



Expropriation risk, investment decisions and economic sectors [☆]



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ABSTRACT

We build a Real Options model to assess the importance of private provision and the impact of expropriation risk on investment timing, business values, governmental costs and social welfare. We consider two types of businesses (essential and non-essential) and two stages (operating businesses and investment opportunities) and answer questions regarding three main topics: the firm's reaction to expropriation risk, the government drivers to expropriate, and the welfare costs of expropriation. Our results show that responding to expropriation risk the private investor is driven to suboptimal investment decisions. When we endogenize the reputational costs of expropriation, our results show that the decision of the government to expropriate largely depends on the type of business being targeted. In terms of welfare, our results show that expropriation is always associated with a loss.

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1. Introduction

The wave of nationalizations in Africa and Latin America during the last decade brought back the fear of expropriation to the business environment. An expropriation can be defined as government seizure of the ownership or control rights of a firm. The problem it poses to investors is that compensation for expropriation in most cases is either nonexistent or below the fair value of the firm. For a wealth maximizing government it is appealing to seize the benefits of a target firm that has already realized an irreversible investment, offering in turn an indemnity well below market value.

We use Real Options and build a version of a classical sequential investment timing model in the spirit of McDonald and Siegel (1986) to investigate the decisions of a firm and of a government in the presence of expropriation risk. The firm decides when to undertake a new investment project and when to abandon it if it is no longer profitable. The government decides when to expropriate the firm once it is in operation. With this model, we answer three main questions about the governments' drivers for expropriations, the firms' reactions to this phenomenon and the welfare costs that are generated in the process.

The first question considers the drivers of governments to expropriate a business. Existing literature approaches this question from different perspectives. For instance, governments can be considered social welfare or national income maximizers (Eaton and Gersovitz, 1984; Cole and English, 1991; Raff, 1992), risk averse agents looking for insurance (Rigobon, 2010; Stroebel and van Benthem, 2010), agents responding to political pressures to expropriate foreign firms (Engel and Fischer, 2010; Jensen and Johnston, 2011), or even as punishing multinational firms that renege on contracts (Guriev et al., 2011). An additional strand of the literature assumes an opportunistic government trying to maximize the value of an option to expropriate (Clark, 2003; Schwartz and Trolle, 2010). Without delving deep into the discussion about the political and legal incentives to expropriate, these authors focus on the operational and market factors that may encourage the government to expropriate. Our paper forms part of this literature. Modeling a government that expropriates the firm when cash flows are high, we study how the value drivers of a business affect the expropriation decision.

Second, we analyze how firms react to expropriation. There are two main options: (i) withdrawing all investment from the host country and possibly making it return to autarky (e.g., (Cole and English, 1991; Schnitzer, 2002; Guriev et al., 2011; Stroebel and van Benthem, 2010)) and (ii) partially withdrawing investment, or underinvesting (Raff, 1992; Thomas and Worrall, 1994). In our model, we observe a simultaneous problem of over and underinvestment of the firm when exposed to the risk of expropriation. This happens because the firm invests too early and abandons too soon compared with the case where there is no risk. The effect of expropriation risk on the firm's decision to invest in a project is addressed in Nordal (2001), but to the best of our knowledge, there has been no reference in the literature to the effect of expropriation risk on the firm's abandonment decision.

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¹ This paper is the sole responsibility of its author. The views represented here do not necessarily reflect those of the Banco de España.

In the setting we propose, we are able to analyze how the firm's decisions interact with the probability of expropriation, and vice versa, which is especially useful to answer the third question in our model: what are the costs of expropriation for the government and the overall economy in terms of reputation? Several authors consider that the government faces a reputation cost in terms of investment. Such cost is usually assumed to be exogenous (Schnitzer, 2002; Clark, 2003; Schwartz and Trolle, 2010). In our model, in addition to considering exogenous reputation costs, we go further by proposing a loss/gain function for the government that allows analyzing the interaction between reputation costs and indemnity payments. This loss function accounts for the reaction of firms operating in the market and firms willing to enter based on the idea that when one firm is threatened with expropriation, all remaining investors will account for the risk of their assets being seized. We can do this thanks to the interaction among the indemnity payment, the probability of expropriation and the probability of shutting down the business once the expropriation risk has been included in the firm's discount. Thus, our loss function makes the compensation offered upon expropriation contingent on reputation costs. In this context, the government can derive the optimal policy in terms of indemnity payments to maximize its own gain from expropriation. We can also determine the optimal policy in terms of welfare, which is defined as the sum of value created by both the government and the firm. Note that because the government is opportunistic, welfare is not one of its objectives. Therefore, the welfare maximizer policy is only a normative result.

The three questions above are studied in an economy with two types of businesses: essential and non-essential. Non-essential businesses are those that, although creating value, are not necessary for the normal functioning of the economy. This special characteristic will be reflected in the decisions made by the government regarding expropriation. As far as we know, the problem of how different "social incentives" of the government affect the decision to expropriate and the investment decisions made by the firm has not been analyzed yet. In terms of costs borne by the government, the most similar case is posed by Raff (1992), who analyzes the reaction of the government and the firm within the context of asymmetric information: the government only learns *after* expropriation whether it has expropriated the most costly firm to expropriate due to the extra managerial skills the owners of the firm withdraw from the country. However, our case does not assume asymmetric information.

The results of our model show that when the business belongs to a sector essential for the functioning of the economy, there is a greater welfare gain when a private, more efficient firm operating the business than when the sector is not essential. Therefore, creating a threat to expropriate is also more costly in terms of welfare for essential businesses. This is in line with the results we obtain by endogenizing the reputation and indemnity costs: for essential businesses, the government's optimal policy to maximize its gain is generally to expropriate the firm instead of confiscating it: it is bound to offer a rather fair compensation, especially if the market is large. However, when the business is not essential, the government generally maximizes its gain by confiscating the firm or paying a low compensation, whatever the size of the market.

In terms of welfare, however, regardless of whether the business is essential to the economy, the government should always pay the highest possible compensation to the firm. Because the offered indemnity has a negative relationship with the probability to expropriate, this implies that expropriation will always be suboptimal in relation to total value creation in the economy.

2. Assumptions

The economy modeled comprises a government and private firms. We distinguish between firms already operating and firms that are considering making an initial investment (entrants).

The investment opportunity is identified by the use of the subscript 0, while the values derived from operating businesses will not have subscripts.

We consider two scenarios. First is the politically safe scenario, which we set as a benchmark and where the government does not intervene in the economy beyond setting the fiscal regime. The second scenario is politically risky: an opportunistic government intervenes directly in the economy through expropriations. The risky environment is identified by the use of the superscript j , with $j = s, e$ representing a safe and a risky political environment, respectively.

Assumption 1. The government is an opportunistic agent.

Cole and English (1991) argue that governments can expropriate out of either desperation or opportunism. The opportunistic behavior, which is the most common, implies that expropriations are mere reactions of the government to high real prices of the product or service. In terms of our model, this implies that the government engages in risky actions only when the cash flows of the business exceed a certain threshold, which we call the expropriation trigger. When cash flows are below the trigger, the government does not take any action and commits to its tax schedule.

Assumption 2. Political risk follows a continuous process.

In our model, the government observes the level of cash flows, and when it reaches a certain level, it engages in politically risky actions. This is in contrast to models such as those by Clark (1997, 2003) that define political risk as a Poisson process. This approach is suitable only in those cases in which expropriation is regulatory.

Assumption 3. The government distinguishes between essential and non-essential businesses and is committed to the operation of essential businesses.

The government makes a distinction between essential and non-essential sectors. The operation of businesses in essential sectors cannot be disrupted and must therefore be operated continuously either by a private investor or by the government. Businesses in non-essential sectors generate value for the economy once in operation but are not required for the normal functioning of an economy. These businesses are only if it is profitable to do so: the government may follow a scheme to maximize the value of the business once it is operating and has the option to abandon operations if the business is not profitable.

Essential sectors are those every country requires, such as health-care, food-security, infrastructure, and transportation. The essential nature of these businesses does not imply the existence of an altruistic government, because opportunism drives governments to operate loss-making essential businesses in order to perpetuate power.² The economic sectors to which a business belongs to are identified by the use of the superscript i , in which $i = u, c$ representing essential and non-essential businesses, respectively.

Assumption 4. The objective of the private firm is to maximize shareholder value.

For the private firm operating in a safe political environment, there are no a priori differences among any of the sectors, because it does not bear any social responsibilities and can abandon the business if it is no longer profitable.

Assumption 5. The government commits to a tax scheme the firm must comply with.

² In the case of democratic regimes, disruption to the essential sectors may trigger changes in the governing party in the following elections and may generate costs for the revenues of the government through: (i) costs associated with reduced investor confidence in the country and capital flight (Le and Zak, 2006; Lensink et al., 2000) and (ii) reductions in productivity if social unrest materializes in strikes and protests (Renn et al., 2011). In the case of autocratic regimes, although there are no political cycles pressing the current governing party, there is a real fear of regime change through social unrest.

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