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economic analysis of professional self-regulation

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Abstract

This article provides a rationalization of (at least partial) professional self-regulation resting on the joint production of individual and collective reputations and its impact on the quality of professional services. It presents a short model that aims to show that (i) a high-quality steady-state exists in a market for a credence goods and that (ii) the likelihood of high quality increases when the market is self-regulated by the profession in comparison to the situation where there is no self-regulation. The law and economics literature usually criticizes self-regulation as a modern form of corporatism; we show that it may help to regulate quality when clients are faced with opportunistic professionals.

JEL Codes: K4, L14, L15, L43, L84, D8

Keywords: professional services, credence goods, self-regulation, individual reputation, collective reputation

1. Introduction

The law and economics literature usually criticizes self-regulation (SR) as a modern form of corporatism which reduces competition and increases prices. Lawyers, doctors, architects, and various other professionals organized in professional associations are seen as issuing anticompetitive regulations (entry restrictions, monopoly rights, etc.) protecting their own interests and increasing their rents at the expense of clients (Kay and Vickers, 1988, Van den Bergh and Faure, 1991, Van den Bergh, 1993, 2008). However, SR also reduces the discrepancy in information between the regulator and the regulatee and may therefore facilitate efficient regulation to the benefit of consumers (Miller, 1985; Gehrig and Jost, 1995; Ogus, 1999; Nuñez, 2001). This article proposes an economic rationale for the SR of professions which takes into account both the costs and benefits associated with SR in the law and economics literature. We show that although SR grants professions with a rent, it also maintains a high-quality equilibrium in markets for professional services. Depriving the profession of the possibility of self-regulation and, therefore, of the capacity to appropriate a rent would lead to a decrease in the quality of the services provided. Indeed, professional services are usually characterized as credence goods, i.e. goods for which customers are unable to assess the quality either *ex ante* or *ex post* (Darbi et Karny, 1973) and barely know, even after purchase, if they have been under

or over served by the professional (Dulleck and Kerschbamer, 2006). Lack of certitude concerning the quality of professional services opens up the possibility of reputational concerns. On the one hand, word-of-mouth and other clients' referrals provide consumers with imperfect information about the individual reputation of a particular professional. On the other hand, the collective reputation of the profession provides additional information. The profession has an incentive to maintain a good collective reputation as this increases the rent that accrues to the group. Therefore, SR may help in regulating quality when consumers are faced with opportunistic professionals.

The second section presents the assumptions. The third section examines the high and low quality steady states in a market for credence goods. The fourth section provides elements of discussion and concludes.

2. Assumptions

We consider a stationary market for a professional service where the population of professionals is constant. We assume that the probability for a professional to remain in the market up to the next date is $\lambda \in (0, 1)$, the proportion of newcomers being therefore $(1 - \lambda)$ at each given date. All the agents share the same discount rate δ .

At each date, a customer chooses a supplier and buys the service. Three types of suppliers are considered: "good" professionals in proportion h , "bad" ones in proportion l and "opportunistic" ones in proportion u , where $h+l+u = 1$. These proportions remain the same at each date and therefore for each cohort of newcomers.

Good professionals always provide high quality. Bad ones always provide low quality. Opportunistic suppliers rationally choose to deliver high quality only if the cost of effort e incurred when producing high quality is offset by their expected gains. Suppliers know which type they themselves are, whereas consumers only know the proportions h , l and u , but not the actual type of the particular professional they are matched with. The price they are willing to pay depends on the expected quality which in turn depends on the type and effort of the professional. We assume for the purpose of simplicity that the customer's payoff is 1 when (s)he receives high quality and 0 otherwise.

Consumers derive information on quality from (1) the individual reputation of the professional and (2) the collective reputation of the profession.

(1) Individual reputation refers to the quality that the professional has delivered in the past (MacLeod, 2007). We assume that the customer imperfectly observes a "track record" of the professional's past actions and uses this information to update his or her current belief about the quality (s)he is buying: word-of-mouth and other clients' referrals only provide customers with imperfect information on the actual quality associated with a particular professional. π_k denotes the probability that the customer will observe that the professional has produced low quality in the past at least once when he has in fact cheated on quality k times. Following Tirole (1996), we assume that:

$$\pi_0 = 0 < \pi_1 < \pi_2 < \dots < 1 \text{ and } \pi_{k+1} - \pi_k < \pi_k - \pi_{k-1} \text{ for all } k \quad (1)$$

The more frequently a professional has produced low quality in the past, the more likely it is that the customer is informed about him or her having delivered low quality at least once. Thus a supplier has an all the better reputation as π_k is close to $\pi_0 = 0$ ((s)he has never been observed delivering low quality); by contrast, (s)he has an all the worse reputation as π_k reaches 1, meaning that (s)he has been observed delivering low quality nearly the k times (s)he did it. This likelihood increases at a decreasing rate, inciting a professional producing low quality at date k to cheat again at date $k + 1$.

The detection of poor quality by a customer at date k is excluded from the market for the current period. Thus, the sanction is only temporary and the supplier will be matched with another consumer at the next date.

(2) In addition, consumers obtain information from the collective reputation of the profession. A collective reputation encapsulates consumers' beliefs about the average quality of the services which have been delivered by the profession in the past. Consumers are willing to pay a higher price for the service when the profession has a good reputation. Conversely, a lower price is associated with a bad collective reputation. Therefore, a higher (lower) rent accrues to the profession when it has a good (or bad) collective reputation. Hence, it is in the profession's interest to maintain a good collective reputation. Furthermore, the profession can observe the quality produced by its members. Now, the individual track records of members can be observed by the profession only imperfectly. Let π_k^P be the probability that the profession will observe that a professional has provided low quality at least once in the past when he has in fact produced it k times:

$$\pi_0^P = 0 < \pi_1^P < \pi_2^P < \dots < 1 \text{ and } \pi_{k+1}^P - \pi_k^P < \pi_k^P - \pi_{k-1}^P \text{ for all } k \quad (2)$$

Due to its expertise, the profession is likely to be better informed than consumers within a market for credence goods: $\pi_k^P > \pi_k$ for all k . This reflects the literature on SR according to which the profession is better informed about the actual behaviours of its members than non members¹. The profession strikes off a service provider anytime it has evidence of him or her providing low quality, with no cost involved either in striking a member off or in replacing him or her; thus at each date the size of the professional group is constant². Exclusion based on detection by the profession is permanent and precludes any transaction with future consumers, in contrast with the former situation.

We assume that there are no informational transfers between consumers and profession. Indeed, consumers cannot report an individually observed low level of quality to the profession. Nor can the profession directly inform consumers about individual quality. However, membership of the profession can be observed by consumers perfectly and at no cost. It signals to consumers that a professional has not (or not yet) been observed to be delivering low quality by his or her fellow members.

¹We do not consider type II errors: bad suppliers can be misinterpreted as being good ones but good suppliers can not be mistaken for bad ones.

²We do not introduce screening among lawyers at the hiring stage; we therefore do not take into account one of the main functions of the profession: the selection of new entrants.

We define S_k as the average probability for low-quality service providers to remain undetected by both the profession and consumers at date k . Among the $(1 - \lambda)$ newcomers at date t (who have not produced yet and therefore have not been given the opportunity to cheat on quality), λ still belong to the profession at the next date if they have not been detected by the profession, which occurs with a probability $(1 - \pi_0^P)(1 - \pi_1^P) \dots (1 - \pi_t^P)$. In addition, the probability that a provider consistently delivering low quality will remain undetected by consumers at date t is $(1 - \pi_t)$. Therefore, within the population of professionals, the average probability of having a good reputation when already delivering low quality (because low quality production remains unnoticed by the customer and the profession) is:

$$S_k = (1 - \lambda) \sum_{t=0}^k \lambda^t (1 - \pi_t) (1 - \pi_0^P) (1 - \pi_1^P) \dots (1 - \pi_t^P) \quad (3)$$

S_k decreases according to how well-informed both the profession and the consumers are. Moreover, it decreases with λ : an increase in the survival rate reduces rate of renewal of the population, and makes it easier to observe cheating.

3. High- and low- quality steady states

The joint dynamics of individual and collective reputations generate two steady states in pure strategies: a high quality one and a low quality one³. We define a high- (low-) quality steady state as the situation in which all opportunistic professionals always choose to produce high (low) quality.

3.1. The high-quality steady state

S_k gives the average probability of having a good reputation at date t in the market. The proportion of bad professionals having a good reputation is therefore lS . Thus, the customer's willingness to pay for the service depends on the average quality in the market that is given by the probability for the client to purchase high quality (From the assumptions, the payoff of high quality is 1 and 0 otherwise):

$$p_H^* = \frac{1 - l}{1 - l + lS_k} \quad (4)$$

The highest p_H^* is obtained when all the opportunistic professionals have an incentive to supply high quality. That is to say, their expected gains are greater than their cost of effort. On the one hand, by consistently providing high quality, an opportunistic supplier avoids the risk of being excluded from

³We focus on pure strategies despite the possibility of mixed strategies by agents. We are not interested in studying the multiplicity of steady states but only the high and the low quality equilibria.

the profession and the risk of losing an informed customer at date t . On the other hand, (s)he incurs the cost of effort e . His (her) expected payoff is then:

$$p_H^* - e + \delta(p_H^* - e) + \delta^2(p_H^* - e) + \dots = \frac{p_H^* - e}{1 - \delta} \quad (5)$$

Let us suppose instead that this opportunistic supplier chooses to consistently produce low quality. In this case, (s)he runs the risk of either being detected by the profession and struck off, or not being detected by the profession but by a customer and therefore losing this customer for the current period. Thus, his (her) expected payoff is:

$$p_H^* + \delta p_H^* \left(\frac{1}{1 - \delta} - A^* \right) \quad (6)$$

where

$$\begin{aligned} A^* &= \pi_1^P + (1 - \pi_1^P)\pi_1 + \delta [\pi_1^P + (1 - \pi_1^P)(\pi_2^P + (1 - \pi_2^P)\pi_2)] \\ &\quad + \delta^2 [\pi_1^P + (1 - \pi_1^P)\pi_2^P + (1 - \pi_1^P)(1 - \pi_2^P)(\pi_3^P + (1 - \pi_3^P)\pi_3)] \\ &\quad + \dots \end{aligned} \quad (7)$$

denotes the present expected probability for the opportunistic professional of being detected either by the profession or by a customer at any future date due to low quality service. Obviously, A^* increases with π_k and π_k^P respectively; furthermore, given that $\pi_k^P > \pi_k$, A^* increases faster with π_k^P than with π_k .

A necessary and sufficient condition for the existence of the high quality steady state is therefore:

$$\begin{aligned} p_H^* + \delta p_H^* \left(\frac{1}{1 - \delta} - A^* \right) &\leq \frac{p_H^* - e}{1 - \delta} \\ \frac{e}{1 - \delta} &\leq \delta p_H^* A^* \end{aligned} \quad (8)$$

This condition requires that the expected gain attached to a good (individual and collective) reputation ($\delta p_H^* A^*$) be high enough to deter opportunistic suppliers from cheating on quality. It is fulfilled if the cost of effort is not too high and/or p_H^* is high, which occurs when the (given) proportion of bad suppliers is sufficiently low. Furthermore, it also holds true whenever A^* is high, meaning that low quality production is not too badly detected. In the extreme case of perfect information ($S_k = 0$ and $A^* = 1$), a unique high-quality stationary equilibrium exists and reputational considerations play no role.

3.2. The low-quality steady state

Symmetrically, a low-quality steady state is defined as a situation in which all the opportunistic suppliers consistently provide low quality. In this case, the

proportion of professionals providing low quality but having a deceptively good reputation is $(u+l)S = (1-h)S$. The customer's willingness to pay is therefore:

$$p_L^* = \frac{h}{h + (1-h)S_k} \leq p_H^* \quad (9)$$

The lowest p_L^* is obtained when all the opportunistic professionals supply low quality. Then, customers are willing to pay no more than p_L^* since they expect the average quality in the market to be low. Let us remark that p_L^* and p_H^* tend to 1 when S_k tends towards 0, meaning that the profession and consumers perfectly detect low quality.

Following the same reasoning as above, a necessary and sufficient condition for the existence of the low-quality steady-state is logically

$$: \quad \frac{e}{1-\delta} \geq \delta p_L^* A^* \quad (10)$$

Hence, the low-quality steady state exists when the expected gains derived from a bad reputation are too low to offset the present cost of effort⁴. This is the case when the cost of effort is sufficiently high and/or when p_L^* is low, *i.e.* when opportunistic and bad suppliers are quite numerous. Condition 10 is also met when A^* is low, *i.e.* whenever low quality production is not easily detected by the profession and the consumers. In the extreme case of no information at all ($S_k = 1$ and $A^* = 0$), a unique low-quality stationary equilibrium exists and the consumers' willingness to pay only depends on the proportion of good professionals on the market.

4. Discussion and conclusion

We show that a high-quality steady-state exists in a market for a credence good and that the likelihood of high quality provision of services increases when the market is self-regulated by the profession in comparison to the situation where there is no SR. Indeed, when there is no SR in the market, individual reputation is the only informative and disciplinary device which operates⁵. Now, as consumers' information is by definition limited in the case of credence goods, a professional delivering low quality only faces a low probability of being detected (this can be seen from equation 7). Then, the average probability of a professional keeping a deceptive good reputation is high (equation 3). Therefore, individual reputation only provides a low-powered incentive to supply high quality. Without SR, then, low quality can be expected to prevail in professional service markets.

More precisely, our model accounts for the existence of a high-quality steady state in markets for professional services by introducing the idea of the collective reputation of the profession into the analysis. We find that a high quality equilibrium is more likely with a collective reputation than without it. This is due

⁴As conditions 8 and 10 are not mutually exclusive, multiple steady states may exist.

⁵The article does not consider alternative forms of regulation and concentrates on the SR vs free (unregulated) market debate.

to the rent that accrues to the profession when its collective reputation is good. Indeed, when quality is low, consumers are only willing to pay a low price for the service they purchase and the individual rent that accrues to suppliers tends to 0. Whereas consumers have a higher willingness to pay, resulting in a positive rent to the profession, when they expect to receive high quality, that is, when the profession has a good collective reputation⁶. As consumers derive information about quality not only from individual reputation but also - and mostly - from the collective reputation of the profession, a higher price, and therefore a higher rent, is associated with a good collective reputation. Therefore, the share that a professional expects to appropriate individually from membership to the profession is higher when collective reputation is good⁷. Now, consumers are unable to observe the quality of a professional directly, but they can observe membership to the profession perfectly and at no cost. Hence, the profession as a whole has an incentive to exclude those members who are observed to be cheating in order to maintain a good reputation. The threat of exclusion and the corresponding exit costs (i.e. the potential loss of income) provide professionals with incentives to supply high quality. Furthermore, due to its expertise, the profession has better information about the actual quality delivered by its members than consumers and can detect cheating more easily, although it can observe individual quality only imperfectly. This is consistent with the law and economics literature according to which the regulation of the profession by its own members reduces the cost of informing consumers. From our model, it emerges that with collective reputation, condition 8 is more easily satisfied than condition 10. Therefore, we conclude that high quality provision of professional services may be more likely with a self-regulated profession than with a free (non-regulated) market. Although professional SR is usually criticized as giving professionals an opportunity to capture a rent at the expense of clients, our analysis shows that the rent also serves as an incentive to the profession to build and maintain a good collective reputation. Ultimately, our analysis encompasses and combines both economic views on SR - both as a way to capture rents and as a regulatory device economizing on informational costs - into a single model. This type of approach to SR is new to our knowledge and supports a non-Manichean view of SR.

Our model underlines the impact of the prior (exogeneous) distribution of professional types on the equilibria conditions. Indeed, if one assumes that there are few bad suppliers (l is low), then p_H^* is high (resp. and p_L^* is low) and condition 8 holds (resp. condition 10 does not hold). The selection of newcomers (whoever the authority in charge of this selection may be) is then crucial to building and/or maintaining the collective reputation of a profession. Introducing screening of newcomers therefore represents an interesting development to our analysis. The issue of rent sharing among individual professionals and the optimal choice for the profession between covering-up or disclosing the infor-

⁶The difference between the consumers' willingness to pay in the case of sole individual reputation and their willingness to pay in the case of both reputations is the professional rent (see the Appendix)

⁷In this preliminary model, we do not consider issues on sharing.

mation about members' cheating are further areas of the model that should be developed in future research

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