This dissertation consists of three independent essays which contribute to the literatures on regulation and organizational economics.

The first part of the dissertation addresses questions related to the procurement decisions of private and public organizations. In particular it focuses on how the anticipation of renegotiating the contractual terms during the execution of a procurement contract affects the initial arrangements between the parties. This question is of great importance since renegotiation of procurement contracts is a widespread phenomenon.\(^1\) Renegotiation may involve the design itself of the goods which are procured, and not just their price or the time of their delivery. A plausible explanation for its pervasiveness is the existence of transaction costs which prevents contracts from being complete (see Bajari and Tadelis, 2001 and Tirole, 2009). This is especially true for more sophisticated and customized goods, such as new infrastructures or cars’ and aircrafts’ parts or components. Ex-post these goods may fail to fit the buyer’s specific needs and/or may exhibit flaws unforeseen at the planning stage.\(^2\)

In the first two chapters, I show that the anticipation of ex-post adaptations has critical implications for many procurement choices, such as that of the contractual agreement, the award mechanism, and the delegation of the design task to the suppliers. Therefore, a proper inclusion of design failures into the analysis of procurement contracts can help broaden our understanding of the wide variety of procurement modes and outcomes observed in the real world. My analysis offers an explanation for the procurement practices adopted in complex manufacturing and construction industries. Moreover, it can provide useful guidance for public procurement. Governments face tight restrictions in their choices of the procurement modes and for this reason they should carefully evaluate whether or not to adopt the best practices of the private sector.

The first chapter, *Precontractual Investment and Modes of Procurement*, studies the buyer’s choice of the procurement mode when the suppliers must be motivated to make a precontractual investment. The buyer of a customized good may be willing to turn to suppliers for its design and not just for its manufacture. Suppliers may have the know-how or the skills to deliver superior designs. A critical issue is that their involvement at the design stage typically requires

\(^1\)See Guasch (2004) for extensive empirical evidence.
\(^2\)Bajari et al. (2014) measure the economic cost of ex-post adaptations which are related to incomplete contracts.
an investment which is made before the contract is signed. For instance, the potential suppliers may be asked to develop a prototype of the good or supply its technical drawings. When the investment is project specific and non-verifiable, it may prove very difficult to motivate the suppliers to invest. I show that an appropriate choice of the award mechanism can overcome this problem and induce investment.

I analyze a repeated game in which a buyer must decide whether to procure a good through auctions or negotiations in every period. The design of the good may exhibit flaws unforeseen at the planning stage with a positive probability. To improve the design of the good and thereby minimize the likelihood of having a defective product, the buyer asks the suppliers to make a precontractual investment. I assume that the suppliers’ investment is project-specific and is their own private information. The buyer is able to imperfectly observe the investment of the selected supplier when the good is realized. As the investment is non-verifiable, only the repetition of the relationship can create the conditions to induce the suppliers to invest. Repeated interaction allows the use of relational contracts, namely informal agreements which are sustained by the value of the future relationship. I assume that the buyer can pay a monetary reward to a supplier who has provided a flawless design. The suppliers have also different costs of production, which are project-specific and are their private information.

In this framework, I find the existence of a trade-off between auctions and negotiations. The former better address the screening problem while the latter are more effective in stimulating the investment. Auctions are ineffective in inducing the suppliers to invest since an essential feature of competitive bidding is that the informal reward promised by the buyer for a flawless design is competed away at the bidding stage. As a result, a supplier is willing to invest only if the expected value of the information rent, which is all he can expect to get when he takes part in an auction, is larger than the investment cost. Even when this condition is met, it may be more difficult to sustain investment under auctions since they entail a higher temptation to renege than negotiations.

The chapter provides some important predictions about firms’ procurement practices which allow to reconcile many buyer-supplier relationships studied in the management literature. When the value of the future relationship is low (e.g. the relationship is infrequent, the likelihood of failure is low), the buyer anticipates that the suppliers will not be willing to make the investment. As a result, she will develop the design of the good in-house and select the supplier through open auctions. In contrast, when the value of the future relationship is high, the buyer will delegate the design of the good to her suppliers and use restricted auctions or direct negotiations. A valuable lesson that can be drawn from this chapter is that negotiations can promote suppliers’ investments and innovation more efficiently than auctions.

The second chapter, *Holding an Auction for the Wrong Project*, considers the problem of a public agency who wishes to procure a customized good for which there are initially alternative designs available. The expectation of being involved in a renegotiation shortly after the sign of the contract affects the bidding strategies of the potential suppliers and, as a result, impacts on the buyer’s choice of the award mechanism.

In a setting in which the potential suppliers have different project-design specializations, I
show the existence of a non-trivial trade-off between the cost of an ill-specification of the project design and the benefits of intensifying competition ex-ante. The public agency may strategically choose to auction off a project design which is more likely to be inappropriate so as to stiffen competition at the bidding stage and receive lower bids, even at the expense of going through a costly renegotiation with a higher probability.

The second part of the dissertation concerns the optimal design of an organization. In many organizations the task of evaluating an agent’s performance is delegated to a third party, a supervisor, who can opportunistically misreport information. The question of how the provision of incentives in hierarchies is affected by the supervisor’s opportunism has long been studied in economics. Addressing this research question is of great importance since it can improve our understanding of the internal organization of firms and can have broad applications to regulatory design.

The third chapter of the thesis, The Threat of Corruption and the Optimal Supervisory Task, co-authored with Luca Livio (ECARES, FNRS), contributes to this line of research by studying the optimal task a supervisor should be charged with in the presence of corruption concerns. Scholars such as Strausz (2006) have argued that one of the fundamental decisions that organizations must take is the timing at which an inspection of the agent’s performance should occur. In this chapter, we highlight the existence of a trade-off between monitoring the agent’s effort choice and auditing it ex-post, which arises when the two faces of corruption, collusion and extortion, are present.

Collusion (group opportunism) occurs when the supervisor cooperates with the agent to misreport information to the principal in exchange for a bribe. The problem of extortion (individual opportunism) emerges when the supervisor can credibly threaten the agent to forge unfavorable evidence. The severity of collusion positively depends on the facility with which the agent-supervisor coalition can manipulate evidence, while the severity of extortion is related to the ability of the supervisor to falsify information by herself.

We show that monitoring better tackles corruption provided that the principal requires the supervisor to send the report before the outcome realization. By taking advantage of the supervisor’s uncertainty about the state of nature, the principal can design a compensation scheme which prevents corruption at a lower cost. In contrast, auditing reduces the cost of supervision as it enables the principal to defer the choice of inspecting the agent’s performance until after the outcome is observed. Whenever the outcome realization conveys enough information about the compensation due to the agent, the supervisor will not be hired and, as a result, the cost of inspection will be saved.

The benefits of monitoring only emerge when the supervisor can easily falsify evidence on her own. Therefore, if the supervisor is honest or only collusion represents a concern for the principal, auditing is always preferred. The model provides some testable implications regarding what type of supervisory task we should observe in the real world depending on the cost of performing an

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3Tirole (1986) was the first to highlight the loss of efficiency engendered by the possibility of collusive agreements between the agent and the supervisor.
inspection and the supervisor’s ability to falsify evidence. While in the model we focus on the organization of a firm, our insights can be applied to a broader range of contexts, such as a regulatory setting, like the one studied by Hiriart et al. (2010).

References


