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Regulating national firms in a common market under asymmetric information[☆]

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ABSTRACT

In a supranational common market, national regulation can produce inefficiencies. National regulators typically care only for domestic welfare and they tend to push national firms in the common market. When information about production costs is held privately by firms and is unknown to the regulator, competition between national and foreign firms can help to reduce the information rents captured by national producers and thus increase efficiency. This is more likely when the production costs of national and foreign firms are highly correlated, for instance because firms use similar technologies. In other cases, market share rivalry pushes national regulators to inefficiently expand the production of national firms, also increasing the information rents. When the ex-ante uncertainty of the production costs is high, the creation of a common market is more likely to increase expected welfare, as compared to separated national markets.

1. Introduction

Both in unregulated and regulated industries, market integration can increase welfare in various ways: reallocating production toward the more efficient producers, enhancing the profits of efficient firms and, possibly, limiting the rents captured by regulated producers. Nonetheless, the development of supranational competition in regulated industries remains challenging, raising specific concerns. In particular, market integration has an ambiguous effect on the rents captured by firms when they held private information about their production costs, complicating the task of the regulator. The present paper studies the specific challenges of market integration in regulated markets, analysing its impact on welfare and on the information rent of privately informed firms.

The European experience offers several examples of regulated markets which have been opened to international competition (including telecommunications, energy and transport). EdF, Enel, and RWE are important examples in the energy industry. Other examples are the postal service[1] and transports. Beside Europe, another important example is the creation of regional markets for electricity in many regions of the world (such as the African Power Pools, the Greater Mekong Subregion and the integrated markets in Central and South America). In all these cases, the possible conflicts arising from the lack of coordination of public policies are a source of concern and a potential brake on the development of the regional markets. This can be worsen if supranational competition adversely affects the agency problem of the regulator, by increasing information rents under asymmetric information. On the contrary, if supranational competition helps to decrease information rents, this gives an additional motive to promote market integration.

In a common market in which integration is imperfect (i.e., it is neither political nor fiscal), governments focus on national welfare. In this context, the regulation of the former monopoly becomes regulation of the "national champion". When state aid is forbidden, national regulation can become a way to sustain the competitiveness of former national monopolies in the common market. For instance, in Europe there is a recurrent policy debate about governments pushing their home champions into foreign markets (see Calzolari and Scarpa, 2009). A natural assumption in such contexts is that of asymmetric (or incomplete) regulation, in which national regulators place additional requirements on incumbent or dominant suppliers. Both in the case of public and privatized firms, asymmetric regulation is used in practice

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[1] For instance the international activities of TNT and DHL are integrated with the Dutch and German national postal services respectively.

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in many liberalized markets. Sometimes the asymmetric treatment of the national firms depends on the fact that national firms are public (this situation is likely to persist in many markets as complete privatisation is generally not optimal, as shown for instance in Chang and Ryu (2016)).[2] In addition, liberalisation is only partial in many regulated markets and likely to proceed slowly, as the gains from competition can depend on the industry considered (see Golombek et al., 2013). In this contexts, regulators are biased in favor of the national (often public) firms because they are residual claimants for their profits and losses.

In a recent paper, Auriol and Biancini (2015) study the effect of market integration under complete information, in a model inspired by the characteristics of electricity markets.[3] That paper shows that under complete information market integration creates a trade off between efficiency gains (obtained by reallocating production towards the more efficient providers) and business stealing (related to market share rivalry in the common market). As a result, competition is welfare-enhancing if and only if the variable costs of the two firms are sufficiently differentiated, so that the efficiency gains prevail.

The present paper extends the analysis to the case of asymmetric information, assuming that the production costs are unobservable by the regulator and private information of the firms.[4] I consider the impact of market integration, comparing the case of closed economy to the one of competition in the common market with national regulators. I show that market integration has an impact on efficiency through the effect on the information rents. If costs are subject to uncorrelated shocks, the rent of regulated firms is likely to increase in the integrated market. This depends on the fact that market share rivalry pushes regulators to inefficiently expand production of the national firms, also increasing their information rents. On the contrary, if cost correlation is high, the rent generally decreases, except possibly for very inefficient firms. This depends on the anticipated competitive pressure exerted by the foreign competitor, which has a similar level of efficiency as the national firm: this acts as a discipline for the firms which cannot afford to behave too inefficiently. I also show that, when the uncertainty about production costs (the ex-ante technological risk) is large enough, market integration increases expected welfare. When production costs are not correlated, the welfare gains come from the possibility of reallocating production towards the more efficient firm. When the costs are highly correlated the intuition is different: the welfare gains come from the reduction of the information rents which increase overall efficiency. Because of the positive expected gains, countries would often find integration desirable. Nonetheless, under uncoordinated national regulation, competition in the common market can create inefficiencies. This would call for a coordination of regulatory policies. However, because public funds are costly and competition has an impact on the total level of transfers and taxes, efficient coordination can prove difficult to realize in practice.

1.1. Related literature

Being common in practice, asymmetric regulation has also received some attention in the literature. For instance, Caillaud (1990) and Biglaiser and Ma (1995) study the case of entry of unregulated producers competing with a regulated incumbent in a closed economy. Contrary to these papers, I concentrate on the effects of supranational competition: each regulated market is opened to competition and all firms compete in a common market.

The literature concentrating specifically on regulation in a common market is not very developed.[5] On a related subject, the strategic trade policy literature, starting from the seminal paper of Brander and Spencer (1983),[6] concentrates on the strategic effects of trade subsidization policies. Brainard and Martimort (1996, 1997) introduced asymmetric information in a Brander and Spencer framework, showing how the interaction of regulatory policies (precommitment effects) can reduce the agency costs associated with subsidization policies and mitigate the inefficiencies related to market share rivalry. Later, Combes et al. (1997) extended Brainard and Martimort's framework to include national consumer surplus in the analysis. Focusing on the efficiency of trade subsidies, these papers take market integration as given. On the contrary, the present paper analyses the effects of the creation of a regional market in regulated industries. Moreover, most of this literature doesn't consider the fiscal effect of competition, which arises when the public funds are costly.[7] This aspect is present in our model, modifying the welfare analysis and introducing an additional effect of supranational competition. As Armstrong and Sappington (2007) note, competition can "*complicate the regulatory policy undermining preferred tax structures*". Similarly, Laffont and Tirole (2000), discussing pro-competitive reforms in telecommunications, argue that competition, limiting the scope for cross subsidization and taxation by regulation, may induce an increase in the total transfers paid to the industries. The present paper includes these aspects and shows that in the presence of costly public funds market integration can adversely affect the agency problem of the regulator.

The present paper also relates to the work of Calzolari (2004) and Calzolari and Scarpa (2009). Calzolari (2004) looks at the interactions between the policies of two different regulators towards a multinational firm operating in both countries. In contrast, the present work looks at the interactions between regulators of different national leaders. Calzolari and Scarpa (2009) consider the optimal regulation of a firm which is a monopoly at home but competes abroad with a foreign firm. Because the authors assume that transfers are feasible at no cost, the regulatory policy is affected by market opening only if there are economies (or diseconomies) of scope between the domestic and the foreign activity. They show that allowing a private firm to operate in a foreign market can *increase* the distortion related to asymmetric information (although welfare gains can be obtained because of the economies of scope). However, they do not consider the case in which the regulator has to deal with entry of a foreign operator in the home market. Yet economic integration is a process of reciprocal opening. Adding this aspect, I give different insights on the impact of market integration on the information rents captured by regulated firms. This impact is not univocal. Market integration can reduce the information rent for some types of firms, creating additional gains from trade.

Considering the interaction between firm incentives and market competition, the paper indirectly relates to the literature on competition and managerial incentives. In this context, Hart (1983) shows that greater competition provides stronger implicit managerial incentives. Schmidt (1997) finds that in other cases the effect of competition can be ambiguous: stronger competition increases the likelihood of liquidation and thus increases manager incentives, but also reduces firm profits, making high levels of effort less attractive. Similarly, in our context competition in the common market has an ambiguous impact

[2] For example, asymmetric regulation is widely used in telecommunications (see for instance Flacher and Jennequin, 2008) and electricity. For instance, the European Union allows National Regulators to impose regulations on operators with significant market power. Similarly, during the California deregulation experiment, the incumbent suppliers were more strictly regulated than competitors. In other cases, incomplete market regulation depends on the fact that competitors enter in unregulated segments of the market or in unregulated markets producing substitute goods.

[3] Captured by a nonlinear cost function related to an underlying transportation technology.

[4] To do this and keep the analysis tractable, I assume that marginal costs are constant.

[5] Similarly, the behavior of public firms in a common market has not received a lot of attention. On this topic, see Corneo and Jeanne (1994), who study this problem in a mixed market framework.

[6] For more details about the strategic trade policy literature, see also Brander (1995).

[7] An exception is Collie (2000) who shows that banning subsidies in a common market with identical firms might reduce the welfare losses related to market share rivalry for some values of the cost of public funds. However, this result does not hold for heterogeneous firms (see Auriol and Biancini, 2015).