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THE STRANGE COUPLE: REGULATION AND COMPETITION POLICY IN NETWORK INDUSTRIES

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Introduction

Since the US air transport liberalization of the late 1970s proved the benefits of competition in the industry, a growing consensus emerged among policy makers that the regulation of network industries could be progressively abandoned, at least for some of the components of the value chain. There was a perception that the source of monopoly power resided principally in the network elements and that having a single firm operating the network was therefore unavoidable. The service itself, however, could be competitively provided if all competitors had access to the network. Ex-ante regulation could thus be confined to network operation activities, while the rest of the segments of the production chain could be opened to competition and supervised ex-post by competition policy. Regulations were then put in place to govern the transition period from a completely regulated environment towards a more competitive one.

Several years hence, concerns persist about the level of competition in most of these industries in view of the large market shares still retained by incumbent firms. Liberalization strategies have been revised and amended a number of times, often requiring more regulations, with the hope of finally boosting competition. All these changes and different regimes reflect the fact that the mechanisms leading to market tipping in those industries are numerous and

were not well understood at the time. Hence, when concerns about the prevailing degree of competition are expressed, the precise causes of these concerns are difficult to identify. They may be due to anticompetitive practices, but they can also be the fruit of a wrong liberalization strategy, the inability of the regulator or, more important still, they may reflect the maximum degree of competition that can be attained given the nature of the industry at the current stage. In any case, it has become clear that effective regulation requires a vast amount of information, deep knowledge of the industry and proven independence from pressure groups.

There exist, however, network industries, such as software and videogames, that have never been subject to regulation and that are left to the sole control of competition policy. Competition policy cases arising in these industries share many features with the competition concerns in those that are subject to ex-ante regulation. However, competition authorities do not specialize in a particular industry and are under severe time pressures to adopt appropriate remedies. If regulation is to be progressively abandoned in those industries currently under ex-ante regulation, the question then arises as to whether competition authorities will have the knowledge or will be able to acquire it in due time to reach suitable remedies.

However, perhaps the relevant question to pose is whether this notion of transition from regulation to competition policy makes sense at all. Maybe one should start to consider the necessary coexistence of both approaches in order to deal properly with the usual concerns that arise in network industries. In fact, as Cave and Crowther (2005) have suggested, the boundaries between what is considered ex-ante regulation and ex-post competition policy are blurred. Numerous competition problems arise despite complex ex-ante regulations while, at the same time, cases in unregulated network industries often are settled with structural or behavioural remedies that are very close to ex-ante regulation. These competition problems all share the same characteristics and they all require from the authorities a great deal of information and a deep knowledge of the industry.



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Regulatory regimes and their information requirements

Looking across industries and countries, a number of different regulatory regimes can be observed. Some network industries, such as computer hardware and software, have never been regulated. Others have benefited from a rigorous process of de-regulation, resulting in a non-intrusive framework. A few others, in contrast, have been subject to profound changes in their market structure, and their firms operate in a heavily regulated environment.

All these regulatory regimes can be classified into a few groups according to the key measures adopted to introduce competition. It can then be seen that those industries belonging to the same regulatory group also share certain key characteristics and that their regulators have similar information requirements.

Network industries without previous regulation

Many industries in this group are at an early stage of development. Regulatory pressures are usually lower in this stage, since networks are just being built and firms are competing hard to secure the future rents of network externalities. In addition, coordination problems among end-users are often present and may be strong enough to prevent a single firm from tipping the market. Uncertainty about the future predominant network or standard can delay their decision to adopt the product and, consequently, the recovery of the firm's investment. Compatibility with competing networks, for example, through standard settings, can solve this coordination problem by eliminating the risk for consumers of choosing the wrong network. It is often the case that firms in these industries are willing to forego the possibility of tipping the market and voluntarily enter into compatibility agreements. Competition concerns are then limited to the possibility of jointly tipping the market by excluding other rivals from the use of the standard.

The relatively more mature industries in this group show a strong and continuous pace of innovation that helps to contain the need for ex-ante regulation. Even if firms choose to keep their networks incompatible in the hope of tipping the market, their eventual dominance is under the continuous threat of new and improved substitute networks. Although there is a risk that these firms will abuse their market power by leveraging their dominance to other

adjacent markets, the risk of imposing the wrong ex-ante regulation is even larger. Effective ex-ante regulation would be difficult to achieve given the scope for potential innovations. Regulatory authorities would be uncertain about the nature of some industry characteristics, such as the intensity of scale and scope economies or the potential for infrastructure competition, that are crucial to decide the best suitable regulatory approach.

Extensively de-regulated network industries

For some previously regulated industries, the introduction of competition was thought to be possible by simply removing legal barriers to entry (i.e., exclusivity rights) and price restrictions. In many countries, this process also required the privatization of the incumbent monopoly but, other than this privatization, the fundamental structure of the market was not altered. Examples of industries in this group are the air transportation industry, retail banking, mobile telephony and, to a certain extent, postal services.

In all these industries, scale economies in network operation are weak enough to enable infrastructure competition once legal barriers to entry are removed. In the case of retail banking (branches, ATMs) or mobile telephony (antennas), the network infrastructure is fairly modular so that the network can be gradually expanded to meet increasing demand. In the case of air transportation (routes served) and postal services (collection, routing and handling and delivery), viable entry into the industry with its own infrastructure is possible on a selected-routes basis.¹

The fact that firms can enter the market with their own infrastructure certainly limits one of the most challenging problems regarding the liberalization of network industries: the scope of the incumbent firms to leverage their market power into the potentially competitive segment. However, other characteristics of these industries still render competition problems a usual phenomenon even in the presence of infrastructure competition. In the case of two-way networks (such as some retail banking services and mobile tele-

¹ In the case of air transportation, there is still much experimentation with network configuration beyond the hub-and-spoke model in order to find the most profitable one. In addition, when routes served are held constant, there is little evidence of scale economies (Borenstein and Rose 2007). In the case of postal services, viable entry is possible in order to serve only dense mail routes. However, the provision of a ubiquitous nationwide service presents significant scale economies in delivery (De Donder 2006) that may call for the existence of a single network.

phony), for example, interconnection between the two networks is often required to provide the service. This leads to the possibility of raising rivals' costs through interconnection charges, either to induce collusion or to tip the market by artificially creating scale economies in the demand side. The possibility of tipping the market, which can also be present in one-way networks, increases with the intensity of demand scale economies and the level of switching costs. The fact that these two features can be exacerbated by firms through numerous instruments turns competition assessment into a difficult task.

Network industries with some form of infrastructure unbundling

In contrast to the extensively de-regulated group, some other previously regulated industries exhibit large scale economies in network operation, rendering infrastructure competition unfeasible. Competition in service provision is still possible, but entrants have to be granted access to the incumbent's network at competitive prices. In addition, dynamic efficiency also calls for the preservation of the investment incentives of incumbents and entrants. Satisfying these two requirements has proven to be the most difficult task for regulatory authorities, since the existence of vertical scope economies and information asymmetries gives rise to frequent anticompetitive abuses by vertically integrated, incumbent firms. Being aware of this, regulatory authorities have opted for different forms of infrastructure unbundling depending on the intensity in which these two features are present in the industry:

- *Access unbundling.* Incumbent firms are mandated to satisfy all reasonable demands of access to their networks, usually at prices that are supervised (and sometimes established) by regulatory authorities. Since it involves no structural separation between network operation and service provision activities, it is particularly useful for those industries with significant vertical scope economies and relatively few information asymmetries. In particular, this is the regime adopted in most countries for fixed line telecommunications and for most postal services.

This regime is the most complex and the most information-demanding for the regulatory authorities. Information requirements are not limited to a good knowledge of the network architecture and each of its costs, which is necessary to set or judge the proper level of access charges. Technical expertise is also required to be able to control the

quality of the access provided – since incumbents have incentives to circumvent price controls using quality degradation – and to assess the prospects for innovation and its associated risks. In principle, regulators could design complex mechanisms to induce incumbent firms to reveal all this information. However, if the information asymmetry is large, the mechanism can be too expensive in terms of rents to be left to the incumbent or in terms of complexity. In that case, a change towards a less information-demanding strategy may be worth considering.

- *Legal unbundling.* Incumbent firms are required to separate their network operation and service provision activities in two different legal entities with separate accounts. Since the incumbents can still retain the ownership of both entities, some vertical scope economies are not lost. However, by the same token, the incentives and the ability to engage in non-price discrimination remain. The sole difference with the previous regime is that this one is more transparent with respect to network costs. The gas industry in most of the European countries is subject to this regulatory regime.
- *Ownership unbundling.* Under this regime, a structural separation between monopolistic and competitive activities is imposed. Since the network operator is not involved in downstream competitive activities, the incentives to discriminate between service providers disappear. This simplification of the regulatory tasks comes at the expense of losing vertical scope economies. Hence, this regime is well suited for those network industries with little scope for innovation or for those in which quality differentiation in service provision does not depend on network specificities. This is the case for the electricity industry and indeed most European countries have opted for this structural solution. Ownership unbundling has also been adopted in many countries for liberalizing railroads, despite the fact that vertical economies may be more important (Pittman 2005).

Although this kind of structural separation has greatly eliminated the concerns for the behaviour of network operators, the scope for anticompetitive practices still exists. In the case of the electricity industry, for example, generation markets still present features – such as scale economies, entry barriers, repeated interactions, etc – that lead to market power and to its frequent abuse (Federico and Vives 2008).

Common static and dynamic competition concerns

Several years into the liberalization process, competition has been deemed ineffective or insufficient in many network industries across different regulatory regimes. Concerns have been expressed for the level of static competition but also for the prospects of dynamic competition.

Both regulated and non-regulated industries face the same kind of static competition concerns. They usually involve some sort of abuse of a dominant position, the source of this dominance being often due to the ownership of some kind of network (virtual or physical). The alleged anticompetitive practices are also the same in these two types of industries, dealing mostly with excessive or discriminatory prices and with quality degradation.

Cases dealing with price abuses are related for the most part to the pricing of access or interconnection to the dominant network. Examples abound in the telecommunications industry (both fixed and mobile), in the gas industry, in retail banking (with respect to payment systems) or even in the postal service (with respect to cross-border mail).² But they can also be found in non-regulated industries, as is manifest in the long lasting Microsoft case for which, at some point, the company was fined for unreasonable pricing of its interoperability information.³ Cases involving price discrimination in favour of affiliated or previously affiliated companies can also be found in, for example, airport charges.⁴

A number of alleged abuses are related to quality degradation of the services that the dominant firm provides to downstream competitors. The liberalization process in the fixed telecommunications industry is plagued with complaints about the quality of incumbents' third-party access products. Similarly, complaints about non-price discrimination against competitors also arise in gas and electricity markets, where full ownership unbundling has not been implemented. Allegations of capacity withdrawal in order to artificially raise prices can be found in electricity generation markets as well.⁵

In regulated industries, regulatory authorities with monitoring and dispute resolution powers can deal with these abuses directly, setting their desired access and interconnection charges and ensuring quality. In non-regulated industries or in those where regulatory authorities lack these powers, competition authorities intervene through the application of the "essential facilities doctrine" to the identified bottleneck. The remedies that are then imposed are very close in spirit to ex-ante regulation, since they involve mandating access at reasonable, non-discriminatory and transparent prices. Those prices can later be assessed and judged to be excessive, in which case a fine is imposed to the infringing firm. However, the European Commission has not gone as far as directly setting price levels. This ex-post approach, by which the authorities first assess the current level of access or interconnection charges and then infringing firms propose a reduced price that has to be judged again, may considerably prolong market foreclosure. An example of this is the long time (eight years) that it took for the European Commission to settle the case against Microsoft for discriminatory licensing and refusal to supply software information.

Despite their widespread occurrence, price and non-price discrimination practices are not the sole sources of competition concerns. Dynamic competition problems are also common in network industries and again competition authorities adopt a preventive approach that resembles ex-ante regulation. Such an approach can be seen in the analysis of notified agreements between competitors for standard settings, for example. Since the resulting standards have the potential to become "essential facilities", they are required to be transparent and open to all interested parties. But it is in cases with vertical agreements where competition authorities can significantly reshape the competitive structure of an industry. In non-regulated industries, outcomes that would have similar effects as the vertical integration of an "essential facility" are prevented by limiting the duration or the scope of exclusivity contracts. This is the case, for example, of broadcasting rights, airport slots or mobile handset exclusivity contracts.⁶ Competition policy has also been used to impose structural remedies in regulated industries. After opening several proceedings in the gas and electricity industries, for example, several

² On payment systems see, for example, European Commission case COMP/D1/38606 – Groupement Des Cartes Bancaires "CB". On cross-border mail, see case COMP/C-1/36.915 – Deutsche Post AG.

³ See Case COMP/C-3/37.792 – Microsoft, European Commission.

⁴ See European Commission Case No IV/35.703 – Portuguese airports.

⁵ See European Commission Case COMP/39.388 – German Electricity Wholesale market and COMP/39.389 – German Electricity Balancing market.

⁶ See, for example, case COMP/37.652 – Telefonica + Sogecable + Gestisport + AVS + Canalsatelite + DTS + GMAF for football broadcasting rights. For mobile handset exclusivity contracts, see Conseil de la Concurrence, Décision n° 08-MC-01 du 17 décembre 2008 relative à des pratiques mises en oeuvre dans la distribution des iPhones.

incumbent firms have agreed to give up significant volumes of production or network capacity that they had secured through long-term supply contracts.⁷

Finally, there are concerns about the effect of regulatory decisions on investment incentives along the value chain. This is especially the case in the telecommunications industry, in which regulators in many countries set access charges so as to induce entrants to invest in more network infrastructure as they gain market share. The effects of this policy on the investment decisions of both incumbents and entrants are still debated. More recently, another debate has emerged regarding the possibility of charging content providers for traffic prioritization. In this case, proponents of so-called “net neutrality” are concerned about content providers’ incentives to invest when part of their potential rents are captured by network operators.

A forced coexistence that needs to be well implemented

As it has been shown, the ex-post control of network industries results in the adoption of remedies whose nature is very close to ex-ante regulations. And despite the adoption of ex-ante rules, regulators are forced to continuously update these rules after the ex-post assessment of competition in the industry. From this point of view, competition authorities and regulators could be interchangeable institutions. Nevertheless, they present slight differences in important characteristics that could advise the recourse to one or the other type of institution in different situations.

Regulatory authorities are better informed at the time an infringement is suspected. They have a better knowledge of the industry and its technicalities, which are often crucial to assess the degree of attainable or desirable competition. They are also in a better position to determine the best level of access and interconnection charges, both from a static and a dynamic point of view. Naturally, competition authorities can resort to sector inquiries or to the aid of experts in the field in order to gather the necessary information. However, the acquired information should be updated in some way so as to be able to monitor the compliance of the settlements. Continuously relying on private experts is not exempt of

risks, since they are subject to conflicts of interest and their capture by interested parties.

Regulators, on the other hand, are not immune to regulatory capture and in some instances competition authorities are in the best position to maintain their independence from interest groups as well as from the government. This is especially so in supranational structures such as the European Union, in which the competition authority can be placed at the supranational level. Resolutions by which the European Commission overturned national regulations – such as the case of broadband wholesale prices in Spain or mail-preparation activities in France – seem to go in that direction.

The coexistence of both types of institutions with overlapping powers is nevertheless problematic, especially because it creates regulatory uncertainty. Perhaps what it is needed is a redesign of competition authorities with the view to providing them with resources similar to those of industry-specific regulators. Perhaps, after all, the right approach for network industries is neither regulation nor competition, but rather that of regulated or supervised competition.

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⁷ See, for example, European Commission Memo/09/536 for the French gas market. A broader review of cases can be found in Federico and Vives (2008), 33.