new entrants who lack experience in determining fees. However, there may be different methods to provide price information (by independent bodies, though publication of historical data on prices, etc.) without restricting price setting mechanisms.

In Italy, until recently, professional organisations were allowed to establish recommended or even mandatory fee schedules (fixing in some cases both price caps and price floors), while price competition was generally considered "unethical" by professional codes. Indeed, it was argued that prices below the minimum rates established by the professional council would be against the "dignity" of the profession. Since 1997, the Italian Antitrust Authority has addressed the issue of price competition in professional services, stating that minimum fees imposed by the self-regulatory professional codes should be removed. A reform was finally implemented in 2006 (the so-called *"Legge Bersani"*) aimed at lowering entry barriers and increasing competition in liberal professions. Among other provisions, the reform abolished minimum rates for professional services[17].

As can be clearly seen in the first column of Table 4, despite this new regulation, many professional codes still include provisions directly or indirectly restricting price setting mechanisms.

For examples, professional codes concerning geologists, psychologists, notaries and midwives still include an explicit reference to standard fee schedules (*"Tariffario"*) approved by professional associations and suggested for application to all members of the profession. In most cases, fee schedules are formally set by ministerial decree, after consultation with professional councils. In practice, however, ministerial decrees tend to reproduce fee proposals made by professional councils.

As shown in the second column of Table 4, even when there is no direct reference to minimum fees, many codes of conduct typically include provisions citing the parameters of "dignity" or "decorum" of the profession in determining professional

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[17] The Bersani reform, however, did not abolish the maximum rates for professional services. As a consequence in 2008 the European Commission decided to the Commission will refer Italy to the European Court of Justice over its regulations on compulsory maximum fees for lawyers' services.

prices, thus re-introducing an obligation to adopt minimum rates for the provision of professional services. In some cases, professional codes refer to the article 2233 of the Italian Civil Code, stating that professional fees "must be commensurate with the importance of the service and the decorum of the profession". This is the case, for example, of doctors, lawyers and labour consultants.

Finally, as shown in the last column of Table 4, for all professions analyzed in this study, a fee schedule is somehow available on the websites of national or local professional councils, corroborating the idea that professional associations do try to impose price standards to their associates.

Table 4 Price regulations in selected licensed professions.

Profession	Professional code		Fees schedule ("Tariffario")
	Price regulations	Reference to Bersani Law	
Accountants	Recently abolished (2010)	No	Yes (Decree 2010)
Architects	Art. 2233 Civil Code; fees may apply in public work	Yes	Yes
Doctors	Decorum	No	Yes
Geologists	Explicit reference to the fee schedule (art.18) and to art. 2233 Civil Code	Yes	Yes (Ministerial decree 1996)
Journalists	None	No	Yes (since 2006, not qualified as "mandatory" any more)
Labour consultants	Art. 2233 Civil Code	Yes	Yes
Lawyers	Art. 2233 Civil Code	No	Yes
Midwives	Explicit reference to the fee schedule (art.23); decorum	No	(Ministerial decree 2004) Yes (2003)
Notaries	Compulsory fees	No	Yes (Ministerial decree 2001)
Pharmacists	"Additional fees" for distribution of drugs during the night	No	Yes
Psychologists	Explicit reference to the fee schedule (art.23); decorum	No	Yes

Source: code of conducts of licensed professions, professional associations' websites and Autorità Garante della Concorrenza e del Mercato (2009).

3.2 Advertising regulations

The regulation of advertising has been typically aimed at limiting the use of this instrument for commercial purposes. In 2006, the Bersani law introduced some important innovations following the principle that self-regulation should be restricted to the protection of customers and not to prevent the practice of commercial promotion. The government tried to deregulate professional services, clearly allowing for the advertising of prices, costs, general characteristics of the service and of professional qualifications. Even so, in a recent inquiry carried out by the Italian Antitrust Authority (Autorità Garante della Concorrenza e del Mercato, 2009), it has been observed that most professional associations opposed to the reform by interpreting it in a restrictive way.

Table 5 reports the main characteristic of advertising regulation. Firstly, column 1 shows that most professions do not allow for comparative advertising. This can be done by explicitly forbidding its use, as in the case of lawyers, midwives and geologists, or by not mentioning it in self-regulatory codes of conduct, as for notaries, labour consultants, pharmacists and accountants. However, as confirmed by the Antitrust Authority, comparative advertising is a useful and permissible tool to communicate the differences between services.

Another common way to reduce the impact of the Bersani law is the prohibition of using emphatic expressions, which are a fundamental characteristic of commercial promotion, and the adoption of the decorum principle, which clearly attributes to the professional councils a strong discretionary power on permissible advertising methods. As it can be seen in column 2 of Table 5, doctors, lawyers, notaries, psychologists, geologists and accountants represent a clear example of such limitation.

Moreover, most licensed professions have not renounced to their power of preliminary control on the contents of advertising (see column 3, Table 5). Many codes of conduct give the national council the power of authorizing the use of commercial promotion (lawyers, psychologists, doctors and geologists). However, the Bersani decree clearly establishes only the possibility of a subsequent control. Furthermore, other professions show specific restrictions: for instance, notaries and lawyers prohibit to advertise prices and costs, while geologists explicitly provides a list of the allowed means of communication which can be used (for further information, Consiglio Nazionale dei Geologi (2010)).

Broadly speaking, the Antitrust Authority complains that only accountants and pharmacists have conformed to the provisions of the Bersani law, while other professional organisations show stronger resistance (Autorità Garante della Concorrenza e del Mercato, 2009). One recent example, reported by the Antitrust Authority in its 2009 fact-finding investigation (Autorità Garante della Concorrenza e del Mercato, 2009), is rather meaningful: on 1st February 2008, a public message appeared in a national newspaper ("Il Giornale") to advertise the activity of a law office in Trieste; few months later, in October 2008, the local professional council of Trieste sent a letter to the responsible of the office to denounce the violation of the code of conduct. This action was not disciplinary but was clearly a signal intended to discourage the use of commercial advertising.

Table 5 Advertising regulations in selected licensed professions.

Profession	Comparative Advertising	Decorum principle	Ex-ante control
Accountants	No reference	Yes	No
Architects	No reference	No	No
Doctors	Forbidden	Yes	Yes
Geologists	Forbidden	Yes	Yes
Journalists	No reference	No reference	No
Labour consultants	No reference	No	No
Lawyers	Forbidden	Yes	Yes
Midwives	Forbidden	Yes	No
Notaries	No reference	Yes	No
Pharmacists	No reference	No	No
Psychologists	No reference	Yes	Yes

Note: the "decorum principle" expression refers to the following concepts: deciency (buon gusto), sobriety (sobriet), decorum (decoro), emphatic message ban, safeguard of the professional image. "No reference" means that there is no explicit reference to the principle.
Source: codes of conduct of the licensed professions and Autorità Garante della Concorrenza e del Mercato (2009).

3.3 Competition between colleagues and multi-disciplinary practices

Competition among professionals within the same council is commonly presented as "unfair" by professional associations. According to this idea, many codes of conduct still include restrictions on competitive practices against colleagues.

For example, the architects' code of conduct includes a very generic provision stating that architects' professional conduct cannot be aimed at causing damage to the professional activity of their colleagues[18]. As for geologists, they cannot substitute a colleague already in charge for carrying out a specific task (or even about to be commissioned) until the colleague is not formally dismissed by the client. Psychologists are not allowed to have an unfair public behavior to drum up clients

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[18] Art. 13 of the code of conduct (Consiglio Nazionale degli Architetti, Paesaggisti, Pianificatori e Conservatori, 2009).

from colleagues[19]. Finally, codes of notary and lawyers explicitly ban associates from "stealing" clients from their colleagues (*"divieto di accaparramento di clientela"*)[20].

In many countries, there are restrictions on the corporate form that firms of professionals can adopt. Such limitations may inhibit the formation of fully integrated service providers (the so-called "multidisciplinary firms") bringing together practitioners with different specializations. They can thus prevent the exploitation of possible economies of scale and scope and be an impediment to efficiency and innovation.

Italy is no exception in this respect. Until 2006, there was a substantial lack of legislative provisions on the issue of multi-disciplinary firms. Moreover, regulations governing the business structure of licensed professions was generally very restrictive, mainly due to the fact that licensed professions are characterized by an exclusive right to provide specific services and that personal responsibility is a key element of the provision of such services. The Bersani Law allowed for the first time multidisciplinary partnerships between practitioners from different licensed professions. However, most ethical codes have not conformed to the new regulation and tend to remain silent of that issue.

4 The regulation of professional services across countries

The sector of professional services is an highly regulated sector, not only in Italy but also in most industrialized countries. There are often several restrictions on what practitioners can do and on allowed forms of competitions between colleagues of the same profession. Moreover, strict entry rules typically apply, in order to select the members of the profession and qualify to practice. The origin of regulation of professional services may be extremely different. It can take the form of either State regulation, self-regulation by professional bodies or even being implied by custom and practice (OFT, 2001; Paterson et al, 2003).

In Chapter 1 we discussed the rational for regulating professions and the possible consequences in terms on anti-competitive practices and well-being for society as a whole. In this section we present some figures on the importance of professional services for the European economy and we briefly examine the regulation of professional service across different countries.

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[19] Art. 40 of the code of conduct (Consiglio Nazionale degli Psicologi Italiani, 2006).

[20] See, for instance, Art. 19 of the lawyers' code of conduct (Consiglio Nazionale Forense, 2008).

4.1 The importance of professional services in the European economy

Exact data on the dimension of the sector of licensed professions is not available. However, an estimate can be drawn by looking at occupational and sectoral breakdowns in the 2009 European Union Labour Force Survey. By looking at the 3-digit classifications of occupations, we can estimate that licensed professions employed about 14 million people in 2009 in the EU-27, corresponding to about 6.7% of the workforce[21]. Among those workers, highly educated people are over represented. According to our estimates, licensed professionals represent about 19% of the total high-skilled employment.

Looking at the sectoral distribution of employment is somehow more complicated, since licensed professionals are spread across different service sectors. However, they are particularly concentrated in the "Professional, scientific and technical activities"[22] (a sector employing 11 million people in EU-27), where they represent about one third of total employment.

The role of licensed professions is also an important input for the European economy, since professional services have proven to be a growing sector. In fact, despite the recent economic crisis, the service sector turnover in the EU-27 grew at an average rate of 2.7% between 2004 and 2009, while "Legal, accounting and management consultancy activities" and "Architectural and engineering activities; technical testing and analysis" grew at an even faster rate of 7.1% and 6.0% respectively[23].

4.2 Differences in regulation across countries

The 2008 OECD indicator on regulatory conditions in the professional services allows for international comparisons across countries. Regulation of professional services is described along several dimensions for each country, regarding both entry requirements and conduct regulations for four different professions: accountants, architects, engineers and lawyers. All regulation features are then normalized in a 0-6 range, with higher scores representing stricter regulation. Figure 1 shows the summary indicators for entry and conduct regulations, both ranging between 0 and 6.

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[21] These figures only represents an approximation of the real diminution of the sector of licensed professions. The following ISCO-88 categories (3-digits classification) are included: 211 Physicists, chemists and related professionals", 214 "Architects, engineers and related professionals", 221 "Life science professionals", 222 "Health professionals (except nursing)", 223 "Nursing and midwifery professionals", 241 "Business professionals" (including accountants), 242 "Legal professionals" and 244 "Social science and related professionals" (including psychologists and social work professionals).

[22] NACE Rev.2 classification, section M (EU-LFS 2009).

[23] Services statistics - short-term developments, Eurostat website, 2011.

The two indicators show significantly different levels of regulation across countries. In the relatively liberal countries (Denmark, Sweden, Australia, Finland, Switzerland, the United Kingdom, Ireland, and the Netherlands) restrictions on entry into the professional services are lighter relative to the rest of the OECD countries, while differences among restrictive countries mostly reflect differences in conduct regulation that is restrictions on price setting, advertising, form of business, and inter-professional cooperation.
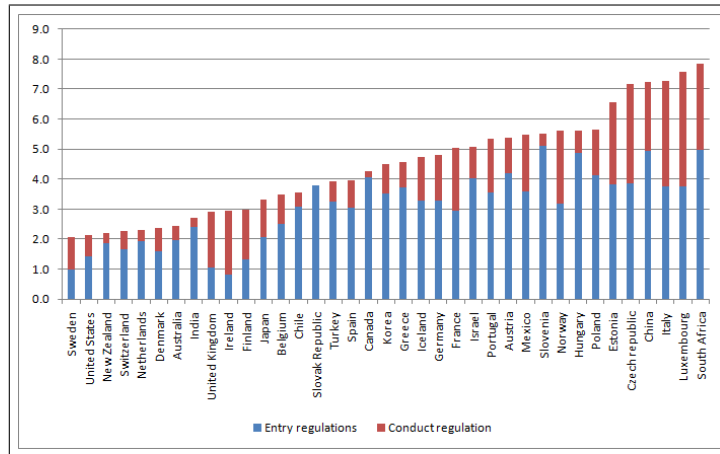
Fig. 1 OECD indicator on regulation of professional services, year 2008

The following subsections consider individually three examples of restrictions in the provision of professional services by accountants, architects, engineers and lawyers: entry restrictions, price regulations and advertising rules. The main sources of information are individual data on each country included in the 2008 OECD indicator on regulatory conditions in the professional services, allowing for international comparison of certain forms of regulation.

4.2.1 Entry restrictions

Entry into regulated professions is usually regulated by specific restrictions.

In most OECD countries, for example, professionals have some exclusive right to provide specific services and they must hold a license, typically government-issued, in order to practice. Under this perspective, the Anglo-Saxon and Nordic countries, in particular UK, Sweden and Denmark, are the most liberal countries. In the UK, for example, for historical reasons, self-regulation by professional bodies has always played a central role in the area of professional services. Thus, most practitioners register with chartered bodies issuing professional certifications, but membership is not compulsory and for each profession there may be several alternative char-

tered bodies in which to enroll. On the opposite side of the spectrum with regard to occupational licensing, Italy stands out as one of the most regulated country (as discussed in Section 2).

Concerning educational requirements, the first column of Table 6 shows which OECD countries do not require a compulsory professional exam, while column two summarizes the OECD countries where a period a practice is not necessary in order to become a full member of the profession. According with the OECD data in the Table, architects and engineers have generally lighter regulations, while accountants and lawyers are the strictest professions. Finally, almost all OECD countries analyzed in Table 6, demand to pass a professional exam in order to qualify for the legal and accountancy profession.

Table 6 Overview of 36 OECD countries with education requirements in selected professions.

Profession	No professional exam	No compulsory training
Accountants	Chile, Greece, Ireland, Netherlands and Spain,	Australia, Chile, Czech Republic, Iceland, Ireland, Japan, Mexico, Spain and China
Architects	Belgium, Chile, Denmark, Estonia, Finland, Iceland, Ireland, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, UK and India	Chile, Czech Republic, Denmark, Greece, Ireland, Italy, Japan, Mexico, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, Turkey, Uk and India
Engineers	Australia, Belgium, Chile, Denmark, Estonia, Finland, Germany, Hungary, Iceland, Ireland, Luxembourg, Netherlands, New Zealand, Norway, Spain, Switzerland, Turkey, UK and India	Australia, Belgium, Chile, Czech Republic, Denmark, Finland, France, Greece, Hungary, Ireland, Italy, Korea, Mexico, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, Turkey, UK, China and India
Lawyers	Australia, Chile, Finland, Spain, Turkey and UK	Chile, Finland, Iceland, Japan, Mexico, New Zealand, Spain, US, China and India

Source: own elaboration on the OECD indicator on regulatory conditions in the professional services (2008).

4.2.2 Price regulation

In most OECD countries fees for professional services are freely negotiated between practitioners and their clients. Accordingly with the European Commission (European Commission, 2004), over the last decades several European Member States have abolished fixed prices or removed recommended prices for professional services. This trend toward a substantial liberalization of fees for professional services suggests that price control is not an essential mechanism for maintaining high standards in professional services, despite what is often advocated by professional bodies.

However, price restrictions still apply in some countries. As can be been in Table 7, in a small number of countries fixed maximum and minimum prices remain in place. As we have seen in previous sections, Italy is one of those countries, since maximum prices still apply and recommended price schedules are regularly published by professional bodies. Often, maximum and minimum prices only apply to specific professions (like maximum fees in Canada for engineers or minimum fees in Luxembourg for architects) or to specific services within some professions (like minimum fees in Germany, Greece and Turkey).

In several countries prices for professional services are not mandatory, but only recommended (first column of Table 7). However, also recommended prices may have a significant negative effect on competition, since they may facilitate coordination of prices between service providers or be misleading for consumers (European Commission, 2004).

In order to fully liberalize price regulation for professional services, the European Commission started several infringements procedures asking for amendments of national legislations in this field. For instance, in 2010 Greece was asked to change its legislation on lawyers' fixed minimum prices. In 2008, Italy has been referred to the European Court of Justice over its regulations on compulsory maximum fees for lawyers' services, while in 2004 the Belgian Architects Association was condemned for recommended minimum fees being in breach of European Union competition rules.

4.2.3 Advertising regulation

Most licensed professions in the OECD countries still adopt some kind of regulation on commercial advertising, although over the last two decades several European Member States have relaxed their restrictions in this field (European Commission, 2004).

The first, second and third column of Table 8 include respectively countries with no specific regulation, countries where advertising is regulated and countries where it is prohibited. Italy stays in the middle: as already discussed in section 3.2, the Bersani law tried to unrestrict the use of advertising. However, for the four professions under scrutiny in Table 8, some sort of regulation was still in place in 2008, two years after the reform.

Table 7 Overview of 37 OECD countries with fixed or recommended prices in selected professions.

Profession	Recommended prices	Fixed maximum prices	Fixed minimum prices	No regulation
Accountants	Slovenia. Only for some services in Hungary, Portugal	Italy, South Africa (some services)	Turkey, China (some services)	30 countries
Architects	Hungary, Korea, Slovak Republic, Switzerland, China, South Africa. Only for some services in Canada, Portugal, Slovenia, Spain	Italy	Luxembourg, India. Only for some services in Germany, Greece, Turkey	21 countries
Engineers	Korea, Portugal, Switzerland and South Africa. Only for some services in Hungary, Slovak Republic, Slovenia, China	Canada, Italy	Luxembourg. Only for some services in Germany, Greece, Turkey	23 countries
Lawyers	Denmark, Korea, Slovak Republic. Only for some services in Spain services in Spain	Italy, Portugal. Only for some services in Israel, New Zealand, Slovenia	Turkey, China. Only for some services in Belgium, Germany, Greece, Poland, South Africa	21 countries

Source: various documents

Overall, as shown in column 1 of Table 8, only a few countries explicitly prohibit advertising: this is the case, for instance, of China (for architects, lawyers and accountants), Luxembourg (where the professional associations of engineers, architects and accountants do not allow for its use), and Turkey (where accountants and lawyers cannot advertise their activity).

Most countries, however, do impose some sort of restrictions (column 2 of Table 8). Under this perspective, engineers and, to a lower extent, architects are the most liberal professions while lawyers are the strictest in limiting the use of advertising for commercial purposes.

4.3 The European Union and the liberalization of professional services

Accordingly with the European Commission, professional services largely fall under EU competition rules. Although the Commission tends to acknowledge that

Table 8 Overview of 37 OECD countries with advertising regulation in selected professions.

Profession	No specific regulation	Advertising is regulated	Advertising is prohibited
Accountants	12 countries	Australia, Austria, Belgium, Canada, Czech republic, Finland, France, Hungary, Iceland, Israel, Italy, Netherlands, Poland, Portugal, Slovenia, Spain, US	Chile, China, India, Luxembourg, New Zealand, Turkey
Architects	20 countries	Belgium, Canada, China, Czech republic, France, Germany, India, Ireland, Italy, Portugal, Spain, US	Chile, Israel and Luxembourg
Engineers	27 countries	Czech republic, Hungary, Italy, Japan	Chile, China, Israel and Luxembourg
Lawyers	5 countries	Australia, Austria, Belgium, Canada, Czech republic, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Portugal, Slovenia, Spain, Switzerland, UK and US	Chile, China, Denmark, Greece, Slovak Republic, Turkey

Source: own elaboration on the OECD indicator on regulatory conditions in the professional services (2008).

some regulation may be justified in terms of public interest, it also states that unnecessary regulation must be removed in order to promote greater competition. In particular, a "proportionality test" should be applied in order to check whether a specific regulation has clearly defined public interest objectives and is the least restrictive method to achieve those objectives. As a consequence, regulations adopted by the Member States or by professional bodies which impose or favor an anti-competitive conduct without being objectively necessary to guarantee the proper practice of the profession, infringe the EU competition rules (European Commission, 2004).

Part of the Commission's work has been aimed at examining national legislations in order to assess whether the current regulatory mix is the most efficient and least restrictive of competition. For example, in 2004, the Commission published a Report on Competition in Professional Services focusing on six professions - lawyers, notaries, engineers, architects, pharmacists and accountancy - and analyzing in detail the main restrictions to competition. The key conclusion of the report was that in too many cases traditional restrictive rules in the area of professional services are

serving to restrict competition and that the majority of Member States should pursue systematic pro-competitive reforms in this sector.

Over the last years, the Commission adopted a somehow mixed strategy in order to improve competition in the sector of professional services. On the one hand, the Commission engaged in advocacy activities with professional bodies and started a closer collaboration with national competition authorities. On the other hand, a series of infringement procedures were opened against some Member States for specific violation of competition rules in the sector of professional services.

For example, in 2009 the Commission recently sent a letter of formal notice to Bulgaria in connection with its legislation concerning lawyers. The Commission considered that some provisions of the Bulgarian Bar Act (nationality requirement , differences in the rights for the exercise of the profession between Community and Bulgarian lawyers, etc.) could constitute a violation of the freedom of establishment of lawyers and law firms in Bulgaria. Several infringements procedures were also started over the last decade against regulations on compulsory and recommended fees in specific professions (for example, in Italy, Greece, Belgium)[24].

The Commission also took action of the issue of recognition of professional qualifications, in order to better enforce the right of EU citizens to take up activities as self-employed persons in all Member States (the so-called "freedom of establishment"). In particular, the 2005 Professional Qualifications Directive is a key regulation for professionals, allowing them to find a job or extending their business in another Member State. Under this Directive, a number of professionals in the health sector and architects enjoy automatic recognition of their qualifications acquired in the country of origin, since their qualifications are harmonised at European level. However, for the remaining professions, decisions on recognition of qualifications are made on a case by case basis by national authorities, which have some discretion in terms of granting access to a given profession. The demand for simplification and the often slow procedures of many Member States have recently give rise to the idea of the European Professional Card, issued by competent authorities in the country of origin and certifying professionals' qualification end experience.

The 2006 Service Directive (also known as *"Bolkestein Directive"*) complements regulation on recognition of professional qualification in dealing with several issues typically related to licensed professions, such as administrative simplification, advertising, tariffs and multidisciplinary activities. For example, the Directive provides for the removal of total bans on commercial communications by the regulated professions.

More generally, the Service Directive aims at facilitating the freedom of establishment and the free circulation of services across Europe. In its original draft, the Directive proposed a "rule of origin" principle allowing all professionals legally established in a member state to provide their services across the EU by applying the professional regulations of their home country. The principle was clearly aimed at enhancing competition between professionals with potentially large effects on existing national regulations. However, the original scope of the Directive was finally

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[24] See paragraph 4.2.2.

reduced, since many countries feared that their highly regulated services would have been worsted by lighter regulated service providers, especially from eastern Europe.

5 Appendix

Table 9 Licensed professions in Italy.

Profession	Italian translation	Introduction	5 years university degree	University entrance test
Accounting services				
Accountant	Commercialista	2005*	Yes	No
(Accountant junior)	(Esperto contabile)		(No)	
Actuary	Attuario	1942	Yes	No
Labour consultant	Consulente del lavoro	1979	Yes	No
Health services				
Doctor / dental surgeon	Medico / Odontoiatra	1946	Yes	Yes
Midwife	Ostetrica	1946	No	Yes
Nurse	Infermiere	1954	No	Yes
Pharmacist	Farmacista	1946	Yes	No
Psychologist	Psicologo	1989	Yes	No
Radiology expert	Tecnico di rediologia	1965	No	Yes
Social worker	Assistente sociale	1993	Yes	No
Veterinary	Veterinario	1946	Yes	Yes
Legal services				
Lawyer	Avvocato	1933	Yes	No
Notary	Notaio	1913	Yes	No
Technical services				
AgroNomist	AgroNomo	1976	Yes	No
AgroNomy expert	Perito agrario	1991	No	No
Agrotechnician	Agrotecnico	1986		No
Architect	Architetto	1923	Yes	Yes
(Architect junior)			(No)	
Biologist	Biologo	1967	Yes	No
Chemist	Chimico	1928	Yes	No
Engineer	Ingegnere	1923	Yes	No
Food techNologist	TecNologo alimentare	1994	Yes	No
Geologist	Geologo	1963	Yes	No
Geometer	Geometra	1929	No	No
Industrial estate consultant	Consulente in propriet industriale	2005	Yes	No
Industrial expert	Perito industriale	1929	No	No
Others				
Field guide	Guida alpina	1989	No	-
Journalists	Giornalista	1963	No	No

Source: own elaboration on the OECD indicator on regulatory conditions in the professional services (2008).

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Family connections in accessing licensed occupations in Italy

Gaetano Basso and Giovanna Labartino

1 Introduction

In the past few years economists have devoted several studies to investigating the link between family ties and a variety of economic outcomes, such employment and self-employment, small-firm development and political voting (among the others, Acemoglu et al (2008); Kramarz and Norstrom Skans (2010)). In this section we analyze the role of family links in licensed occupations using detailed information on surnames.

We exploit the same intuition of Güell et al (2007), who show how one can investigate the extent of intergenerational mobility exploiting the features of the distribution of surnames. Although the use of surnames in economic research is not new, to our knowledge, there is no empirical nor theoretical contribution to the economics of occupational licensing and, more generally, entry barriers in a market that uses surnames (more traditional papers are Leland (1979); Shapiro (1986)). The only exception being Pellizzari and Pica (2011).

The literature on intergenerational transmission is, instead, vast. In particular, several papers show that children are more likely to be employed in the same occupation of their parents than in any other (Lentz and Laband, 1989; Corak and Piraino, 2011). This phenomenon occurs for several reasons, such as occupation-specific human capital transfers within the family, easier access to job-search networks or even plain nepotism. In fact, although nepotist practices are difficult to detect, various pieces of anecdotal evidence suggest that they might be common in Italian professions (Stella, 2005a,b).[1]

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[1] A very recent and resounding case occurred in 2010 during the last notary examination, see footnote 8 in Section 1 of Chapter 3.

Some basic facts about intergenerational mobility across occupations in Italy can be produced using data from the Bank of Italy Survey of Household Incomes and Wealth, where household heads are asked to indicate the occupation of their parents at their same age. The occupational groupings, together with the usual categories (blue collars, white collars, managers), also includes *liberal professions*, whose definition is not clearly described but it certainly includes all the licensed professionals and, perhaps, some more. Table 1 shows the transition matrix between fathers' and sons' occupations.

The elements on the main diagonal (in bold) represent the unconditional probability that fathers and sons are occupied in the same category, while off the main diagonal are the probabilities of transitions to each other occupation. In a context of complete social mobility the probabilities in all the cells should be similar.

Table 1 clearly shows that the likelihood of being occupied in the same category as one's father is very high compared to the likelihood of cross-occupation transitions. This is particularly true for blue collars and much less for teachers and managers. On average, more than 38 per cent of the Italian workers are occupied in the same occupation of their fathers (i.e., the weighted average of the elements in the main diagonal).[2]

Table 1 Fathers' and sons' occupations in Italy, 2008.

Fathers \ Sons	Blue Col.	White Col.	Teacher	Middle Manag.	Manager	Professional	Entrepreneur
Blue Collar	**57.47**	21.11	2.39	3.40	1.33	1.67	12.63
White Collar	23.37	**43.69**	7.39	8.18	4.92	4.68	7.77
Teacher	9.32	40.07	**13.51**	13.42	2.18	14.30	7.21
Middle Manag.	11.12	32.30	8.09	**13.73**	14.71	7.86	12.18
Manager	10.85	32.30	13.27	15.51	**14.30**	9.69	4.09
Professional	11.48	26.49	10.61	7.38	12.00	**28.26**	3.78
Entrepreneur	29.89	19.62	4.52	5.35	4.23	4.27	**32.12**

Rows sum up to 100.
Source: Bank of Italy SHIW, 2008.

Considering professionals specifically, the unconditional probability of having a father in the same occupational group is slightly above 28%, almost one third. Conditional on the size of the group, this is the largest effect of those reported in Table 1.

At the same time, the probability of being a professional in Italy is very low for those people whose fathers were employed in other occupations. Such a probability halves for the sons and daughters of teachers, and it reduces by a third for managers and middle managers.

In order to investigate the role of family links in licensed professions in Italy we collected the lists of all registered professionals in several occupations. Maintaining

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[2] The numbers in Table 1 are all produced using the sample weights provided by the Bank of Italy.

these lists, which include basic demographic information (dates of birth, gender), names and surnames and a few professional data (dates of registration, sanctions), is one of the key institutional activities carried out by the local registers of the professional associations (*albi*, in the Italian terminology). Anyone who might be interest in checking the status of a professional or who searches for one, can simply browse through the lists and obtain such information. Hence, the professional associations are required by the law to not only maintain the lists but also to make them public.

The same data (or part of them) have been used already by Basso (2009); Basso and Pellizzari (2010); Pellizzari and Pica (2011), who focus specifically on lawyers and find evidence that the frequency of one's surname in the local register affects both entry in and exit from the profession. Figures 1 and 2 are taken from Basso and Pellizzari (2010) and make this point very clearly. Figure 1 shows on the horizontal axis the percentiles of the relative frequency of one's surname in one's local register, i.e. on the left of the graph are professionals whose surnames are relatively infrequent in the register compared to the population as a whole, the opposite to the right of the graph. On the vertical axis is the age of professionals at the time of registration, which is predominately determined by how many times one needs to retake the entry exam. The graph clearly show a negative and statistically significant correlation between these two variables: the more frequent one's surname in one's local register (compared to the population), the earlier one obtains her qualification.
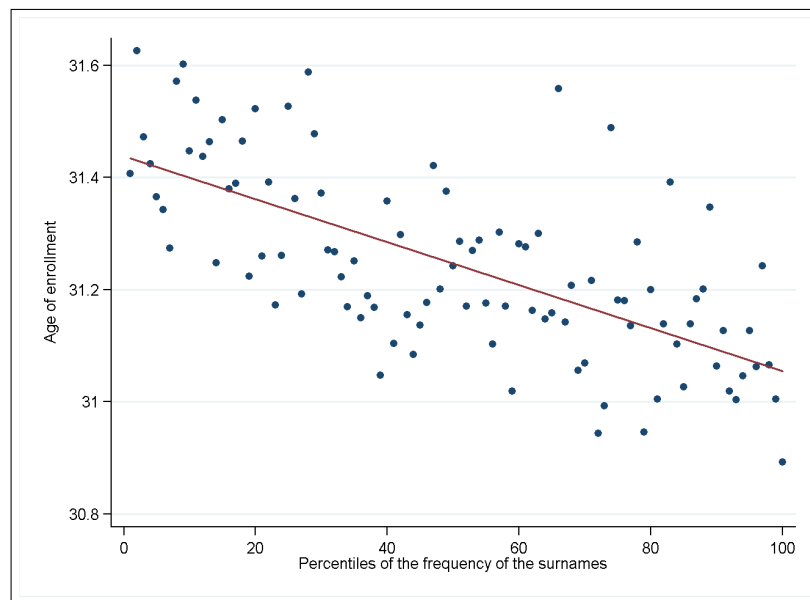

Fig. 1 Age of enrollment and frequency of surnames, lawyers profession.

The correlation described in Figure 1 could be due either to occupation-specific human capital transmission within the family, so that the sons of a lawyer are, on

average, better professionals, or to some kind of nepotist practice that favours connected individuals in the examination procedure. Figure 2 exploits the 2003 reform that randomized the marking of the exam papers to try and disentangle these two alternative explanations. Until 2003 each exam commission marked the papers of its own candidates, whereas since 2004 exam commissions are randomly paired (conditional on size) and one marks the papers of the other (the oral exams are still conducted and marked locally). Figure 2 shows the same correlation as in Figure 1 computed for professionals who registered before 2004 (red dots and line) and after 2004 (blue dots and line) and for the north (left panel) and the south (right panel) of the country separately. Results show that after 2004 the negative correlation between surname frequency and entry age approaches zero in the north, where it was relatively mild even prior to the reform, and is drastically reduced (in absolute terms) in the south. The evidence in Figure 2 seems more consistent with an explanation of the relationship between surnames and age at entry that is based on nepotist practices than human capital formation.
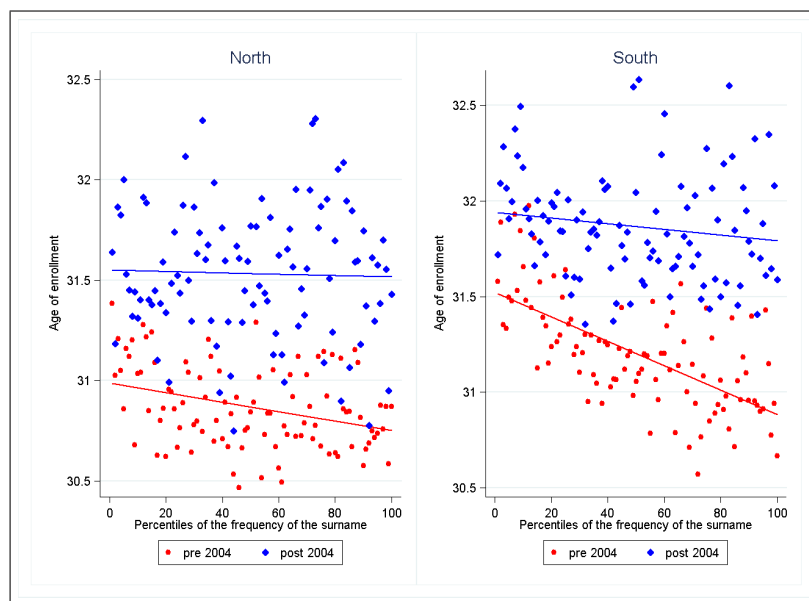
Fig. 2 The 2004 lawyers examination reform.

Above and beyond their policy relevance, the evidence in Figures 1 and 2 is important for our purposes because it clearly shows that surnames bear important implications on the probability of accessing the profession. Furthermore, Pellizzari and Pica (2011) provide similar evidence for outflow from the legal profession. Namely, they show that one is less likely to leave the profession within the first 5 years since registration if one's surname is more frequent in the local register (relative to the population as a whole).

In this section we exploit this same intuition and we construct measures of the importance of surnames in defining participation in a profession (i.e. the equilibrium outcome of both entry and exit) at the level of the local register for several licensed occupations.

2 How to measure the importance of family links in licensed professions

The role of family ties in the functioning of the economy is a very popular issue among economic scholars at least since the seminal work of Becker (1981). However, empirically identifying family connections within a population is usually not an easy task, since information on family relationships is generally unavailable or otherwise confidential in standard datasets.

In recent years the use of surnames to identify family links has become popular thanks to the availability of new detailed datasets. Last names can potentially provide valuable information about family connections due to the fact that their distribution is very skewed, with a very large part of the population holding very uncommon surnames. Hence, the likelihood that any two persons who share the same surname are also connected by some kind of family link is pretty high. This is a result of the rules of surname transmission that are common, with some variations, to all western countries.[3] In Italy surnames are inherited from the father and a person seldom holds the mother's surname. As in most western countries, Italian women obtain the husband's surname once married, but it is compulsory to use the original family surname only for any official activity (filing tax, listing in a professional registers, etc.).[4] In Spanish countries, such as Mexico and Spain, the child inherits both the mother and the father's surnames, allowing for more interesting investigation of economic phenomena measured by surnames (Güell et al, 2007; Angelucci et al, 2010).

Among others, Acemoglu et al (2008) use the surnames of Colombian mayors at the end of 18th century to construct a measure of *political concentration*, while Corak and Piraino (2011) match longitudinal tax data for both individuals and firms to measure the *intergenerational transmission of employers*.[5] Angelucci et al (2010) analyze how households' decisions are affected by extended family networks in

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[3] The rules of surname transmission mirror closely the transmission of genes and the resulting distributions are very similar (Yasuda et al, 1974).

[4] Surnames are rarely changed in Italy, and if it is the case the fiscal code, the unique identifier for filing taxes which is assigned at birth, must change as well.

[5] Many other authors used the extensive and rich Canadian dataset to address other intergenerational mobility issues. For a more detailed survey of the literature see Corak and Piraino (2011, pg. 43).

Mexican villages exposed to *Progresa*.[6] They use parental and maternal surnames to identify inter and intra generational family links in each village.

Our contribution is closely related to Güell et al (2007), who propose a novel methodology to measure intergenerational correlations in economic outcomes. The standard methodology to produce measures of intergenerational mobility uses long panels and regresses the economic outcomes of children on those of their parents but the validity of this approach is challenged a number of complications: the timing of measurement of the outcomes of parents and children, recall and measurement issues and, most notably, the need of long panel data.

Güell et al (2007) propose a new methodology based on the comparison between the R-squared of two cross sectional regressions that only require information on the outcomes and on agent's surnames (also in anonymized format). Namely, one first runs a regression of the outcome on a full set of surnames dummies, i.e. one dummy for each surname that appears in the population which takes value one for individuals who hold that surname and zero otherwise. The R-squared of such a regression measures how much of the variation in the outcome is accounted for by surnames.

However, surnames explain any outcome at least to some extent for the simple fact that they generate a partition of the data that, due to the skewness of the surnames' distribution, is often very fine. To the extreme, think of a population in which all individuals hold different surnames. In such a case the R-squared of the above regression would be 1, regardless of the degree of intergenerational mobility.

In order to account for this effect and allow the comparison of areas with different distributions of surnames, Güell et al (2007) suggest rearranging surnames at random in the population, so as to keep the distribution fixed but excluding by definition any systematic relationship with outcomes. Then, these fake surnames are used to run a regression similar to the first one where the original surname dummies are replaced by fake surname dummies. The R-squared of this second regression measures the share of the variance of the outcome that is accounted for exclusively by structure of the distribution of surnames and does not capture any economic effect that might be correlated with surnames, such as intergenerational transmission of individual traits, human capital or resources.

The difference between the two R-squared, then, measures exclusively the predictive power of surnames on the outcome which is not due to the mere fact that there are few persons holding the same surname. Güell et al (2007) baptize this indicator the *Informational Content of Surnames (ICS)*.

In our contribution we slight modify their strategy to accommodate some specific features of our application. Namely, while Güell et al (2007) consider a standard continuous and unbounded outcome, we look at dichotomous indicators of participation in a profession, i.e. a dummy indicator that takes value one if the individual is register in the *albo* and zero otherwise. Consequently, we compute a *Pseudo-ICS* which we construct analogously to the ICS of Güell et al (2007), but using Pseudo-R squared rather than the regular R-squared.

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[6] Progresa is a welfare program implemented in rural villages in Mexico, which offers cash transfers to families conditional on their children attending school.

More formally, for each profession and each local register we compute the Pseudo-R squared of the following models:

$$F(y_i = 1|D_i) = \sum_{s=1}^{S} \alpha_s d_{si} \qquad (1)$$

$$F(y_i = 1|Df_i) = \sum_{s=1}^{S} \alpha_s df_{si} \qquad (2)$$

where $F(\cdot)$ is the cumulative distribution function of a continous distribution, y_i is a dummy indicator for participation in a profession of a generic individual i, D_i is the vector of all the d_{si} surnames dummies (this is a vector of all zeros and only one 1 which corresponds to the surname that individual i actually holds) and S is the total number of surnames observed in the population. Model 2 is identical to model 1, but it replaces the true surname dummies with the fake analogs Df_i, as in Güell et al (2007). In other words, Df_i is the vector of randomly assigned surname dummies, like D_i: it is a vector of $S-1$ zeros and one 1 which results from randomly reassigning the surnames across the sample.

There are two problems with estimating models 1 and 2. First, estimation is likely to be computationally complex if not merely unfeasible given the high number of parameters to be estimated (Table 3 shows that in our data S ranges from about 12,000 up to 180,000). Second, to construct the estimation sample one would need to have merge the lists of registered professionals with (ideally) population registers in order to compute the full vector of surname dummies D_i for all individuals, both professionals and non professionals.

Fortunately, one can compute the Pseudo-R squared of models 1 and 2 without necessarily estimating their parameters. In fact, the Pseudo-R squared essentially compares the predicted probability of a positive outcome conditional and unconditional on the control set. In our setting this means comparing the probability of being a professional conditioning on one's surname and in the population. Define n_s the frequency of surname s in the province, p_s the number of professionals with surname s, N the size of the population and P the total number of professionals in the province. Then, the probability of being a professional conditional and unconditional on one's surname can be respectively written as p_s/n_s and P/N and the Pseudo-R squared of model 1 is:

$$Pseudo\text{-}R^2 = 1 - \frac{\sum_{s=1}^{S} p_s ln(p_s/n_s) + (n_s - p_s)ln(1 - p_s/n_s)}{\sum_{s}^{S} p_s ln(P/N) + (n_s - p_s)ln(1 - P/N)} \qquad (3)$$

Similarly, by defining fp_s the number of fake professionals with surname s we can write the Pseudo-R squared of model 2 as:

$$Pseudo\text{-}R^2_{fake} = 1 - \frac{\sum_{s=1}^{S} fp_s ln(p_s/n_s) + (n_s - fp_s)ln(1 - fp_s/n_s)}{\sum_{s}^{S} fp_s ln(P/N) + (n_s - fp_s)ln(1 - P/N)} \qquad (4)$$

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In order to compute the pseudo-R squared in equations 3 and 4 there is no need to estimate the parameters of models 1 and 2 nor to merge professional and population registers. We can easily compute p_s and P from the lists of registered professionals and we can obtain n_s and N from population registers separately. Reallocating surnames at random within the register allows us to also compute fp_s. Then, the Pseudo-ICS can simply be computed as:

$$Pseudo\text{-}ICS = Pseudo\text{-}R^2 - Pseudo\text{-}R^2_{fake} \qquad (5)$$

for each register in each profession.

Unfortunately, we do not have access to the actual population registers and the best alternative source of data that we can use is the full tax records for the entire country. In Section 3 we describe in details this data source.[7]

3 The data

Computing the Pseudo-ICS requires information about the distribution of surnames of registered professionals as well as the distribution of surnames in the population as a whole.

We obtain the first distribution (that of licensed professionals' surnames) by the local bodies of the professional associations, which are formally responsible for maintaining and publicizing the lists of qualified professionals.[8] Each local register collects, updates and publishes the list of names of qualified professionals (name, surname, gender, birth date) and their professional characteristics. These registers, called *albi*, are publicly available for everyone who is interested in searching for a practitioner and in many cases they contain also information on professional aspects such as fields of specialization or sanctions.

We were able to collect the lists of professionals for eleven occupations as shown in the Table 2.[9] Most professions are organized in provincial registers (accountants, lawyers, labour consultants, medical doctors, notaries, midwives, architects and pharmacists), although with some variations.[10] Geologists, psychologists and journalists have regional registers.

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[7] The Technical Appendix (available upon request) presents some additional analysis of the Pseudo-ICS and its properties.

[8] For a more detailed description of the institutional aspects of the licensed professions in Italy please refer to Chapter 3.

[9] In their analysis of regulation of liberal professions Conway and Nicoletti (2006) consider lawyers, architects, engineers and accountants. Unfortunately, we were unable to collect the data for engineers. Instead, we focus also on other professions, such as notaries, which are considered as one of the most regulated and closed professions in Italy.

[10] Lawyers' Bars are one for each court of law; notaries' bodies may cover two or more provinces; accountants' bodies are smaller than provinces; and, finally, midwives are organized on a aggregated-province base.

Table 2 Data on professional registers.

Profession	Geo. structure	Registers (Total)	Professionals (% Total)	Registers Size Average	Min.	Max.
Lawyers	Courts	106 (167)	143629 (72.5)	1185	75	20454
Accountants	Provinces	141 (143)	103282 (92.1)	2420	109	10068
Labour Consult.	Provinces	106 (106)	26977 (99.2)	262	27	2901
Psychologists	Regions	21 (21)	81061 (100)	4333	153	16424
Geologists	Regions	20 (20)	13137 (91.2)	657	45	2191
Notaries	Provinces (aggreg.)	94 (94)	4449 (100)	53	5	571
Architects	Provinces	104 (105)	123086 (-)	1256	19	14984
Midwives	Provinces (aggreg.)	61 (79)	6440 (37.1)	104	20	604
Pharmacists	Provinces	46 (100)	36021 (44.5)	783	128	4928
Medical Doct.	Provinces	39 (106)	162794 (43.4)	4024	610	19254
Journalists	Regions	17 (20)	24238 (91.7)	1426	69	7406

Source: Professional registers, last available year.

Unfortunately, our data do not cover all licensed professions in Italy. The selection is partly driven by the difficulties we encountered in the data collection process. The data are not available in a centralized electronic archive for all licensed professions and even within each profession only in some cases the lists of the names of professionals are recorded in a unified dataset in electronic format. In many other cases, the data need to be collected for each single local *albo* and sometimes they are in paper format.

Furthermore, in many cases there were no technical difficulties in accessing the data, but we encountered fierce resistance from some professional associations. They often refused to share their data with us even if among their institutional responsibilities there is the publication of the names of their members. Eventually, as shown in Table 2, we were not able to collect all the data of lawyers, medical doctors, pharmacists, midwives and journalists.

The complexities of such a data collection process may raise some concerns about sample selection in our analysis. The most plausible interpretation is that the most corporative professions or local registers are also the least willing to share their data, so that we would be looking at a sample of professionals whose degree of familism is lower than in the entire population of interest.

In order to compute the Pseudo-ICS we also need information on surnames in the Italian population as a whole. For this purpose, we use the Italian fiscal census of 2005, i.e. the full list of names and surnames of individuals who filed taxes.[11] The data contain approximately 40 millions names and indicate also their province of residence.

Although in the tax records we observe a very large number of surnames (3,253,396) we do not observe the entire distribution. Our data probably underesti-

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[11] Unfortunately, we only have access to the data for 2005.

mate the real number of surnames and of the occurrences of each surname. In fact, they do not cover those individuals who are total tax evaders and persons who, for other reasons are not required to file taxes, for example because their incomes are particularly low.[12]

Ideally, the most comprehensive data would be those collected by the population registers (*Anagrafe*) which, however, is not available to the public on the scale we need. Nevertheless, we believe that tax records provide a relatively good alternative given that the total size of the adult population in Italy is 50,112,703 individuals, which implies that in the tax records we observe approximately 79.8 per cent of the relevant population.

Table 3 provides a summary of the data for the 20 capital provinces of each region. For each province we report the number of total last names recorded, the mean and the maximum number of occurrences, and the most common last name. It is worth emphasizing that there is some discrepancy between the timing of collection of the lists of professionals, which were all downloaded very recently (between 2009 and 2011), and the tax records that refer to the year 2005. We believe that this is a minor concern given that the distribution of surnames changes only marginally in the short run.

Since, as already mentioned, the geographical organization of the registers varies across professions (provinces, regions or variations of these) we re-aggregate the data differently for each profession in order to be able to compute the Pseudo-ICS for the largest number of geographical units.

Table 4 presents the summary statistics for the professionals' surnames, it reports the total number of professionals, the number of surnames, the mean and the maximum number of occurrences within each licensed profession.

Tables 3 and 4 are not directly comparable. In the second table we do not indicate the most common surnames within a profession, since the geographical structure of the register, this would have not be informative for our purpose. However, it is worth noticing that surnames in the professions are on average less concentrated than those of provinces. We can also notice that, among the analyzed professions, Medical Doctors and Lawyers presents the highest mean occurrences.

4 The Pseudo-ICS across professions and geographical areas

As described in Section 3, we compute the Pseudo-ICS for each local register of all the professions for which we were able to collect the list of members. Table 5 provides the descriptive statistics of these Pseudo-ICS. At the bottom of the Table we also report the Pseudo-ICS for generic self-employment (thus including also most

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[12] The requirements to file taxes, established by the law, differ greatly on the basis of the sources of income. For instance, an employee with an annual income of 8000 euros without withholding tax is exempted from filing, unless she has an additional source of income, coming from estates, which exceeds 500 euros per year.

Table 3 Data on distribution of last names.

Province	Total population	Last names	Mean occurrences	Max. occurrences	Most common
Ancona	350866	32669	11	1490	ROSSI
Aosta	97955	18794	5	472	FAVRE
L'Aquila	212580	19637	11	895	ROSSI
Bari	942530	32400	29	5771	LORUSSO
Bologna	754428	69902	11	3051	ROSSI
Cagliari	464976	19603	24	7543	MELIS
Campobasso	156809	12556	12	832	TESTA
Catanzaro	218928	13188	17	1705	PROCOPIO
Florence	722605	67137	11	3465	ROSSI
Genoa	667803	72834	9	5210	PARODI
Milan	2834116	181971	16	22689	COLOMBO
Naples	1509143	57905	26	31591	ESPOSITO
Palermo	668632	27446	24	3224	RUSSO
Perugia	463916	42811	11	3509	ROSSI
Potenza	251678	13782	18	1333	PACE
Rome	2636181	160021	16	11315	ROSSI
Trento	389812	41925	9	1691	FERRARI
Turin	1638080	112818	15	5280	FERRERO
Trieste	191029	35332	5	500	FURLAN
Venice	606115	50862	12	6505	BOSCOLO
Province avg.	702413	52993	12	31591	-
Region avg.	3021730	135452	22	47222	-
Country	40231516	3253396	713	135476	-

Source: Fiscal Census, 2005.

licensed professionals) and for university professors, a profession where barriers to entry are also very high but is not regulated by standard licensing.[13][14]

Results show a very large variation both across and within professions. Medical doctors have the highest average Pseudo-ICS (0.047) while midwives have the lowest (0.008).[15]

If we compare the Pseudo-ICS of professionals with those of university professors and self-employed in general we can have some more elements to better understand the link between entry barriers and familism. Professors do not belong

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[13] The names of the self-employed are identified directly in the tax records using information on the type of tax form that was submitted. In fact, the self-employed normally use a specific form that allows to flexibly deduct various types of expenses. The names of all university professors are obtained from the Ministry of Education and were collected by Durante et al (2011) (we thank these authors for sharing their data with us).

[14] In the Technical Appendix (available upon request), we discuss the conditions under which the Pseudo-ICS measures intergenerational mobility and the role of potential confounding factors.

[15] Part of this difference might be due to the fact that around 96 percent of the midwives are females, for whom surnames are less informative given that they are transmitted through fathers.

Table 4 Last names in the professional registers.

Profession	Total professionals	Last names	Mean occurrences	Max. occurrences
Lawyers	143629	41841	3.4	505
Accountants	103282	35302	2.9	348
Labour Consultants	26977	14493	1.9	99
Psychologists	81061	32770	2.5	575
Geologists	13137	8649	1.5	41
Notaries	4449	3404	1.3	17
Architects	123086	43370	2.8	454
Midwives	6440	5150	1.3	22
Pharmacists	36021	18465	2.0	156
Medical Doct.	162794	49567	3.3	491
Journalists	24238	13850	1.8	107

Source: Professional registers, last available year.

Table 5 Pseudo-ICS: descriptive statistics.

Pseudo-ICS	Obs.	Mean	Std.Dev.
Lawyers	77	0.039	0.016
Accountants	103	0.015	0.017
Labour Consultants	103	0.008	0.022
Psychologists	21	0.020	0.014
Geologists	20	0.010	0.012
Notaries	94	0.028	0.050
Architects	101	0.015	0.018
Midwives	20	0.008	0.022
Pharmacists	46	0.039	0.035
Medical Doct.	39	0.047	0.028
Journalists	17	0.038	0.024
University professors	50	0.079	0.034
Self Employed	103	0.012	0.005

Source: Professional registers, last available year.

to a licensed profession, but their carrier presents some features which make them similar to professionals in few aspects. In order to enter in the Italian academic system and to pursuit a carrier in it, professors have to pass public exams (*concorsi*). Moreover, both recent anecdotal evidence Posteraro (2008) and scientific contributions (Perotti, 2008; Durante et al, 2011) prove that the Italian university system is strongly affected by familism and nepotism practices. This explain why the Pseudo-ICS calculate for Italian professors is quite high.

If we look at self employed instead we do not find any strong presence of family links as for professionals and professors. The Pseudo-ICS in licensed professions, in fact, is larger than that of self-employment in 9 out of 11 cases. This might suggest that strict entry barriers requirements and standard licensing increase the probability of intra-family transmission of professional occupations.

Figures 3 and 4 show the geographical distribution of the Pseudo-ICS in the eleven professions that we consider.

Fig. 3 Geographical distribution of Pseudo-ICS: six main professions.

According to these figures, for most professions family links appear to be stronger in the south and in the north-east of the country. The maps in Figure 5 present the Pseudo-ICS for four important professions, three of which are analyzed also in Conway and Nicoletti (2006) (i.e. lawyers, architects and accountants). The maps describe the geographical distribution in more details.

Figure 5 highlights that the geographical differences are relevant, both across regions and within regions. The darker the provinces the higher is the level of the Pseudo-ICS. On the other hand the lighter color indicates the lower level of Pseudo-ICS.[16]

Given the large geographical variation documented in Figure 5, in the following paragraphs we explore the role of some factors, such as social capital and the relative demand for professional services, in explaining the observed patterns.

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[16] White provinces are those provinces for which we were not able to collect data on the registers.
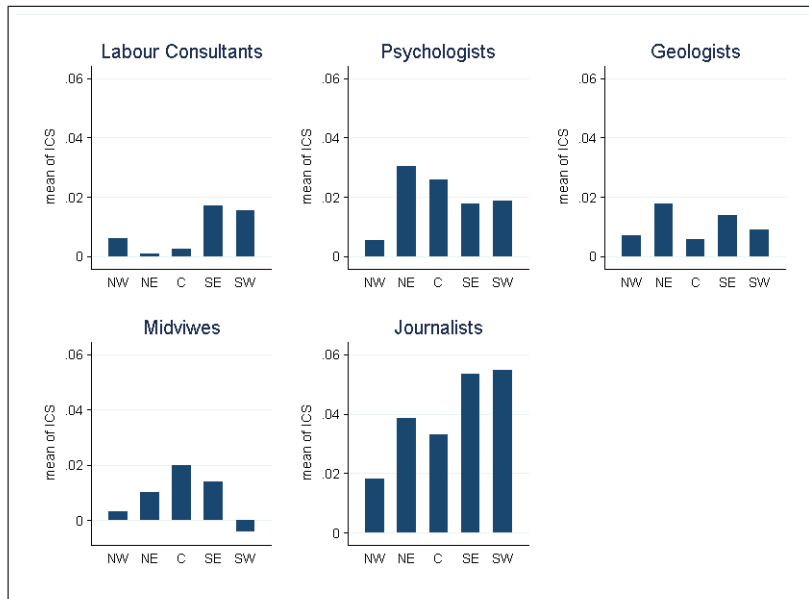
Fig. 4 Geographical distribution of Pseudo-ICS: other licensed professions.
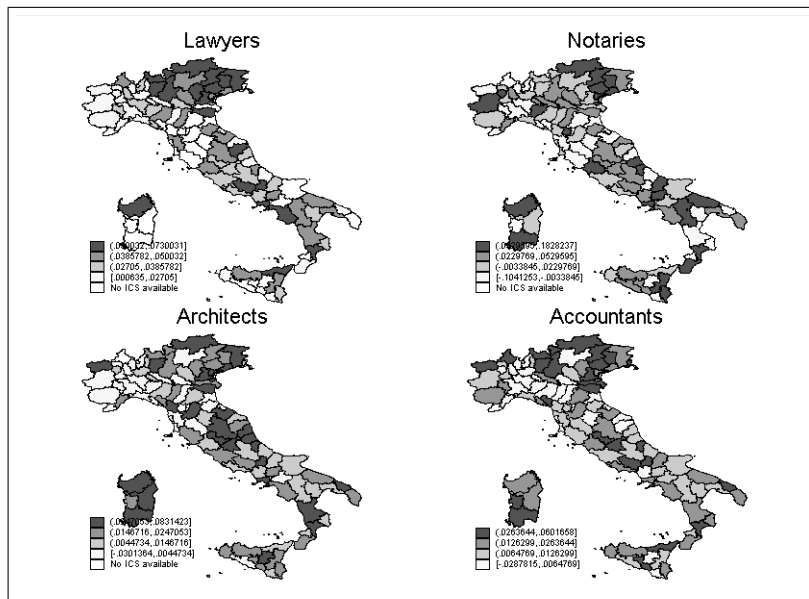

Fig. 5 ICS in Italy: four main professions.

The concept of social capital has become very prominent in economics (Banfield, 1958; Alesina and Giuliano, 2010; Cartocci, 2007; Guiso et al, 2004). Based on

these studies, we would expect that in places characterized by low generalized trust and stronger family ties the individuals' propensity to favor relatives in the labor market is more marked and nepotism practices can be more widespread. Moreover, in places with high civic values people internalize more the social cost of nepotism, potentially leading to lower Pseudo-ICS.

Measuring civic values is by no means an easy task and several alternative measures have been used so far. We opt for two widely known proxies of civic mindedness and generalized trust, i.e. the level of blood donations per capita and readership of non-sport newspapers per 1000 inhabitants.[17] The maps in Figure 6 describe their geographical distribution, while the table 6 reports the descriptive statistics for both measures.

Table 6 Social capital: descriptive statistics.

Pseudo-ICS	Obs.	Mean	Std.Dev.	Min.	Max.
Blood Donation[a]	92	0.028	0.022	0.000	0.105
Readership[b]	103	77.874	37.967	17.940	175.430

[a] Blood bags per 100 inhabitants, 1995 (source: Guiso et al (2004)). [b] Non-sport newspapers per 1000 inhabitants (source: Cartocci (2007)).

In Table 7 we explore the correlations between the Pseudo-ICS and our measures of civic values. We do so by running simple OLS regressions with the Pseudo-ICS as dependent variables and our indicators of blood donation and readership as explanatory factors. The unit of observation is the single local register (province, region or combinations of those). Results show that the estimated regression coefficients are never a statistically significant (a part for blood donation in the labour consultants regression) and the point estimates take different signs depending on the profession, so that it is hard to identify any specific regularity.

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[17] The data on blood donation come from Guiso et al (2004), who collect the number of blood bags (about 16oz) per 100 inhabitants at the level of the province in 1995. Readership data are available at province level and they were collected in 2001 (Cartocci, 2007).
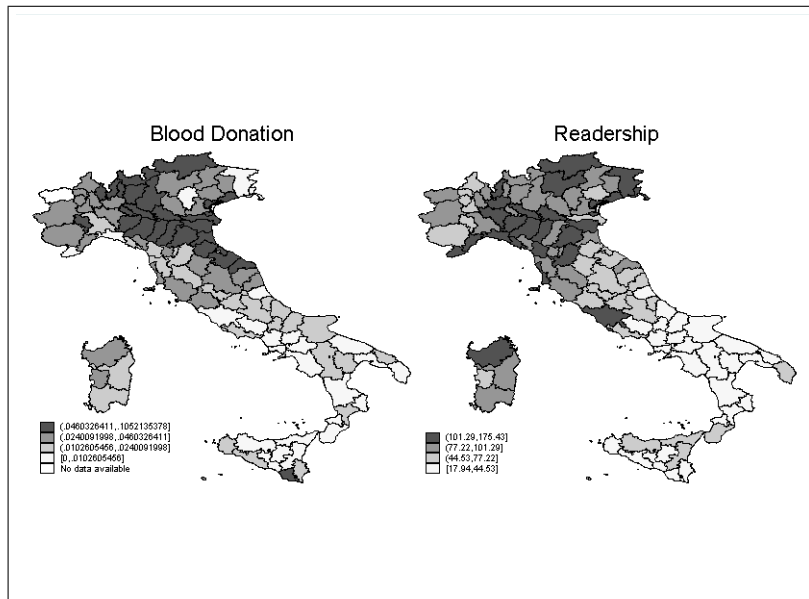
Fig. 6 Geographical distribution of Social Capital measures.

Table 7 Determinants of Pseudo-ICS: social capital (two specifications).

	Lawyers [1]	Lab.Cons. [2]	Account. [3]	Med.Doc. [4]	Pharmac. [5]	Geolog. [6]	Notaries [7]	Midwiv. [8]	Psychol. [9]	Archit. [10]	Journal. [11]
Blood donation (1)	82.285	-204.833**	3.32	319.605	23.507	-194.443	15.473	199.494	308.251	-127.912	-348.297
	(102.541)	(99.425)	(77.607)	(206.468)	(293.420)	(166.009)	(261.699)	(280.683)	(221.371)	(104.312)	(451.640)
Readership (2)	0.003	-0.094	0.035	0.07	-0.061	-0.065	-0.009	-0.06	0.155	0.088	-0.21
	(0.057)	(0.057)	(0.046)	(0.142)	(0.183)	(0.094)	(0.153)	(0.170)	(0.098)	(0.056)	(0.193)
Obs. (1)	76	102	102	39	46	19	93	19	18	100	16
Obs. (2)	77	103	103	39	46	20	94	20	19	101	17

WLS estimates. Observations are weighted by the square-root of population. The Pseudo-ICS are multiplied by 1000 for easier interpretation of the coefficients. Total number of surnames both in the professional register and in the total population are included in all the specifications. See notes in Table 6.
Significance: * at 10%,** at 5%,*** at 1%.

Next, we investigate a different potential source of heterogeneity in the degree of familism across geographical areas and professions, i.e. variation in the relative level of demand for professional services. Economic factors, such as the degree of competition in the market or the rents of the profession, may influence the willingness of both families to invest in occupation specific human capital and of incumbents to maintain high barriers to entry against new competitors. More specifically, we expect that in markets where the demand is high the marginal cost for incumbents of allowing one additional producer to enter the market is low (in terms of forgone profits). Hence, we should observe lower Pseudo-ICS in markets for professional services that are characterized by high demand.

To test this hypothesis we collect information about plausible exogenous shifters of demand and we correlate them with our measure of familism, controlling for the local value added per capita (which plausibly affects the demand for all goods and services).[18]

Table 8 Market demand: descriptive statistics.

Profession	Market Demand	Obs.	Mean	St.Dev.	Min.	Max.
Lawyers	Car Accidents[a]	77	2479	3983	100	25662
Labour Consultants	Employee[b]	101	0.74	0.043	0.57	0.81
Geologists	Landslide Index[c]	20	0.07	0.047	0.01	0.16
Midwives	Women Aged 15-55[d]	20	809717	686647	33950	2615106
Medical Doc. (Pharmac.)	Pop. Aged 15-64[e]	39 (46)	99.66	0.01	99.62	99.68
Architets (Notaries)	Housing Index[f]	97 (90)	0.02	0.00	0.01	0.02

[a] Number of car accidents per province (source: ACI-ISTAT, 2007). [b] Number of employees as a percentage of total labour force (source: ISTAT LFS, 2008). [c] At-risk landslide index (source: Di Maggio et al (2008)). [d] Percentage at women aged 15-55 (source: Demo ISTAT, 2010). [e] Percentage at people aged 15-64 (source: Demo ISTAT, 2010). [f] Percentage of transactions over the total number of residential houses (source: Agenzia del Territorio, 2010).

Table 8 provides the descriptive statistics for the proxies of demand that we were able to identify for the professions that we consider. For lawyers, we use the number of car accidents, as most of them lead almost automatically to a civil proceeding and, under the assumption that they occur for reasons that are largely unrelated to the process of entry into the legal profession, car accidents exogenously increase the demand for legal services.[19] For labour consultants we use the number of employees as a percentage of the total number of employed in the province.[20] The underlying assumption here is that the population of potential clients for labour consultants is

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[18] Value added data come from the National Statistical Institute (ISTAT) and are averaged over the period 2000-2008 to reduce the noise due to unsystematic year-to-year variation.

[19] The data come from the Car Accidents database at ACI-ISTAT. In the Table 9 we use the 2007 data, but the results are robust to using other survey years.

[20] The data come from the official ISTAT Labour Force Survey, 2008

for the most part the population of job matches, regardless of whether they provide their services to one or the other part of the market (employers or employees). Hence, it is reasonable to assume that in areas where there are more employed persons, the demand for labour consultancy services is higher. As a demand shifter for geologists we consider the percentage of the local territory that is classified as being at risk of landslide, as computed by the Italian Ministry of the Environment (Di Maggio et al, 2008). For midwives, we look at the percentage of women in fertile age (i.e., women aged 15 to 55 years old), as they are the only population from which demand for obstetric services can arise. For medical doctors and pharmacists we use as a proxy for demand for their services the percentage of adult population in the province. It is well known that the demand of health services evolves over age according to a U-shape relation, with high demand at very young and very old ages and relatively lower demand among prime to mid aged individuals. Hence, we expect a lower demand of both medical services and pharmaceutical products in provinces where there is a larger fraction of the population in the prime to mid ranges (15 to 64). Finally, we collected the public available Index of Residential Housing Transaction, calculated by the National Territorial and Housing Agency (*Agenzia del Territorio*) as a potential demand factor for both architects and notaries. In fact, both these professions are heavily involved in most transactions that take place in the housing market: architects prepare projects for both new building and renovation of existing ones, a specific notary act is needed (by the law) in any transaction of immobile assets, such as houses.

In Table 9 we regress the Pseudo-ICS for each profession on the indicators of demand that we discussed above. In all regressions we additionally control for value added per capita, as we do not want our results to be influenced by differences in the aggregate level of demand across geographical areas. In all cases but labour consultants, the point estimate are consistent with the idea that high demand is associated with lower levels of familism. For example, in column 1 we find that where there are more car accidents, i.e. where we expect the demand for legal services to be higher, the Pseudo-ICS of lawyers is lower. This effect is also statistically significant at conventional levels. For medical doctors and pharmacists the effects are also significant, with lower Pseudo-ICS where there are more young and old people. In all other cases the estimated coefficients do not reach statistical significance at conventional levels

For robustness and completeness, in Table 10 we present regression results where we simultaneously condition on both our indicators of social capital and of demand. Given the small sample sizes in the regressions of Table 10 we only condition on blood donation so as to save degrees of freedom.[21] Overall, the results of Tables 7 and 9 are confirmed in Table 10.

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[21] If we instead control for readership results are similar.

Table 9 Determinants of Pseudo-ICS: market measures.

	Lawyers [1]	Lab.Cons. [2]	Geolog. [3]	Midwiv. [4]	Med.Doc. [5]	Pharmac. [6]	Archit. [7]	Notaries [8]
Car Accidents	-0.002**							
	(0.001)							
Employees		63.728						
		(48.654)						
At-risk Landslide Index			-30.517					
			(56.754)					
Women Aged 15-55				-0.000				
				(0.000)				
Pop. Aged 15-64					705.352**	894.718**		
					(266.857)	(351.957)		
Housing Transaction Index							-909.857	-53.919
							(908.099)	(2298.620)
V.A. per capita	0.001**	-0.001**	-0.000	0.000	0.003***	0.002	0.001	-0.002
	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Obs.	77	101	20	20	39	46	97	90

WLS estimates. Observations are weighted by the square-root of population. The Pseudo-ICS are multiplied by 1000 for easier interpretation of the coefficients. Total number of surnames both in the professional register and in the total population are included in all the specifications. See notes in Table 8.
[a] Calculated by ISTAT for year 2005.
Significance: * at 10%,** at 5%,*** at 1%.

5 Conclusions

In this chapter we provide empirical evidence of the presence of family links among professionals, using data from the public registers of 11 licensed professions, and we construct a measure of intergenerational mobility which exploits the information contained in surnames. We call such a measure the Pseudo-ICS in analogy with the ICS *(Informational Content of Surnames)* of Güell et al (2007). This indicator summarises the importance of one's surname in defining participation in the profession and high values of the Pseudo-ICS indicate strong family links.

Our data show high levels of familism among medical doctors, pharmacists and lawyers. In general, Pseudo-ICS vary greatly both across licensed professions and within professions across provinces. Economic intuition suggests that we should have observed high levels of familism associated to either low level of civic values or to lack of competition in the market. We found no systematic correlation between civic values and the Pseudo-ICS. However, we showed that family links are weaker in markets with a high level of demand in the cases of lawyers, medical doctors and pharmacists.

The literature on intergenerational transmission of occupation suggests that children are more likely to be employed in the same occupation of their fathers for two main reasons: human capital transfers and nepotism. Our analysis indicates that en-

Table 10 Determinants of Pseudo-ICS: market and social capital.

	Lawyers [1]	Lab.Cons. [2]	Geolog. [3]	Midwiv. [4]	Med.Doc. [5]	Pharmac. [6]	Archit. [7]	Notaries [8]
Car Accidents	-0.003**							
	(0.001)							
Employees		71.448						
		(48.837)						
At-risk Landslide Index			-27.857					
			(58.897)					
Women Aged 15-55				-0.000				
				(0.000)				
Population Aged 15-64					748.556**	1030.621***		
					(279.862)	(365.335)		
Housing Transaction Index							-569.542	-446.398
							(916.577)	(2372.549)
Blood donation	-71.905	-168.071	-221.384	145.838	-135.044	-424.970	-240.182*	159.769
	(119.017)	(118.120)	(217.371)	(394.526)	(235.498)	(334.305)	(123.947)	(313.664)
Obs.	76	100	19	19	39	46	96	89

WLS estimates. Observations are weighted by the square-root of population. The Pseudo-ICS are multiplied by 1000 for easier interpretation of the coefficients. Value added per capita, the total number of surnames both in the professional register and in the population are included in all the specifications. See notes in Table 8 and 6.
Significance: * at 10%,** at 5%,*** at 1%.

try barriers are an important factor, as they may actually amplify the persistence of familism in licensed professions.

In fact, the Pseudo-ICS among licensed professionals is generally higher than that computed for the generic group of self-employment. On the other hand, standard licensing per se seems not to be the only way to ease the transmission channel of family values and human capital. University professors in Italy have the largest Pseudo-ICS among those we were able to calculate. This result is consistent with scientific and anecdotal evidences on this topic.

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Family ties and outcomes of the profession

Davide Malacrino and Michele Pellizzari

1 Introduction

In this chapter we correlate the Pseudo-ICS produced in Chapter 5, which measure of the importance of surnames in explaining participation in an occupation, with proxies of the quality of services provided by the profession.

This analysis is able to inform about the mechanism by which family connections affect participation in a particular profession or occupation. As outlined in more details in Chapter , if families are places of occupation specific human capital formation, then one should find that where families and, hence, surnames, are found to have a more important role in determining participation in a given profession the quality of the services offered in that market is higher. The opposite if families simply help reducing the idiosyncratic component of the entry barriers, either through legitimate support in accessing jobs and clients or by less legitimate nepotist or corporative practices or even through plainly unlawful favoritism in the qualification exams.[1]

In order to produce such evidence, we can make use of the Pseudo-ICS described in Chapter 5, which are excellent measures of the importance of families in determining participation in a profession, but we also need proxies for the quality of services. Finding such proxies is difficult and involves a certain degree of creativity and also arbitrariness, so much that the analysis that we carry out in this chapter should be interpreted with care and perhaps be considered as a preliminary step in the use of the methodology that we propose.

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[1] Notice that the mechanisms through with family ties influence the market may well vary across professions. For example, it seems to be against the practice of professional psychologists to share information about clients.

Notice also that for our purposes we really need indicators of the quality of services. We might be able to find information about either earnings or prices in the professional sector (although even this information is extremely hard to get) but the correlation of these variables with measures of familism would not be particularly informative. In fact, high prices, or equally high earnings, could either reflect high productivity or high rents and it would be impossible to disentangle these factors apart in the data.

We document aggregate correlations which cannot be interpreted as causal relationships. More specifically, we propose proxies of the aggregate quality of services produced by some professions at the most disaggregated geographical level that the data allow us to investigate (i.e. regions, provinces or aggregations of provinces, depending on the profession under consideration). All of these proxies are noisy and often arbitrary. Nevertheless, we believe that in most cases both the noisiness and the arbitrariness of our proxies should bias the estimates towards finding no correlation with the Pseudo-ICS. In Section 2 we discuss in details what proxies we choose for each occupation.

The correlations that we produce are all obtained through standard weighted least square models of the following type:

$$q_{ip} = \alpha_{0p} + \alpha_{1p} Pseudo\text{-}ICS_{ip} + \alpha_{2p} X_{ip} + e_{ip} \tag{1}$$

where q_{ip} is the chosen proxy of the quality of outcomes of profession p in the geographical area i, $Pseudo\text{-}ICS_{ip}$ is the Pseudo-ICS computed for profession p in area i, X_{ip} is a set of controls and e_{ip} is the error term. We run one such regression for each occupation and we weight observations by the square root of the population of the area.

The Pseudo-ICS that we use are the ones constructed using the entire set of registered professionals for the most recent available year in each occupation. Hence, the observations that we use for our regressions are a cross section of either provinces or regions (or some re-aggregation of provinces). As discussed in Chapter 5, for some occupations we only have a subset of local registers.

The outcome variables q_{ip} are generally derived from national statistics, which in some cases are available for several years. In such instances, in order to minimize the noise due to idiosyncratic time variation we use as a dependent variable for our cross-sectional regressions, the average of such outcomes over a few years. In a few cases, we are able to use several different outcomes for robustness. The set of controls that we use vary across occupations and allows us to perform some additional robustness checks.

Inference is made using bootstrapped standard errors, as the key regressor of equation 1 is generated from a previous estimation procedure and, hence, simple OLS standard errors would be incorrect.

2 Outcomes of the professions

In Chapter 5 we have produced Pseudo-ICS for 11 professions, for which data were available. In this chapter we concentrate on a subset of 6 professions for which we were able to identify reasonable proxies for the quality of the services offered by those occupations. The 6 professions are accountants, geologists, labour consultants, lawyers, medical doctors and midwives. In this section we briefly describe the proxies that we have chosen and we discuss their limitations.

Accountants. We take the incidence of tax evasion at the level of the province as a plausible measure of the social quality of the services offered by the professional accountants. We build such a measure as 1 minus the ratio between the sum of all declared taxable incomes (from tax records) in the province and the aggregate value added, as derived from national accounts, which do include the underground economy (see ISTAT (2008) for the methodological approach). In the absence of any tax evasion, the local value added computed from national accounts should coincide with the total amount of declared incomes in the individual tax records. The more tax evasion, the lower the value of declared incomes while national accounts data should be unaffected, provided the methodology used to capture the shadow economic activity works effectively. Obviously, there are also other reasons why declared incomes might not match perfectly the data from national accounts, namely tax deductions and no-tax areas drive a wedge between taxable and actual income. This is the reason why in the data reported in Table 1 total declared incomes amount only to between 52% and 74% of total value added. Nevertheless, the variation across Italian provinces is most likely to be due predominantly to differences in the degree of tax evasion. Notice also that, since we only have access to the complete individual tax records for the year 2005 (2004 incomes), we can only compute this measure of tax evasion for one single time point.

Since the most important activity of professional accountants is private fiscal consulting, the rationale for this proxy rests on the idea that high quality, prepared, competent and honest professionals would never advise or support illegal practices of their clients and should, then, be associated with low levels of tax evasion. Obviously, we do recognize that in this case there might be a distinction between the private and the social quality of professional accountants. From the private standpoint, a good accounts might simply be someone who minimizes the amount of taxes clients pay, thus potentially including some degree of tax evasion. However, from the collective standpoint, it should be clear that a lower degree of tax evasion is a better outcome.

Geologists. We measure the aggregate social performance of professional geologists with a regional landslide-index (geologists are organized in 20 regional registers). More precisely, we compute the ratio of the slid down areas to the total regional area. Obviously, this index is heavily influenced by the morphological features of the area and, although it is unclear why such features should be correlated with the Pseudo-ICS, in the regression analysis we control for a measure of the portion of the regional territory that is classified as *high-risk* by the Italian Ministry of the Environment. Our results are generally robust to this change of specification. Ge-

ologists work in various areas, among which is consultancy about territorial safety and environmental protection and they provide advise to both private investors and the public administration about the feasibility of to building in certain areas. All of these activities, in the aggregate, are likely to influence the occurrence of landslides, although this is an outcome that is obviously only marginally affected by the services of these professionals. Nevertheless, notice that the limited effect that geologists can have on landslides makes it more difficult, not more likely, to detect any correlation with the role of familism in accessing the profession.

Labour consultants. We use a measure of litigation on labour issues as a proxy for the quality of services offered by labour consultants. We use data provided by the Ministry of Justice to compute the number of labour disputes per person at the province level. Labour consultants offer a wide variety of consultancy services to both employers and employees on labour matters and it seems reasonable to think that, when such pieces of advise and consultancy are of high quality they would be less likely to lead to disputes. Obviously, as in for accountants, there might be a distinction between private and social aggregate quality and we measure the latter.

Lawyers. Measuring the quality of legal services offered by lawyers is particularly difficult. For this reason, we present results based on more than one outcome measure, although they are somehow all indicators of congestion of the judicial system. First, we compute the expected duration of trials as the ratio between pending and completed trials at the end of each calendar year. Next, we construct a measure of litigation as the number of pending trials per person at the end of each calendar year. Finally, we consider the turnover of trials as the total number of completed trials over the sum of ongoing and incoming trials in each the year. The rationale for using congestion as a proxy for the quality of legal services rests on the idea that the pricing structure of licensed lawyers is such that, everything else constant, longer trials are associated with higher professional fees, as argued by Buonanno and Galizzi (2010). Similar evidence of supply-induced demand is provided by Cockx and Brasseur (2003); Fuchs (1978); Gruber and Owings (1996); Rossiter and Wilensky (1984) in other sectors and countries (mostly doctors in the US). Hence, the most professional, competent and honest lawyers would not induce their own demand, i.e. they would not unduly prolong the trials of their clients in order to increase their earnings, both because of professional ethics but also because such a strategy is unlikely to be profit maximizing for high productivity professionals who can probably earn more by rapidly completing their trials and move on to serve new clients. Low quality professionals who have difficulties finding clients may, however, have incentives to exploits the possibility to prolong trials. Obviously, there are many other reasons why the judicial system may be congested, as, for example, the efficiency of judges (Coviello et al, 2010) or the local population's propensity to litigation. In our empirical analysis of Section 3 we try to control for these other factors in a series of robustness checks.

Medical doctors. The outcome measures that we consider for medical doctors are all based on health indicators for the population of reference to each register. Specifically, we look at two measures, which refer to diseases that should not be particularly affected by environmental factors, so that the variation they display across

geographical areas is mainly generated by differences in the types and quality of treatment that patients receive. We look at the incidence of heart-disease and tumor related deaths, both diseases for which the probability of being affected is largely unrelated to environmental differences such as temperature, rainfall, et. The data are obtained from the official ISTAT *Health for All* database, that collects official measures of health outcomes in the Italian population. Obviously, doctors only have a limited impact on the outcomes of such diseases, as they cannot force people to adopt a healthy lifestyle and the effects of medical treatments are partly stochastic. Nevertheless, through the treatment that they provide as well as through their advise to patients they certainly have a role in mitigating the outcomes of such diseases.

Midwives. Professional midwives are involved at various stages of women's pregnancies and deliveries and, through their services, they are supposed to reduce the occurrence of serious medical complications. Hence, we use as a measure of the quality of their services the rate of deaths due or associated to pregnancy-related complications (computed as number of deaths over number of women aged between 15 and 49 in the area of interest). As shown in Table 1, such indicator is simply equal to zero in many areas, although the Pseudo-ICS does vary considerably in those same areas. As a consequence, the coefficient that we estimate from running simple OLS on equation 1 for midwives is likely to be biased towards zero, a result that is confirmed by estimating a Tobit model for the same equation. Moreover, since midwives are predominately women (6182 out of 6440 observations) the Pseudo-ICS is a particularly noisy proxy of family connections, as mothers and daughters would normally have different surnames. Both these peculiarities (the mass of zero outcomes and the noisiness of the Pseudo-ICS) lead us to underestimate the explanatory power of surnames on participation in the profession, which makes the finding of significant correlations even more surprising.

In Table 1 we report basic descriptive statistics for the outcomes that we consider in each profession.

3 Correlating the Pseudo-ICS with professional outcomes

In this section we present the results of regression analyses based on equation 1 that correlate the Pseudo-ICS produced in Chapter 5 with the aggregate and social outcomes of the professions described in Section 2.

3.1 Accountants

In Table 2 we report the results of the estimation of model 1 for accountants. Recall that the outcome variable that we consider for this profession is tax evasion or 1 minus the ratio between total declared taxable incomes and total value added, as computed by the National Statistical Institute (ISTAT). The regression analysis is

Table 1 Outcomes. Descriptive statistics.

Profession	Outcome	Mean	Std. Dev.	Min	Max
Accountants	Tax evasion[a]	0.635	0.042	0.524	0.746
Geologists	Landslide index[b]	0.075	0.053	0.004	0.192
Labour consultants	Labour litigation [c]	56.510	63.540	1.317	347.978
Lawyers	Duration of trials[d] (years)	1.085	0.478	0.483	2.585
	Trial turnover[d]	0.557	0.119	0.315	0.812
	Litigation [d]	703.422	438.300	229.895	2239.555
Medical doctors	Tumor-related deaths [e]	30.572	4.645	21.235	42.300
	Heart-related deaths [e]	39.508	6.981	22.964	52.077
Midwives	Pregnancy related deaths [e]	0.011	0.012	0.000	0.050

[a] Obtained as 1 minus the ratio between decleared income and value added per capita (year 2005). [b] Ratio between slid down areas and the total regional area. Average over years 2004-2007 [c] Labour disputes per person. [d] Duration is computed as ratio between pending and completed trials at the end of each calendar year. Turnover is the total number of completed trials over the sum of ongoing and incoming trials in each the year. Litigation is measured as pendig trials per person at the end of the year (here reported as trials per 10,000 people). [e] Rate per 10,000 people (year 2007 but for "Pregnancy related deaths" which is an average over years 1997-2001 and for which the rate is per 10,000 women aged between 15 and 49).

based on 98 observations, corresponding to the local registers of accountants for which we were able to collect data to compute both the Pseudo-ICS and our measure of tax evasion.

In the first column we present the unconditional regression coefficient which is estimated to be positive and highly significant. The effect is also of non trivial magnitude: an increase by one percentage point in the Pseudo-ICS, which corresponds to approximately 60% of a standard deviation in the estimation sample, is associated with an increase of our measure of tax evasion by 0.8 percentage points or about 20% of a standard deviation.

In the following columns, we progressively add control variables, which can affect the degree of tax evasion and, at the same time, be correlated with the Pseudo-ICS. For example, the official rate of labour market participation, which we add in column 2, seem to be negatively correlated with tax evasion and including it reduces the coefficient on the Psuedo-ICS to 0.6. Next, in column 3, we also add the fraction of the population holding at least a secondary school degree, which does not seem to change our results significantly. In column 4, we also add measures of social capital, such as voters' turnover and newspaper sales, under the assumption that areas with higher levels of social capital might be less affected to both tax evasion and nepotist practices in professional affiliation. As discussed also in Chapter 5, social capital does appear to correlate with the Pseudo-ICS and, consistently with the results re-

Table 2 Accountants surnames and tax evasion.

Dependent variable: tax evasion	[1]	[2]	[3]	[4]	[5]
Pseudo-ICS	0.845***	0.604***	0.662***	0.467**	0.384*
	(0.200)	(0.210)	(0.221)	(0.200)	(0.212)
Labour market participation rate	-	-0.284***	-0.305***	0.131	0.129
		(0.054)	(0.057)	(0.104)	(0.114)
Secondary degree rate	-	-	0.002*	0.001	0.001
			(0.001)	(0.001)	(0.001)
Voters turnout[a]	-	-	-	-0.001**	-0.001*
				(0.001)	(0.001)
Newspaper sales[b]	-	-	-	-0.510***	-0.413***
				(0.118)	(0.120)
Crimes per capita[c]	-	-	-	-	-0.583
					(0.420)
Obs.	98	98	98	98	98

WLS estimates. Observations are weighted by the square-root of the population. Boot-strapped standard errors in parentheses.
Significance: * at 10%,** at 5%,*** at 1%.
[a] Percentage of voters who decided to take part to the constitutional confirmative referendum about local autonomy in 2001. [b] Sold Newspapers per person, average over years 2000-2004 (source: Accertamenti Diffusione Stampa). [c] Number of damages, thefts and robberies per person in 2005 (source: ISTAT).

ported there, we find that both voters' turnout and newspaper sales are negatively associated with tax evasion and reduce the magnitude of the estimated coefficient of the Pseudo-ICS to approximately 0.5. Finally, as an additional indicator of the local propensity to commit crimes, we also control (column 5) for the local crime rate, whose coefficient does not reach conventional statistical significance but still reduces the estimated effect of the Pseudo-ICS to just below 0.4.

In table 2 we have included additional regressors to control for potential spurious correlation between tax evasion and our Pseudo-ICS. An alternative approach consists of adding dummies for geographical areas, so as to identify the coefficient of interest only out of variation within restricted areas. This is the strategy that we adopt in Table 3, where in column 1 we simply replicate the univariate regression of Table 2 (column 1) and in the following columns we add dummies for 3 (north, center and south), 4 (north-east, north-west, center and south) and 5 macro-areas (north-east, north-west, center and south-east and south-west).[2] Results are very

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[2] The finest partition (5 areas) is North-West (Liguria, Lombardia, Piemonte and Valle d'Aosta), North-East (Trentino Alto Adige, Veneto, Friuli Venezia e Giulia and Emilia Romagna), Center (Toscana, Lazio, Marche and Umbria), South-east (Abruzzo, Molise and Puglia), South-West (Campania, Calabria, Sicilia and Sardegna). The 4-area partition combines together the South-East and South-West into a single South region, whereas the 3-area grouping further aggregate North-East and North-West into a unique category (North).

Table 3 Accountants surnames and tax evasion - area dummies.

Dependent variable: tax evasion				
	[1]	[2]	[3]	[4]
Pseudo-ICS	0.845***	0.581**	0.473*	0.483*
	(0.200)	(0.230)	(0.280)	(0.274)
Macroarea FE's	No	3	4	5
Obs.	98	98	98	98

WLS estimates. Observations are weighted by the square-root of the population. Bootstrapped standard errors in parentheses. Area dummies are described in footnote number 2.
Significance: * at 10%,** at 5%,*** at 1%.

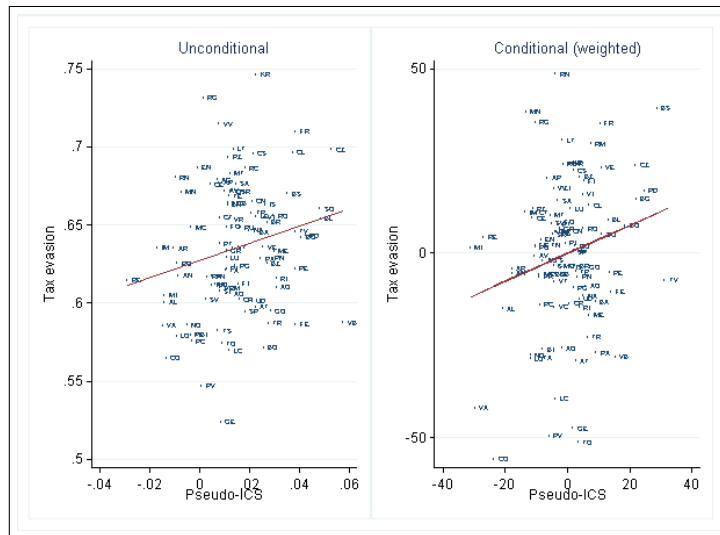consistent with those reported in Table 2, with the coefficient on the Pseudo-ICS ranging from 0.845 to 0.483.

Fig. 1 Accountants' surnames and tax evasion.

In Figure 1 we summarize our results with two simple scatterplots. The left panel simply plots the raw data on tax evasion (vertical axis) against the Pseudo-ICS (horizontal axis), which, other than for the weighting structure, is analog to the univariate regression reported in the first column of Table 2 or Table 3. In the right panel, instead, we report the partitioned regression analog of our most conservative estimates, i.e. column 5 in Table 2.

Overall, our analysis shows that areas where surnames are a more powerful predictor of participation in the accounting profession are also areas characterized by higher levels of tax evasion.

3.2 Geologists

The regression analysis of the relationship between the landslide index and the Psuedo-ICS of geologists is reported in Table 4. The validity of these results is obviously limited by the small sample size: since geologists are organised in regional registers, we can only use 20 observations.

Table 4 Geologists' surnames and landslides.

Dependent variable: landslide index						
	[1]	[2]	[3]	[4]	[5]	[6]
Pseudo ICS	-1.841*	-1.594	-2.055**	-1.905	-2.655*	-1.299
	(0.979)	(0.974)	(0.996)	(1.484)	(1.426)	(1.025)
High-risk areas[a]	-	0.507	0.683**	0.686**	0.773**	0.569
		(0.349)	(0.275)	(0.332)	(0.324)	(0.359)
V.A. per capita[b]	-	-	0.000	0.000	0.000**	-
			(0.000)	(0.000)	(0.000)	
Crimes per capita[c]	-	-	-	0.362	-0.174	-
				(1.811)	(2.010)	
Secondary degree rate[c]	-	-	-	-	-0.006	-
					(0.005)	
Voting turnover[c]	-	-	-	-	0.002	-
					(0.002)	
Macroarea FE	No	No	No	No	No	3
Obs.	20	20	20	20	20	20

WLS estimates. Observations are weighted by the square-root of the population. Bootstrapped standard errors in parentheses.
Significance: * at 10%,** at 5%,*** at 1%.
[a] See footnote 3. [b] As measured by ISTAT for year 2005. See ISTAT (2008) for the methodological approach. [c] See notes in Table 2.

As for Table 2, the first column refers to a simple univariate model and shows a negative and significant coefficient, despite the small sample (although only at the margin of the 90%). The magnitude of the point estimate indicates that one percentage point change in the Pseuod-ICS (approximately 0.8 of a standard deviation) is associated with reduction in the landslide index, which measures the portion of slid terrain in the region, by 1.8 percentage points or about one third of a standard deviation of the observed distribution of the dependent variable.

Obviously, the distribution of landslides across regions is heavily influenced by morphological characteristics and, although it is unclear whether these should be also correlated with the Pseudo-ICS, in column 2 we control for the fraction of the regional territory that is classified as high-risk of landslide due to its morphological features (rivers, slope, ruggedness).[3] Although the estimated coefficient on this indicator is positive, as expected, surprisingly it does not reach the conventional levels of statistical significance. Apparently, very many landslides take place in areas that are not classified as high-risk. Including the indicator for high-risk areas reduces the coefficient of the Pseudo-ICS by a few decimal points but sufficiently to make it insignificant.

Not surprisingly, economic and social capital indicators do not have significant coefficients.

As we introduce additional controls for the regional economic activity (column 3), crime (column 4) and the level of education of the resident population together with voters' turnout (column 5), the estimated coefficient on the Pseudo-ICS increases and improves its statistical significance. For robustness, in the final column 6 of Table 4 we replace the controls with (3) area dummies (north, center and south) and we obtain results that, considering the small sample size, are consistent with those in the previous specifications.

Figure 2 summarizes our results for geologists. In the left panel we report the simple plot of the raw data on landslides (vertical axis) against th Pseudo-ICS (horizontal axis), which corresponds to the regression in column 1 of Table 4, other than for the weighting scheme. On the left panel we instead report the partitioned regression univariate equivalent of our preferred specification in column 5 of Table 4.

Overall, we find that in regions where surnames are more important in determining participation among professional geologists, there appear to be fewer landslides.

3.3 Labour Consultants

Table 5 reports the results of the regression analysis for labour consultants. In this case we can exploit a relatively large number of observations, given that the registers are organised at the provincial level and that we were able to limit the number of missing values on the outcome variable, which is the number of labour disputes per person. Eventually, we run the regressions using 103 provinces.

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[3] The index is built by the the Department for the Defence of the Territory and the Sea of the Italian Ministry of the Environment according to the guidelines contained in the Decreto del Presidente del Consiglio dei Ministri (Decree by the President of the Council of Ministers) of 29.09.1998. For more details see the report by Di Maggio et al (2008). The report higlights the high effort put to harmonize the different measures provided by the single regions. The index takes into account both the morphological features of the territory per se and the risk to which things and people are exposed due to those features.
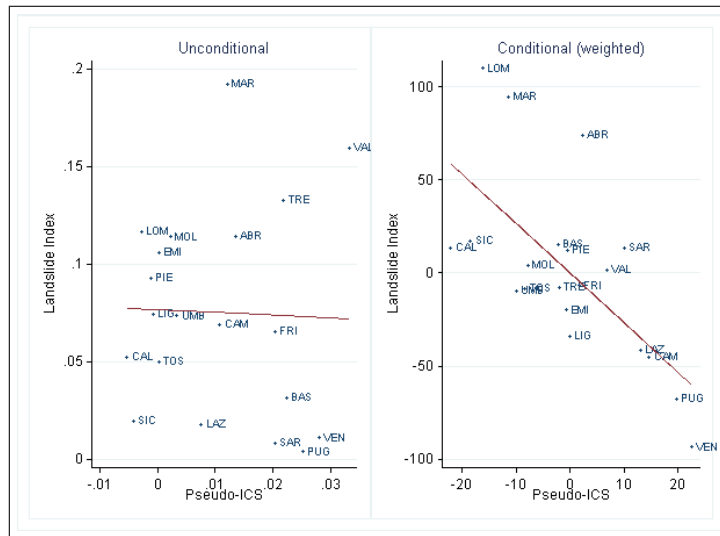
Fig. 2 Geologists' surnames and landslides.

Table 5 Labour Consultants and labour disputies.

Dependent variable: labour disputes per person				
	[1]	[2]	[3]	[4]
Pseudo-ICS	0.089**	0.093***	0.022	0.017
	(0.037)	(0.031)	(0.023)	(0.023)
(log) Civil trials[a]	-	0.004***	0.003***	0.003***
		(0.001)	(0.001)	(0.001)
Labour market participation[b]	-	-	-0.067***	-0.056***
			(0.013)	(0.021)
Secondary degree rate[c]	-	-	-	-0.000
				(0.000)
Voters' turnout[c]	-	-	-	-0.000
				(0.000)
Newspaper sales[c]	-	-	-	-0.014
				(0.010)
Obs.	103	103	103	103

WLS estimates. Observations are weighted by the square-root of the population. Bootstrapped standard errors in parentheses.
. Significance: * at 10%,** at 5%,*** at 1%.
[a] Logarithm of civil trials. Data provided by the Ministry of justice for year 2008 [b] 1 minus the inactivity rate provided by ISTAT. Average over years 2004-2010 [c] See notes in Table 2.

As for the previous professions, in the first columns we report the simplest uni-variate regression coefficient of the Pseudo-ICS, which is here positive and sig-

nificant at the 95% level. A one percentage point increase in the Pseudo-ICS (approximately 50% of a standard deviation) corresponds to approximately one (0.89) additional dispute per 1000 persons (or 15% of a standard deviation).

This result is confirmed and actually reinforced in column 2, where we control for the total number of civil trials as a measure of the overall litigiousness of the area. Next, in column 3 we augment the model with the labour market participation rate of the province, which reduces the coefficients on the Pseudo-ICS by over 80%, a result that is confirmed also by adding other controls as in column 4. All the measures of social capital are not significantly correlated with the outcome, while labour market participation has a negative coefficient which is also significant at conventional levels. A possible explanation for this result may be given by considering provinces with lower participation as more economically depressed. The higher cost of losing a job in those areas might induce an increase in the rate of labour litigation.

Table 6 Labour Consultants and labour disputes with geographical fixed effects.

Dependent variable: labour disputes per person			
[1]	[2]	[3]	[4]
Pseudo-ICS	0.089**	0.020	0.019	0.015
	(0.037)	(0.022)	(0.022)	(0.024)
Macroarea FE	No	3	4	5
Obs.	103	103	103	103

WLS estimates. Observations are weighted by the square-root of the population. Bootstrapped standard errors in parentheses.
Significance: * at 10%,** at 5%,*** at 1%.

In Table 6 we replace the controls with area dummies to test the robustness of our results. As usual, in the first column we report for comparison the same coefficient from the simple univariate model used also in column 1 of Table 5, whereas in the following columns we add 3 (north, center and south), 4 (north-west, north-east, center, south) or 5 (north-west, north-east, center, south-west, south-east) geographical area fixed effects. As soon as such fixed effects are included in the regression specification, the coefficient on the Pseudo-ICS drops to around 0.015-0.020, as in the most complete specifications of Table 5.

The results of this section are summarized in Figure 3 where the left panel reports, as usual, the simple plot of the raw outcome (labour disputes) on the Pseudo-ICS and the right panel shows the univariate partitioned regression equivalent of our most complete specification, which is the one reported in Table 5 column 5.

Overall, our findings for labour consultants point towards a higher level of litigation on labour issues where surnames are more powerful predictors of participation in the profession. Although in all specifications the regression coefficients on the
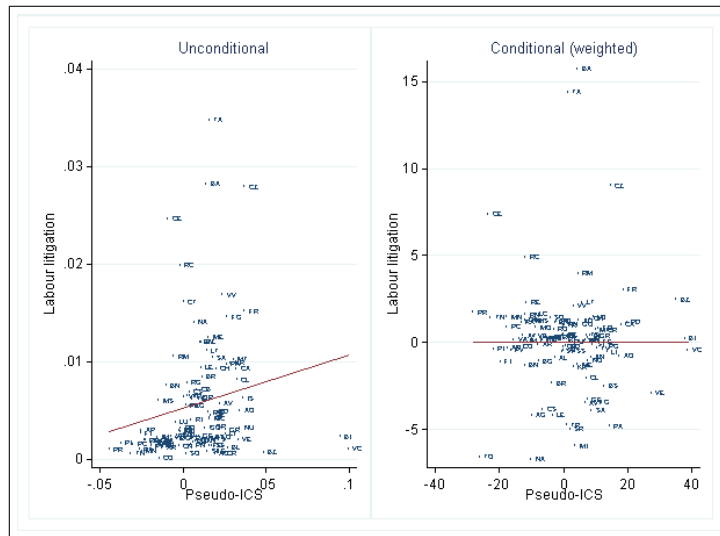
Fig. 3 Labour Consultants and labour disputes.

Pseudo-ICS is positive, the estimates are not particularly robust and adding a few controls easily reduces the size of the coefficients, which also loose statistical significance at conventional levels.

3.4 Lawyers

As anticipated in Section 2, we consider three different indicators of congestion in the judicial system as proxies for the quality of the professional services offered by registered lawyers. The analysis is reported in Table 7, where for convenience for each outcome we only report the simplest univariate and the most complete specifications.

Results are mixed. When we look at the expected duration of trials we find that higher Pseudo-ICS are associated with significantly shorter trials. In the univariate specification of column 1, a one percentage point increase in the Pseudo-ICS (approximately 50% of a standard deviation) is associated with about half month shorter trials or about 10% of the observed standard deviation. This effect is substantially lower in column 2, where we add our standard set of controls and it also looses statistical significance.

The relationship between the trial turnover and the Pseudo-ICS computed on the local register of lawyers is estimated to be positive in all specifications but the regression coefficients never reach the conventional levels of statistical significance. Finally, when we consider the number of trials per person the effect is negative and

Table 7 Lawyers and congestion of trials.

Dependent variable:[a]	Duration of trials		Turnover of trials		Trials per capita	
	[1]	[2]	[3]	[4]	[5]	[6]
Pseudo-ICS	-4.606*	-1.146	0.719	0.109	-0.471**	0.033
	(2.409)	(2.351)	(0.855)	(0.947)	(0.224)	(0.180)
V.A. per capita[b]	-	0.000	-	-0.000	-	-0.000**
		(0.000)		(0.000)		(0.000)
Secondary degree rate[c]	-	0.025**	-	-0.005	-	0.004***
		(0.012)		(0.006)		(0.001)
Voters' turnout[c]	-	-0.022*	-	0.005	-	-0.001
		(0.012)		(0.004)		(0.001)
Newspaper sales[c]	-	-2.856**	-	1.011**	-	-0.197*
		(1.401)		(0.469)		(0.101)
Obs.	77	77	77	77	77	77

WLS estimates. Observations are weighted by the square-root of the population.
Bootstrapped standard errors in parentheses.
Significance: * at 10%,** at 5%,*** at 1%.
[a] All the dependent variables are described in notes to Table 1 and taken from data
provided by the Ministry of justice, 2008. [b] See notes in Table 4. [c] See notes in
Table 2.

significant in the univariate specification and turns positive and insignificant as we
add controls.

Among the controls, only newspaper sales is systematically correlated with the
outcomes. The coefficient is positive when regressing on trials per capita and nega-
tive when looking at the other dependent variables.

When we replace controls with fixed effects for macro regions, as in Table 8,
results are more consistent as the estimated coefficients on all three indicators of
congestion are negative but none reaches statistical significance.[4]

Table 8 Lawyers and congestion of trials with geographical dummies.

Dependent variable:	Duration of trials	Trials per capita	Turnover of trials
	[1]	[2]	[3]
Pseudo-ICS	-1.001	-0.248	-0.132
	(2.286)	(0.855)	(0.143)
Macroarea FE	5	5	5
Obs.	77	77	77

WLS estimates. Observations are weighted by the square-root of the popu-
lation. Bootstrapped standard errors in parentheses.
Significance: * at 10%,** at 5%,*** at 1%.

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[4] For convenience, in Table 8 we only report results using 5 area dummies (the most conservative
specification) but the estimates are robust to alternative specifications.

Overall, our analysis suggests that there is a mild correlation between higher Pseudo-ICS for lawyers and less congestion in the judiciary system, somewhat contradicting the demand induced supply hypothesis for Italian lawyers.

3.5 Medical doctors

For medical doctors we consider two possible outcomes, namely the number of tumor and heart disease related deaths per inhabitants. For convenience, Table 9 reports only the results of the simplest univariate model, the one with the most complete set of controls and one where the controls are replaced by 4 geographical dummies, for both outcomes.[5]

Table 9 Doctors and tumor and heart-related deaths.

Dependent variable:[a]	Tumor-related deaths			Heart-related deaths		
	[1]	[2]	[3]	[4]	[5]	[6]
Pseudo-ICS	-0.002	-0.002	-0.002	-0.003	-0.005*	-0.002
	(0.002)	(0.001)	(0.002)	(0.005)	(0.003)	(0.002)
V.A. per capita[b]	-	-0.000	-	-	-0.000***	-
		(0.000)			(0.000)	
Secondary degree rate[c]	-	-0.000	-	-	0.000	-
		(0.000)			(0.000)	
Newspaper sales[c]	-	0.008**	-	-	0.008*	-
		(0.003)			(0.004)	
Voters' turnout[c]	-	0.000**	-	-	0.000***	-
		(0.000)			(0.000)	
Obs.	39	39	39	39	39	39

WLS estimates. Observations are weighted by the square-root of the population. Bootstrapped standard errors in parentheses.

Significance: * at 10%,** at 5%,*** at 1%.

[a] All the dependent variables described in notes to in Table 1 and obtained by dataset *Health for all*, by ISTAT. Note that in regressions we use deseases per person and not per 10,000 people. [b] See notes in Table 4. [c] See notes in Table 2.

All the point estimates suggest that where surnames are more powerful predictors of participation in the profession there are fewer deaths related to the two classes of pathologies that we consider, although the effects are small and fail to reach statistical significance in almost all specifications. The univariate estimates of columns 1 and 3 indicate that a one percentage point increase in the Pseudo-ICS (37% of a standard deviation) is associated with 2 fewer deaths for tumor-related problems and 3 for heart-related diseases every 100,000 inhabitants or about 4% of a standard deviation of the observed variation across provinces (for both diseases, approxi-

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[5] Given the small sample size, the specification with 5 macro-region dummies is not identified.

mately). Results change only marginally when including controls or area dummies, if anything they become larger and more precise.

Value added per capita is negatively correlated with heart-related deaths. This may be due to a possibly healthier life-style for rich people than for relatively poorer people. However, the magintude of the coefficient is negligible.
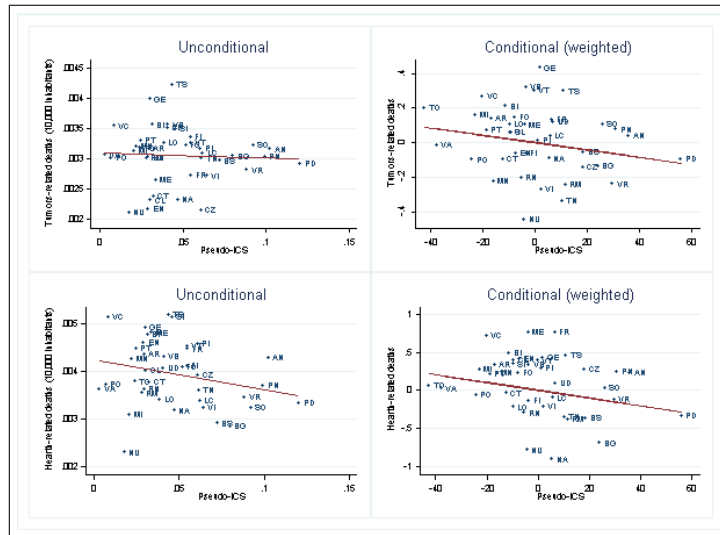

Fig. 4 Medical Doctors and health outcomes.

Figure 4 summarizes our results visually, plotting on the left panel the raw data on tumor (upper panels) and hear-related (lower panels) deaths against the Pseudo-ICS and in the right panels the univariate partitioned regression equivalent of the specifications in columns 2 and 5 of Table 9.

Overall, given the robustness of the point estimates across different specifications, the lack of statistical significance is most likely due to the small size of the sample, also considering that the magnitude of the estimated effects is quite low.

3.6 Midwives

The outcome that we consider for midwives is the number of deaths due to pregnancy-related complications. In Table 10 we report the results of our regression analysis that correlates such an outcome to the Pseudo-ICS of the profession.

In the first column we show, as usual, the simple univariate regression coefficient, which is negative and significant at the 99% level. In terms of magnitude, the estimated effect indicates that a one percentage point increase in the Pseudo-ICS

Table 10 Midwives and pregnancy related deaths.

Dependent variable: Pregnancy-related deaths[a]					
	[1]	[2]	[3]	[4]	[5]
Pseudo-ICS	-0.154***	-0.154***	-0.158***	-0.156***	-0.151***
	(0.055)	(0.052)	(0.056)	(0.054)	(0.053)
Average age at pregnancy[b]	-	-0.000	0.001	-0.008*	-0.010**
		(0.002)	(0.004)	(0.004)	(0.005)
Ceasarean section rate[c]	-	-	0.000	-0.001*	-0.001*
			(0.000)	(0.000)	(0.000)
V.A. per capita[d]	-	-	-	0.000	0.000
				(0.000)	(0.000)
Secondary degree rate[e]	-	-	-	0.002**	0.001**
				(0.001)	(0.001)
Newspaper sales[e]	-	-	-	-	0.055
					(0.059)
Voting turnover[e]	-	-	-	-	-0.000
					(0.000)
Obs.	61	61	61	61	61

WLS estimates. Observations are weighted by the square-root of the population. Bootstrapped standard errors in parentheses.

Significance: * at 10%,** at 5%,*** at 1%.

[a] See the description in notes in Table 1. The variable is obtained by dataset *Health for all*, by ISTAT. [b] Average over years 1997, 1999-2001 from dataset *Health for all*, by ISTAT. [c] Average over years 1997-2001 from dataset *Health for all*, by ISTAT. [d] See notes in Table 4. [e] See notes in Table 2.

(about 30% of a standard deviation) is associated with 1.5 fewer deaths related to pregnancy complications for every 1,000 women (12% of standard deviation).

Adding controls affects the estimates surprisingly little. Together with our usual set of controls for the local economic performance and educational attainment and social capital, we also condition on the average age of women at pregnancy and the incidence of c-sections to take into account differences in the underlying riskiness of motherhood.

Table 11 shows our usual robustness check that replaces the entire control set with 3, 4 or 5 geographical dummies. The estimates of Table 10 are confirmed.

Finally, Figure 5 summarizes our findings in this section. The left panel simply shows the raw plot of the outcome variable, i.e. pregnancy-related deaths, against the Pseudo-ICS, whereas the right panel shows the univariate partitioned regression equivalent of the most complete specification, i.e. the one reported in column 5 of Table 10.

Overall, our findings clearly point towards a negative and statistically significant correlation between the power of midwifes' surnames in predicting their participation in the profession and the number of pregnancy-related deaths.

Table 11 Midwives and pregnancy related deaths with geographical fixed effects.

Dependent variable: Pregnancy-related deaths				
	[1]	[2]	[3]	[4]
Pseudo-ICS	-0.154***	-0.147***	-0.150**	-0.146**
	(0.055)	(0.056)	(0.060)	(0.059)
Macroarea FE	No	3	4	5
Obs.	61	61	61	61

WLS estimates. Observations are weighted by the square-root of the population. Bootstrapped standard errors in parentheses.
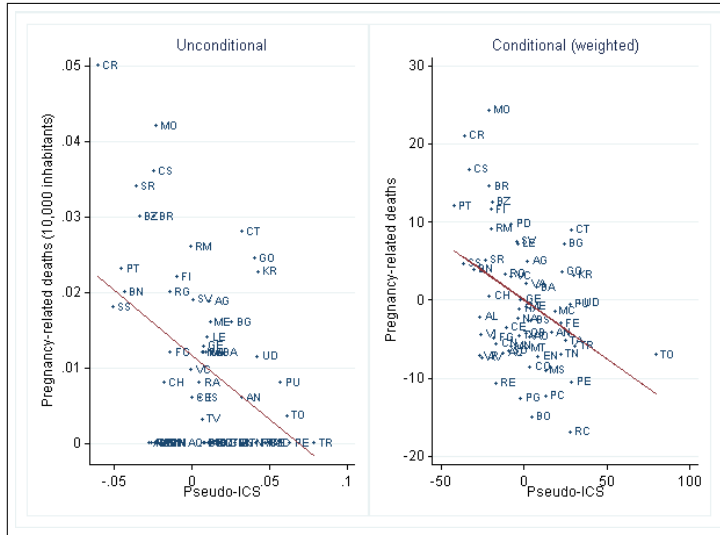Significance: * at 10%,** at 5%,*** at 1%.

Fig. 5 Midwives and pregnancy related deaths.

4 Conclusions

Table 12 summarizes the findings of this chapter, which appear to be quite heterogenous across professions.

The table shows for each of the 6 professions that were discussed in this chapter the outcome(s) that we considered, the simple univariate regression coefficients of the Pseudo-ICS and, in the final column, the sing of the implied effect of familism, as measured by the Pseudo-ICS, on the social outcome(s) of the profession.

For two out of the 6 professions, namely accountants and labour consultants, we find statistically significant and robust evidence of worse social outcomes where

Table 12 Correlations between PICS and outcomes.

Profession	Outcome	Coefficient of PICS[a]	Social impact[b]
Accountants	Tax evasion	0.845	(-)
Geologists	Landslide index	-1.841	(+)
Labour Consultants	Labour litigation	0.089	(-)
Lawyers	Expected duration (years)	-4.606	(?)
	Turnover	0.719	(?)
	Litigation	-0.471	(?)
Medical doctors	Tumors related deaths	-0.002	(?)/(+)
	Heart related deaths	-0.003	(?)/(+)
Midwives	Pregnancy related deaths	-0.154	(+)

[a] Coefficients from univariate regressions. [b] Implied effect of familism on the social outcome of the profession.

there is more familism. For other three professions, geologists, medical doctors and midwives, we find the opposite. The results for medical doctors are not statistically significant but the robustness of the point estimates across very different specifications suggests that this is mainly due to the small size of the sample. For Lawyers, results are either ambiguous or they systematically lack statistical significance.

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Conclusions and policy implications

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In this report we document the importance of family connections in defining participation in several licensed professions in Italy (Chapter 5), in the light of the specific regulations that characterise each occupation (Chapter 3). The analysis of the outcomes in Chapter 5 further emphasises the positive or negative role that such connections may have for the economy or the society as a whole.

The most likely interpretation of a negative relationship between familism and social outcomes is related to the ability of connected individuals to access the profession at lower costs, so that lower quality professionals may have access to the market. In such instances, occupational licensing simply does not function well and, unless something is changed, it does not seem appropriate to ask society to pay the cost derived from lack of competition since the increase in quality, that should be the return of such a cost, is simply not taking place.

On the other hand, if familism is associated with good aggregate outcomes, then strong and powerful family connections within a profession are not necessarily a major problem or one policy makers should be particularly concerned about. Nevertheless, our analysis is purely reduced form, in the sense that the correlations that we produce are the observed equilibrium result of several processes. More specifically, both transmission of occupation specific skills within the family, the most obvious mechanism that may produce the positive correlation between the Pseudo-ICS and aggregate outcomes, and the lowering of entry barriers for connected individuals through nepotism may be at play and, in the data, we simply detect that the the first phenomenon dominates the second.

Hence, even in those professions, such as geologists, medical doctors and midwives, for which we document better outcomes when family connections are more important, there might be room for improvements by making entry barriers the most homogeneous as possible for both connected and non connected individuals. Connected individuals may still be over represented in the profession but that should

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exclusively be due to their better skills, while equally skilled but non-connected individuals should face the same barriers.

Hence, one first set of policy implications one could derive from our analysis concerns the design of the barriers to entry. As discussed in Chapter 3, the regulations of most licensed professions include provisions that do not seem to be directly related to the aim of guaranteeing high standards of quality, such as price floors or quotas. As also repeatedly suggested by the Italian competition authority, such provisions should be amended.

More specifically, it seems reasonable to limit as much as possible (or eliminate altogether) any conflict of interest in the entry examinations, which should not be prepared nor evaluated by the same professionals who are going to be direct competitors of the new entrants.

Two specific and rather inexpensive measures could be readily implemented. First, when possible entry exams should be prepared and marked by experts who are not in the professions, such as judges for lawyers or university professors for other occupations. In some instances it might actually be difficult to find such experts, if the occupation is characterized by very specific skills that can only be found within the profession, as it might be the case for medical doctors or midwives.

In these other cases, one may think to use geographical distance to reduce the conflict of interest, as it has been done for lawyers with the 2003 reform. Prior to that date qualification exams were marked locally whereas afterwards registers were randomly paired (conditional on size) and one marks the papers of the other (Pellizzari and Pica, 2011; Basso, 2009; Basso and Pellizzari, 2010). Basso and Pellizzari (2010) document that prior to this reform the frequency of one's surname in the local register was significantly correlated with the age at which one obtains her qualification, especially in the south of Italy. After the reform, such a correlation essentially disappear. Similar policies could be easily implemented at no or very small cost in all professions.

Additionally, many of professional associations operate both as regulatory bodies and as representative organizations (unions), although their objectives in these two roles may often contrast. It would, then, be wise to separate these two roles in two different institutions, allowing representatives of consumers and potential incumbents (such as students of disciplines related to the profession) to sit in the regulatory organization. This is, in fact, the general principle that guides the design of the regulatory framework of licensed professions in several other countries, such as the United Kingdom (Chapter 3).

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