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Essays on Incentives and Regulation

Extended abstract

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Abstract

This thesis is the result of a three-year research activity within the Ph.D. Program in Law and Economics at Luiss University. It is composed of three essays on different topics in Law and Economics, which have been presented separately in the form of papers in various conferences and seminars through the years and have benefited from the contribution of many people and institutions, as acknowledged in the introductory footnote of each essay.

Although related to seemingly unrelated topics, there is one fundamental link that connects the three essays: the theory of incentives. The idea that economic actors take decisions according to the economic environment in which they act goes back to the origins of economic thought. However, a formal treatment of a unified Theory of Incentives has been the highest achievement in economics in the last thirty years[1]. In this thesis, I apply the Theory of Incentives to three distinct issues in Law and Economics, trying to find similarities and common elements across different problems and turning each issue into a general and more easy to handle framework.

The most popular model of incentives in economic theory is the "principal-agent" model, which basically tends to capture all the situations in which there is an actor, the principal, that wants to induce another individual, the agent, to perform a task for the principal. This way of looking at many economic issues has completely reshaped economists' minds and has led to fruitful results in all areas of economics, including Law and Economics[2]. Therefore, the "principal-agent" model is the lens through which I will look at several economic phenomena, both from a positive and a normative point of view. The positive approach is needed, in the first instance, in order to assess the pros and the cons of the structure of incentives currently in place in a given economic environment. The normative approach is instead needed in order to ascertain the existence of welfare-improving changes in the institutional framework and to design enhanced incentive systems. The link to the classical Law and Economics literature is straightforward: the institutional framework and the structure of incentives are, in the real world, mainly dictated by the legal system.

[1] For a survey on Incentives in Economic Thought see Jean-Jacques Laffont and David Martimort, *The Theory of Incentives, The Principal-Agent Model*, Ch.1, Princeton University Press, 2002.

[2] See for instance Steven Shavell, *Foundations of Economic Analysis of Law*, Harvard University Press, 2004.

Corporate Governance in a Multi-Principal Environment

The first essay revisits the theory of corporate governance, with a focus on the institutional governance of banking firms. The essay draws on a largely neglected contribution by Stiglitz (1985) and builds up a model in order to analyze the conflicts emerging between shareholders and debt-holders concerning the level of risk of the venture. The model is developed within a common agency framework, where managers are regarded as agent of both shareholders and debt-holders. In this setting, moral hazard on the behalf of the manager concerns two dimensions: shirking and risk taking. The common agency model highlights the conflicts emerging between the principals in terms of risk taking behavior and among the principals and the agent in terms of the level of effort undertaken by the agent.

The paper explores the optimal compensation structure for the manager that leads to Pareto efficiency. Then, the case in which shareholders and debt-holders conflict regarding the payment scheme is analyzed and the main conclusion is that a multiplicity of allocations can arise in equilibrium. Therefore, I refer to some legal institutions, concerning both the compensation structure and the extent of fiduciary duties, with the purpose of refining attainable equilibria. Hence, I first focus on the liability regime that can be activated by the debt-holder in case of failure of the project. Then, following Bernheim and Whinston (1986), I suggest two institutional remedies. The first institution relies on the role of intermediate bodies between the principals and the agent for implementing the optimal allocation through indirect mechanism designs. The second remedy is a regulatory intervention aimed at providing lower and upper bounds for the agent's aggregate transfers.

Myopia and Paternalism in the Design of Social Security Schemes

The second essay deals with a classical issue in Public Law and Economics: the optimal design of pension systems. Several rationales have been provided in order to explain the role of social security programs in modern welfare states. The most common explanation is that social security systems act as a paternalistic device that forces individuals who suffer from myopia regarding future consumption paths to adequately save for their retirement. The essay investigates the role of myopia under different assumptions. So far, the "myopia" argument has been based on the fact that people fail in fully taking into account their future behavior. This has led to a justification for

public pensions that is related to compulsory savings. I analyze this literature in the light of the emerging trends in the field of behavioral economics. First I analyze the optimal pension scheme when all the agents in the economy are myopic, and then I extend the analysis to the case in which only part of the population is myopic, while the rest is made of fully rational individuals. I show that under the assumption of a paternalistic social planner, welfare improving "pay-as-you-go" schemes involve redistribution of resources from fully rational agents to myopics. In this last section, I suggest that myopia can be seen not only as a psychological bias, but also as a strategic tool. Indeed, challenging the classical view on myopia, I claim that the degree of myopia can be determined not only by psychological biases, but also, to a certain degree, by a strategic commitment of some individuals that aim at capturing the benefits of redistribution towards myopics.

Regulation and Investment Incentives for Broadband Access Networks

In the third essay, I focus on the telecommunications industry and on the incentives for the players to invest in new broadband infrastructures. Indeed, a fierce debate on how to stimulate investments in the access network is currently taking place in the EU. This debate is a consequence of the fact that the realization of new infrastructures becomes more and more urgent, in the light of the boost in the demand for on-line contents. Indeed, this transition phase brings new problems for the telecommunications industry and therefore a new regulatory approach is required. At the European level, this debate has conflicted with the review of the regulatory framework and has led to new regulatory proposals both from the Commission and from national authorities. A plurality of proposals have been suggested by both market players and institutional bodies. At the same time, many national regulators have already started pursuing their own strategies in order to spur investments.

The paper acknowledges the trade-off among investment incentives and degree of competition in the markets and accordingly sketches an optimal policy mix, taking both dynamic and static efficiency concerns into account. In particular, I propose a set of policy tools that can guarantee the achievement of an optimal level of investments through the sharing of both operative and regulatory risk among market players. In my opinion, the optimal mechanism consists of an auction among market players for wholesale interconnection. Essentially, the access division could auction physical and logical interconnection rights for different levels of the network and then

set the initial price accordingly to the proximity of the interconnection point with the final customer, thus reflecting the costs of deploying the infrastructure up to the interconnection. The most attractive feature of an auction mechanism like this one relates to the creation of a risk-sharing device: indeed, if a competitor opts for a high level of interconnection, the latter will have to invest significantly to reach the final customer, but the auction price will be lower. From the market players point of view, an auction mechanism like this is equivalent to an auction for options whose exercise price is the price paid by the winner. Therefore, each player, once given the interconnection right, faces the option among investing (not exercising the option) or delaying the investment (thus exercising the option).

Moreover, the paper provides new empirical evidence on European broadband fixed markets with respect to both broadband adoption and investment choices by the market players, with the aim of assessing the effectiveness of the new EU regulatory framework of 2002 and to draw some lessons for the next-generation networks context.

The paper makes use of two different data-sets. The first one is a country-level panel covering a time span of ten years (1997 – 2007) and 28 countries, mainly belonging to the EU, which includes regulatory indexes on 1) the presence of entry barriers in the sector, 2) the percentage of State ownership of telecom firms and 3) the degree of competition in the markets. From a regulatory point of view, the main result obtained from the estimation exercise is that a more competitive environment leads to higher adoption rates. The second data-set is at a firm-level and is composed of 37 European firms (24 incumbents and 13 competitors), analyzed over a time span of five years (2003-2007). The analysis focuses on the investment behavior and the main finding is that more competitive markets tend to decrease the incentives to invest in the network. Therefore, the classical trade-off among static and dynamic efficiency is confirmed.