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DEMOCRACY AND  
EXPROPRIATIONS



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# Democracy and Expropriations

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## Abstract

In this paper I develop a voting model that shows the different effects of democratic competition and political constraints on the probability of expropriations of foreign investments. I show that these two aspects of liberal democracy might have very different effects on expropriation risks. Particularly interesting is the prediction that for low to intermediate levels of political competition for executive power, increased competition will lead to higher risk of expropriation.

Testing this and other predictions on panel data for actual expropriations in 27 developing countries, I find support for the predictions from the model.

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# 1 Introduction

Expropriations of foreign capital have been largely ignored by the academic literature for long spells of time. Kobrin (1984) argued that the expropriations during the 1960s and 1970s were an attempt by national authorities to control multinational enterprises (MNEs), but that they by the end of the 1970s had regulative tools that could complete this function. However, recent government expropriations in Bolivia, Venezuela, and Russia have showed that the conclusion that expropriations are a phenomenon from the past might be premature. The existence of international insurance companies that insure goods and investments against political risk implies that the mere possibility of expropriations in itself increases frictions on international trade and capital flows, and that this is still an important question today. The question is whether it is possible to find a systematic explanation of expropriations. Are they a result of rational behavior, or merely an outcome of a burst of national populism? In this paper I show both theoretically and empirically that expropriations can be the result of rational utility maximization, and that it to a certain degree can be explained by the political institutions that define the framework within which the politicians act. Specifically I propose that democratic competition for power may shorten executives' time perspective, thus making expropriations a more attractive policy option.

Democracies are very heterogeneous, and their different characteristics have different implications on economic performance. A political system with a strong, charismatic president is likely to be different in many aspects from a parliamentary system where party identities are more important than their respective candidates. In the first, the executive may focus more on his own career, whereas in the second he will have to consider the legacy he leaves behind to his party. Going into detail with all the variations of democracy is well beyond the scope of this paper, but I will focus on two aspects that I believe are central for studying the mechanisms at work between democracy and state expropriations: the competition for office, and checks on executive power. Both of these are essential for a political system to be characterized as a liberal democracy, but I will argue that they can potentially affect investment and growth in very different ways. The likelihood of losing office in elections, or due to term limits may lead executives in democracies

to have shorter time horizons than a lifetime dictator would, thus making long-term investments more insecure. Bó and Rossi (2008) study Argentinian legislators and conclude that longer terms lead to better legislative performance. Titiunik (2008) finds similar results for US Senators in Texas and Arkansas. On the other hand, the checks and balances that are often associated with democracies may ensure more predictability about the policies that will be enacted, and as such reduce uncertainties and improve the investment climate.

## 1.1 Previous literature

Understanding expropriations is important for individual firms that invest in countries with high political risk, but also for policy makers who work toward better growth conditions in capital-poor countries. There is a large literature studying directly how political institutions affect economic growth.<sup>1</sup> Generally this literature argues that the important aspects of political institutions are the ones that affect the investment climate in the country, and another branch of the literature studies directly how democracy affects FDI flows. Lucas (1990) criticizes the simple neoclassical models that predict that investment will go to countries with little capital relative to labor, and argues that one of the main reasons MNEs do not invest more in capital-poor countries is that these investments are subject to significant political risk. Jensen (2003) and Busse (2004) among others find that more democratic regimes attract more FDI, while Li and Resnick (2003) argue that democracy increases incoming FDI only through stronger property right protection, but that when these are controlled for, democracy as such actually reduces FDI inflows. Busse and Hefeker (2007), using an extensive data set of developing countries, find that government stability and law and order greatly increase foreign investments, whereas democratic accountability does this only to a lesser degree. These studies highlight the important difference between electoral competition and political constraints, but their dependent variable, incoming FDI, is

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<sup>1</sup> There is a rich literature looking for the causality of institutions on economic performance (see for example Knack and Keefer, 1995; Mauro, 1995; La Porta et al., 1998; Hall and Jones, 1999; and Rodrik, 1999). Acemoglu et al. (2001) challenge endogeneity issues in the literature by instrumenting institutions with settler mortality rates in former colonies. Rodrik et al. (2004) point out the importance of institutions within a democracy. Besley and Kudamatsu (2007) also focus on institutions, and show that autocracies with good institutions perform quite well.

not a direct measure of political risk. There might also be systematic differences between countries that are rich in natural resources, and those that are not. Natural resources may attract large foreign investments, but they may also affect the political climate in the country.<sup>2</sup>

When it comes to explaining political risk theoretically, many authors consider different formulations of the hold-up problem to explain various factors that might discipline host governments. Eaton and Gersovitz (1984) assume that foreign investments exhibit some intangible asset, for example managerial skill, that the foreign investor can pull out in case of expropriation. The cost of expropriation for the local government is thus a drop in productivity. Knowing this effect, the foreign investor only invests as long as these costs marginally surpass the gains from expropriation. In equilibrium there is thus no expropriation, but investment levels are suboptimal compared to a situation with enforceable contracts. Thomas and Worrall (1994) follow the same reasoning in an infinite-horizon model where the cost of expropriating is the loss of future investments. The optimal self-enforcing contract is one where investments are gradually built up and transfers to the host country increase over time. Along these same lines Schnitzer (1999) shows how an investor's control rights over some essential production factor can protect the investment. Like in Eaton and Gersovitz (1984), the threat of expropriation causes under-investment if these control rights are not sufficiently strong. Konrad and Lommerud (2001) point to asymmetric information and how joint ventures with local investors can be a possible solution to the hold-up problem. Profit shifting through intra-firm trade can protect some of the profit from creeping expropriation by the host government if the information about opportunity costs is private to the foreign investor. Selling shares in the affiliate to local investors increases this mechanism, as this increases information rent through profit shifting, and also reduces the local government's incentives to expropriate. Another potential solution to the risk of expropriation is presented by Engel and Fischer (2008), who propose contracts that give the authorities a larger share of windfall revenue when prices of the produced goods are high. Common to all these models is that a host country will expropriate whenever short-term gains from expropriating outweigh

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<sup>2</sup>For a good overview of the literature on the 'natural resource curse', see Sachs and Warner (2001).

the long-term costs, but also that they all view the host country as one agent.

I introduce "new" domestic agents in a simple model where foreign investments are reduced by fear of expropriation, but where also the political institutions affect the risk of expropriation. The government's actions determine its reputation, which again determines future investments. I attempt to capture the trade-off between short-term gains from expropriation and the long-term reputation costs, but also how these effects are increased or reduced by different political institutions, and democratic imperfections. The argument follows the same line of reasoning as the "stationary bandit" story discussed for example in Olson (1993), where a stationary bandit can earn a bigger profit by promoting growth and "stealing" through taxation, instead of stealing all he can get in a one-time raid. Like in some of the above mentioned models, loss of future investment is one cost of expropriation, but in addition to this the personal utility from being in power might discipline an executive that would otherwise expropriate. However, as the future costs of expropriation might be the problem of a future president, frequent elections and the likelihood of being replaced at the end of the period might shift the focus of the incumbent towards the short-term gains of expropriation. The model is related to the above discussed literature, as well as a body of literature discussing expropriations and stochastic alteration of power (see for example Azzimonti and Sarte, 2007). Further it draws upon the probabilistic voting models from the political economy literature where welfare shifting towards the executive's own group may gain him support in spite of poor political performance. An example of this is Padró I Miquel (2007), who shows how an ethnic group may prefer a kleptocratic ruler to the risk of getting an equally corrupt ruler, from another ethnic group.

Although following in the footsteps of several strands of literature, my paper distinguishes itself in several important ways. To the best of my knowledge, the model is the first to predict that democratic competition for political power may increase the likelihood of expropriations. I show that elections have two separate effects on the executive's expropriation incentives: they reduce the likelihood of remaining in power, thus making the executive more short-sighted, but also provide a mechanism through which the likelihood of remaining in power is conditional on previous performance. In order for democratic competition to have a disciplinary

effect, the political competition must be above a critical level of responsiveness. Below this level, increased political competition will rather increase expropriation risk.

The paper also contributes to the empirical literature on expropriations. I test the above predictions on data for actual expropriations in seven mineral sectors in 27 developing countries between 1960 and 2002. Extractive sectors should be "ideal" for expropriations. Most of the investment costs are sunk at the establishment of the mine or the well, the key resource is perfectly immobile, and the technology needed for running an already operating mine should be attainable for most developing countries, once the exploration, drilling, and operation routines are in place. In addition, the final product is rather homogenous, and not protected by trademark property rights, meaning that if expropriated, the product should sell at a similar price in the international market as the original owner would have been able to achieve. The data seem to a large degree to support the theoretical predictions from the model.

The rest of this paper is organized as follows. Section 2 presents the theoretical model of the expropriation decisions a president makes, first in a simple model where voters cast their ballots strictly according to a social conflict type of election model, and thereafter in a more realistic version where voters take into consideration the incumbent's actions when deciding their vote. In section 3 I present the data and test the predictions from the theoretical model. Section 4 concludes.

## 2 The model

In this section I develop a simple Bayesian game voting model where I show how the limitations on executive power and degree of political competition for office affect the executive's incentives to expropriate a foreign investment. The model is probably most closely related to Besley and Kudamatsu (2007), but departs from this model in that I include foreign investors as actors in the game. I also allow for more variations in the level of democracy than in their model.

The political economy literature has long given great importance to social conflict between the ins and the outs, the empowered and the disempowered. When there are different payoffs for the social group with *de facto* political power and

other social groups, policies pursued by a country might very well be suboptimal for the country as a whole. This differs greatly from models where the agent is a country maximizing some social welfare function, and I show how the degree of stability in the allocation of *de facto* power has the potential to greatly affect the political risks for foreign investments in a country.

The model runs over two periods, and in each period the sitting president decides whether to expropriate foreign investments or not, and then divides the budget consisting of gains from foreign investments (expropriated profits or tax revenue) and other government revenue between voters through transfers directed at specific groups in society. The population consists of two groups, and these groups could be thought of as ethnic, religious, social, or any other division criteria that could identify one group of the population with a certain political party or candidate. For simplicity I assume that the groups are of the same size, and that transfers are equally divided between the members of each group. Between the two periods there might be democratic elections between the incumbent and a candidate from the opposing group where the winner is decided through a first-past-the-post ballot.

Voters have two-dimensional policy preferences. The expected utility-function for a representative voter is assumed to be

$$U_i^V = \sum_{t=1}^2 (y_{it} + \alpha_{it}). \quad (1)$$

I assume a utility from consumption that is simply equal to the amount of money spent on consumption goods. This, together with the assumption that the groups are of equal size and that transfers are equally distributed within the groups, means that I can simply write an individual's utility as a function of the total transfers to his group. The last component  $\alpha_i$  denotes some personal preference for the sitting president relative to the opposition candidate, independent of the individual's social group. Voters thus take both their material payoff and their subjective preference for the incumbent into consideration when they vote. This could be thought of as cross-cutting cleavages in the Rokkan and Lipset terminology of voter alignments.

Political candidates get utility from winning office, and thus directing resources



towards their own social group. More specifically I assume that a candidate from group  $s$  has an expected utility-function

$$U^{P,s} = \sum_{t=1}^2 \phi_t Y_t^s, \quad s = 1, 2 \quad (2)$$

where  $Y^s = \sum_{i \in s} y_i$  is the total value transferred to group  $s$ , and  $\phi_t = \{0, 1\}$  indicates whether the candidate is president in period  $t$  or not. There is no discounting between periods for presidential candidates or voters.

In each period there exist two non-divisible investment opportunities in the host country (HC) that cannot be exploited by domestic investors due to lack of means or technical know-how. Investment costs are sunk at the beginning of the period, and output is produced at the end of the period, at which point the investment is undone. An identical investment opportunity will however be available in the next period. The output is equal for each investment, but the investment costs differ. The price per unit of this output is determined in an international market that is unaffected by the host country's supply, and without loss of generality I chose units of output and the expected price so that the operating profits of each investment at the end of the period can be normalized to 1. The realized price, however, might vary, and I denote by  $P$  a multiplier relative to the expected price so that  $P > 1$  means that the realized price is higher than expected, and vice versa. If there is no risk of expropriation in HC a foreign investor will thus undertake the investment if profits net of taxes are larger than the initial investment,  $(1 - T) \geq I_j$   $j = 1, 2$ , where  $T$  is a flat tax rate.<sup>3</sup>

However, after the investment is realized, the local authorities might decide to expropriate the produced output, in which case the country receives the full value of the produced output. If the host country does not expropriate it receives a share  $T$  of this revenue through taxation. The investor will take this into account when deciding whether to invest or not. Let there be two kinds of presidents: an

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<sup>3</sup>Naturally, the tax rate is also a choice variable for the president in this type of model, and can be used for creeping expropriation. However, when presidents are assumed to be either of an expropriating type or investor-friendly, such creeping expropriation would also reveal the president's type. As such, if trying to expropriate through taxation, the president would rationally set  $T = 1$ , which would yield identical results to direct expropriation. I will therefore ignore the possibility of expropriation through taxation, and take the tax rate as given in this paper.

opportunistic, that will expropriate foreign investments whenever this maximizes his expected utility, and an investor-friendly who will never expropriate. A president's type is unobservable to both investors and voters. Denote by  $\Pr(o) = \pi$  the share of potential presidential candidates that are of the opportunistic type, and hence the prior probability that any sitting president is of this type. When the sitting president is newly elected, the foreign investor will thus invest in the second period if  $(1 - T) [1 - (1 - \mu) \pi] \geq I_j$ , where  $\mu \in [0, 1]$  captures constraints on the executive, as the host country may have institutions that will overturn the executive's decision to expropriate. These constraints can be thought of as entities with veto power over the executive's decisions, for example a congress, senate or supreme court. The nature of veto power means that the probability that an expropriation will be stopped is equal to the probability that at least one of the constraining institutions is controlled by individuals or groups that will lose from the expropriation. For simplicity this probability is seen as exogenous throughout the paper.

I assume that investment costs are such that

$$(1 - T) > I_2 > (1 - T) [1 - (1 - \mu) \pi] > I_1 > (1 - T) \mu, \quad (3)$$

which implies that whenever the type of the executive is unknown (with the proxy  $\pi$  determining the expected type), investment 1 will be profitable in expectation, and will thus be realized. Investment 2, however, is more costly to undertake, and will only be realized if the investor has received some further information indicating that the executive is of the investor-friendly type, i.e. has obtained some adjusted  $\tilde{\pi} < \pi$ . When the executive has shown himself to be of the expropriating kind, no investments are profitable for the investor, and none will be realized. In addition to income from foreign investments, the executive can also distribute domestically generated state revenues,  $G$ .

The executive could be a president, a king, a high priest, or any other form of government, but for the rest of the paper I will denote the executive as president. As the case with an investor-friendly president is quite uninteresting, as they will never expropriate, I will only focus on the expropriation incentives for an opportunistic president.

The timing of the game is as follows:

1. [Start of period 1] Investor invests
2. President decides on expropriation
3. State revenue is divided among voters and consumed
4. Elections might be held
5. [Start of period 2] Investor decides whether to invest
6. President decides on expropriation
7. State revenue is divided between voters and consumed

The model is solved through backward induction. The last steps are trivial. At stage seven, in the final period, the president transfers as much to his own group as is possible. Being the last period, and since I am only considering opportunistic presidents, there are no arguments against expropriating, so if the investor invested, the revenue from the investment will be expropriated in stage 6. Knowing this, the investor will only invest in stage 5 if the sitting president did not expropriate at stage 2, or if the sitting president was newly elected at stage 4. The interesting stage in the model is thus stage 2. Figure 1 shows the game tree for stages 2-5 of the above described game. I denote by  $U_{1-4}$  the second-period expected utility in the outcomes that are possible in the model. The assumption (3) ensures that  $U_1$  is the only realized outcome if an expropriating president remains in power in period 2. Similarly, it ensures that  $U_2 = 0$  is the only relevant outcome if a new president is elected at stage 4. If a non-expropriating president stays in power in period 2 the investors will always invest in the second period, but whether only  $I_1$  or  $I_1 + I_2$  will be realized depends on parameter values. The value and likelihood of  $U_{1-4}$  determine expected utility for the president in the possible outcomes of the game, and thus also his incentives for expropriating in period 1. The three relevant expected utility-expressions, conditional on the president's

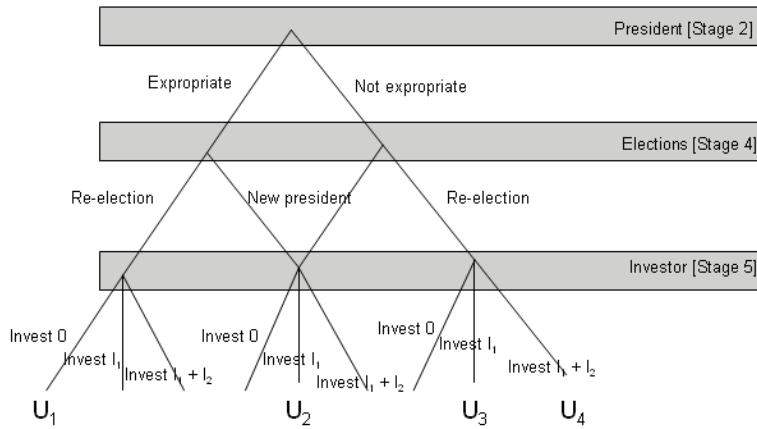


Figure 1: Game tree

actions at stage 2, will be:<sup>4</sup>

If expropriating at stage 2:

$$U_x^P = \text{Utility first period with expr} + \Pr(\text{reelection} \mid \text{expr}) U_1$$

If not expropriation at stage 2,  $I_1$  invested in the second period:

$$U_{\bar{x},1}^P = \text{Utility first period without expr} + \Pr(\text{reelection} \mid \text{no expr}) U_3$$

If not expropriation at stage 2,  $I_1 + I_2$  invested in the second period:

$$U_{\bar{x},2}^P = \text{Utility first period without expr} + \Pr(\text{reelection} \mid \text{no expr}) U_4$$

It is important to note that the different probabilities above depend on the president's action, but also on parameter values that determine how much information the realized action provides.

Specifically, the expected utility for the president if he expropriated in the first

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<sup>4</sup>All expressions also include the probability of being ousted through elections, multiplied by the resulting utility  $U_2$ , which is equal to zero, and thus disappears in all cases.

period will be:

$$U_x^P = \{[1 - (1 - T)\mu]P + G\}\sigma + [1 - (1 - \gamma_x)\theta]G\sigma.$$

The first part of the expression,  $\{[1 - (1 - T)\mu]P + G\}\sigma$ , is the expected utility from transferring money to his group in period one. The rest of the expression is the expected utility for period two after expropriating in the first. I let  $\theta$  denote the probability of facing elections between the periods, which I will interpret as the level of political competition, and  $\gamma_x$  denotes the likelihood of winning the elections after expropriating in the first period.<sup>5</sup> The combination of these,  $[1 - (1 - \gamma_x)\theta]$ , is thus the probability of remaining in office in the second period. The second part of the expression is then the probability of remaining in office, multiplied by the utility this will generate. Note that the transfers will now only be  $\sigma G$  since the investor will not invest in the second period. If the president waited for the investor to invest in the second period and then expropriated he would get utility depending on whether second period investments are  $I_1$  or  $I_1 + I_2$  respectively:

$$U_{\bar{x},1}^P = (TP + G)\sigma + [1 - (1 - \gamma_{\bar{x}})\theta]([1 - (1 - T)\mu] + G)\sigma$$

$$U_{\bar{x},2}^P = (TP + G)\sigma + [1 - (1 - \gamma_{\bar{x}})\theta]([1 - (1 - T)\mu]2 + G)\sigma.$$

The expected utilities are all functions of the level of political competition,  $\theta$ . Various levels of this variable define three types of equilibria in the model; for low levels of  $\theta$  incentives to expropriate will be so low that no president will ever expropriate, and we have a pooling equilibrium where presidents of both types act identically. For sufficiently high levels of  $\theta$  opportunistic presidents will always expropriate, and we have a separating equilibrium, where the two types of presidents always act differently. Intermediate levels of  $\theta$  will cause opportunistic presidents to play mixed strategies, and there will be a semi-separating equilibrium. In the following I will solve the different equilibria.

Initially I let the voters give their support purely out of group identity, and

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<sup>5</sup>Political competition does unarguably consist of more than just the regular occurrence of elections, but the risk of facing a real challenge by an opposing candidate constitutes an important aspect of this. More than probability of elections,  $\theta$  could represent the frequency of elections.

they will never change their vote according to the president's behavior, hence  $\gamma_{\bar{x}} = \gamma_x = \gamma$ . In section 2.2 I relax this assumption. An opportunistic president will expropriate in the first period if the expected utility of doing so is larger than the expected utility of waiting and expropriating in the second period. Knowing this, the foreign investor will condition his investments in the second period, on the actions of the president in the first period. For the investor to undertake both investments in the second period, it must be the case that the president had incentives to expropriate in the first period and forego twice the incoming investments in the second period, and did not do so. Mathematically, this incentive constraint can be derived as below.

Taking the difference between the expected utilities gives the net incentives for the president to expropriate.

$$U_x^P - U_{\bar{x},1}^P = (1 - T)(1 - \mu)P - [1 - (1 - \gamma)\theta][1 - (1 - T)\mu] \quad (4)$$

$$U_x^P - U_{\bar{x},2}^P = (1 - T)(1 - \mu)P - 2[1 - (1 - \gamma)\theta][1 - (1 - T)\mu]. \quad (5)$$

Both of these expressions are clearly increasing in  $\theta$ . Denote by  $\check{\theta}$  the value of  $\theta$  that makes the president indifferent between expropriating or not in equation (4), and similarly  $\hat{\theta}$  for (5).

$$\check{\theta} = \frac{1 - \mu(1 - T) - (1 - T)(1 - \mu)P}{(1 - \gamma)[1 - (1 - T)\mu]} \quad (6)$$

$$\hat{\theta} = \frac{2[1 - \mu(1 - T)] - (1 - T)(1 - \mu)P}{2(1 - \gamma)[1 - \mu(1 - T)]}. \quad (7)$$

For  $\theta < \check{\theta}$  expected utility from expropriating is always lower than from not doing so, meaning that  $\theta \in [0, \check{\theta}]$  defines the pooling equilibrium. Similarly, for  $\theta > \hat{\theta}$  opportunistic presidents will always expropriate, defining the separating equilibrium as the outcome when  $\theta \in (\hat{\theta}, 1]$ . It is straightforward to show that  $\hat{\theta} > \check{\theta}$ , meaning that there exists an interval,  $\theta \in (\check{\theta}, \hat{\theta}]$ , where there will be a semi-separating equilibrium.

For intermediate levels of democratic competition,  $\theta$ , the president will have to weigh two opposing factors against each other. On the one hand political competition represents a risk of foregoing a potential gain by not expropriating

in the first period should the president be replaced between the periods. On the other hand, by not expropriating the president sends a signal to potential investors that he might be of the investor-friendly type, increasing the probability that both investments will be realized in the second period, and thus increasing the potential gains of expropriating in the second period. In equilibrium it must be the case that both the president and the investor randomizes between their strategies in such a way that they both leave the other indifferent between the two possible actions. Denote the probability that the president will expropriate by  $p^P$ . The investor will then estimate a posterior risk that the president is of the opportunistic type based on the observation that no expropriations occurred in the first period:

$$\Pr(o | \bar{x}) = \frac{(1 - p^P) \pi}{1 - p^P \pi}.$$

This means that the expected profits from the investment in the second period after observing that the sitting president did not expropriate in the first period will be

$$\Pi^E = (1 - T) \left( 1 - (1 - \mu) \frac{(1 - p^P) \pi}{1 - p^P \pi} \right).$$

If there were no expropriations in the first period, the investor will decide to invest in either one or both of the projects. The  $p^P$  must be chosen so that he is indifferent between the two options:

$$p^P = \frac{I_2 - (1 - T)(1 - (1 - \mu)\pi)}{(I_2 - (1 - T)\mu)\pi}. \quad (8)$$

Further, for this to be an equilibrium, it must be the case that when the investor then decides to invest  $I_1 + I_2$  with probability  $p^I$  in the second period, the president is indifferent between expropriating or not in the first period.

$$\begin{aligned} U_x^P &= p^I U_{\bar{x},2}^P + (1 - p^I) U_{\bar{x},1}^P \\ &= U_{\bar{x},1}^P + p^I (U_{\bar{x},2}^P - U_{\bar{x},1}^P). \end{aligned}$$

$U_{\bar{x},2}^P - U_{\bar{x},1}^P$  is always positive, which implies that for  $\theta < \check{\theta}$ ,  $p^I$  must be negative for the above to hold with equality, and there will be a pooling equilibrium where

neither investor-friendly nor opportunistic presidents will expropriate. If  $p^I$  is at its maximum value one, the condition collapses to

$$U_x^P = U_{\bar{x},2}^P,$$

which is the case when  $\theta = \hat{\theta}$ . This implies that for  $\theta > \hat{\theta}$ ,  $p^I$  must be larger than one for there to be a separating equilibrium, which is impossible. Hence I have shown that for levels of  $\theta$  that are below  $\check{\theta}$  we get the pooling equilibrium, from this cutoff, and up until  $\hat{\theta}$  the semi-separating equilibrium will be the outcome, whereas for higher levels of political competition there will be a separating equilibrium. In this equilibrium we have that the investor will undertake both investment opportunities in the second period with probability

$$\begin{aligned} p^I &= \frac{U_x^P - U_{\bar{x},1}^P}{U_{\bar{x},2}^P - U_{\bar{x},1}^P} \\ &= \frac{(1-T)(1-\mu)P - [1 - (1-\gamma)\theta][1 - (1-T)\mu]}{[1 - (1-\gamma)\theta][1 - (1-T)\mu]\sigma}, \end{aligned} \quad (9)$$

which is an increasing function of  $\theta$ , and the president will expropriate in the first period with probability  $p^P$  defined in (8).

## 2.1 Comparative statics

From this most simple version of the model, I can derive at least three interesting, testable predictions concerning the president's incentives to expropriate in the first period. If the realized price is as expected, both  $\check{\theta}$  and  $\hat{\theta}$  are positive, but they will decrease for higher values of  $P$ . It is also quite straightforward to see that incentives to expropriate are higher for higher price levels of the output. This leads to the following predictions:

Prediction 1: *Expropriations are more likely when prices are high.*

The intuition behind this is simply that if the value of a foreign investment today increases, relatively to the expected value of the same investment in the future, potential gains from expropriation increase, and *ceteris paribus* incentives to expropriate increase.



If chances of being challenged in a democratic election are zero,  $\theta = 0$  incentives to expropriate are always negative unless  $P \geq 2 \frac{(1-\mu)(1-T)}{(1-T)(1-\mu)} > 2$ , i.e. the price of the output is more than twice the expected level. This also implies that under the given assumptions, the long-term welfare of the host country is maximized by not expropriating in the first period.

Prediction 2: *Expropriations are increasing in the level of democracy.*

Low levels of  $\theta$  yield a pooling equilibrium where expropriations never occur in the first period. For higher levels, in the semi-separating equilibrium, expropriations occur with probability  $\pi p^P$ , whereas for the highest values of  $\theta$ , in the separating equilibrium, expropriations occur with probability  $\pi$ . The mechanism at work here is simply that as the likelihood of an election increases, the likelihood of remaining in office,  $[1 - (1 - \gamma)\theta]$ , decreases, thus working as an increased discounting factor.

Prediction 3: *Expropriations are less likely when political constraints are high.*

Looking at  $U_x^P - U_{\bar{x},i}^P$ ,  $i = 1, 2$  it can be shown that the expressions are decreasing in  $\mu$  for any relevant values of the model's parameters.<sup>6</sup>

In countries with low levels of political competition investor-friendly presidents have no way of credibly showing investors their true type since no information is transmitted through their decision to not expropriate. In the high-competition countries, where the separating equilibrium will be the outcome, the absence of expropriations will always lead to both investment projects being realized unless the president is removed in elections between the periods. In the semi-separating equilibrium no expropriations in the first period will lead to expected investments in the second period of  $1 + p^I \epsilon(1, 2)$ . Further,  $p^I$  is an increasing function of  $\theta$ , meaning that conditional on no expropriations occurring in the first period, expected investments in the second period are increasing in the degree of political

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<sup>6</sup>The proof that this is the case for  $U_x^P - U_{\bar{x},1}^P$  is trivial, but for  $U_x^P - U_{\bar{x},2}^P$  it is a bit, but not much, more complex. Taking the difference of the expression with respect to  $\mu$  yields  $(1 - T)(1 - 2\theta(1 - \gamma))$  which is negative for  $\theta > \frac{1}{2(1-\gamma)}$ . Inserting  $\theta = \frac{1}{2(1-\gamma)}$  into the incentive expression yields expropriation incentives equal to  $-T < 0$ , implying that for such low values of democracy the president will never intend to expropriate anyway. This means that for any level of democracy where the president might want to expropriate, increasing levels of political constraints reduce the incentives to expropriate.

competition. This means that expected investments in the second period, conditional on the absence of expropriations in the first period, will be increasing in the level of political competition. This explains the somewhat counter-intuitive story that foreign investments may be higher in countries with a high level of political competition at the same time that I argue that presidents in these countries have stronger incentives to expropriate.

## 2.2 Endogenous election outcomes

One aim of this paper is to model expropriations in a social conflict framework. For one, changing regimes is one source of uncertainty that makes investment decisions difficult for foreign investors. Further, it seems like a rather strong assumption that voters' preferences are not affected by whether the president expropriates or not. In the following I will thus show how the model changes when voters may change their vote as a response to expropriations. Voters are rational, forward-looking individuals who cast their vote to maximize expected future utility. A changed vote is therefore not a direct punishment for past expropriations, but merely a response to new information about the incumbent president's type.

Voters share the same information as the foreign investor about the incentives to expropriate for the president, and can determine the level of second period investments and probability of expropriations in the second period. If the incumbent expropriated in the first period and remains in office, investments in the second period will be zero. If expropriations did not occur in the first period and the president is reelected, voters will find themselves in one of the following three situations.<sup>7</sup>

1. The democracy level in the country is below  $\check{\theta}$ , expected investments in the second period are  $I_1$ , and the risk of expropriation is  $\pi$ .
2. The democracy level in the country is between  $\check{\theta}$  and  $\hat{\theta}$ . Investments in the second period will be  $I_1 + I_2$  with probability  $p^I$ , and only  $I_1$  with probability  $(1 - p^I)$ , and will be expropriated with probability  $\frac{(1-p^P)}{1-\pi p^P} \pi < \pi$ .

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<sup>7</sup>Note that the cutoff points,  $\check{\theta}$  and  $\hat{\theta}$ , are now different from the simple case above, as they are endogenously determined by the responsiveness of the voters to the president's actions.

3. The democracy level in the country is above  $\hat{\theta}$ . Investments in the second period will be  $I_1 + I_2$ , and no expropriations will occur.

In all situations election victory by the opposition candidate will mean that second period investments will be  $I_1$ , which will be expropriated with probability  $\pi$ .

This means that in the first case voters have received no information from observing outcomes in the first period, and have to choose between two seemingly identical candidates from different social groups. They will thus vote according to social identity and their exogenous preference shock  $\alpha_i$ . In this case the model collapses to the simplified version above where  $\gamma_{\bar{x}} = \gamma_x = \gamma$ .

In case number 2 a voter from the incumbent's own group will have expected utility in period 2 if the incumbent wins of:

$$\left[ \frac{(1 - p^P)}{1 - \pi p^P} \pi [p^I 2(1 - \mu)(1 - T) + (1 - p^I)(1 - \mu)(1 - T)] + T + G \right] \sigma + \alpha_i,$$

and conversely, if the opposition candidate wins:

$$[\pi(1 - \mu)(1 - T) + T + G](1 - \sigma).$$

This means that a utility-maximizing voter will support a non-expropriating candidate from his own group if:

$$\alpha_i > \pi(1 - \mu)(1 - T) \left( 1 - \frac{1 - \pi p^P + (1 - p^P)(p^I + 1)}{1 - \pi p^P} \sigma \right) - (T + G)(2\sigma - 1).$$

If for similar levels of democracy the president did expropriate a voter from his own group will support the incumbent if

$$\alpha_i > \pi(1 - \mu)(1 - T)(1 - \sigma) - G(2\sigma - 1) - T(\sigma - 1).$$

Let  $\alpha_i$  be distributed according to a continuous and twice differentiable probability distribution function  $f$ , with the corresponding cumulative distribution function  $F$ , independently of group identity. The expected change in support from his own

group for an expropriating incumbent compared to not expropriating can then be expressed as

$$\begin{aligned} & \Pr(s, s | x) - \Pr(s, s | \bar{x}) \\ &= \int \frac{\pi^{(1-\mu)(1-T)} \left( 1 - \frac{1-\pi p^F + (1-p^F)(p^I+1)}{1-\pi p^F} \sigma \right)^{-(T+G)(2\sigma-1)}}{\pi^{(1-\mu)(1-T)(1-\sigma)-G(2\sigma-1)-T(\sigma-1)}} dF < 0. \end{aligned}$$

This can be shown to be negative when  $-\frac{(1-T-I_2)(1+p^I)\sigma}{(1-\mu)(1-T)\pi} - T\sigma < 0$ , which is always the case.

Voters from the opposition group solve a similar problem, and the change in support for the incumbent from opposition group voters if he expropriates is thus

$$\begin{aligned} & \Pr(s, \bar{s} | x) - \Pr(s, \bar{s} | \bar{x}) \\ &= \int \frac{\pi^{(1-\mu)(1-T)} \frac{\sigma(1-\pi p^F) - (1-p^F)(p^I+1)(1-\sigma)}{1-\pi p^F} + (T+G)(2\sigma-1)}{\pi^{(1-\mu)(1-T)\sigma+G(2\sigma-1)+T\sigma}} dF < 0, \end{aligned}$$

which is also negative since  $-\frac{(1-T-I_2)(1+p^I)(1-\sigma)}{(1-\mu)(1-T)\pi} - (1-\sigma)T < 0$ . Since  $p^I$  is increasing in  $\theta$  it is plain to see that the responsiveness of the voters is increasing in  $\theta$  as well. This means that in countries with stronger political competition the disciplining effect of elections is stronger.

In the third case, when  $\theta \geq \hat{\theta}$  the voters' problems are

$$\begin{aligned} & \Pr(s, s | x) - \Pr(s, s | \bar{x}) \\ &= \int \frac{\pi^{(1-\mu)(1-T)(1-\sigma)-G(2\sigma-1)-(3\sigma-1)T}}{\pi^{(1-\mu)(1-T)(1-\sigma)-G(2\sigma-1)-T(\sigma-1)}} dF < 0, \end{aligned}$$

since  $-2\sigma T < 0$ , and

$$\begin{aligned} & \Pr(s, \bar{s} | x) - \Pr(s, \bar{s} | \bar{x}) \\ &= \int \frac{\pi^{(1-\mu)(1-T)\sigma+G(2\sigma-1)+T(3\sigma-2)}}{\pi^{(1-\mu)(1-T)\sigma+G(2\sigma-1)+T\sigma}} dF < 0, \end{aligned}$$

since  $-2(1-\sigma)T < 0$ . This shows that when voters respond to new information

about the president's type, the likelihood of winning an election is larger when not expropriating than when expropriating, i.e.  $\gamma_{\bar{x}} > \gamma_x$ . It can also be shown that this effect is stronger in more democratic countries. Implementing this into equations (6) and (7) yields some interesting results. The net incentives to expropriate are now

$$U_x^c - U_{\bar{x},1}^c = (1 - T)(1 - \mu)P - (\gamma_{\bar{x}} - \gamma_x)\theta G - [1 - (1 - \gamma_{\bar{x}})\theta][1 - (1 - T)\mu] \quad (4')$$

$$U_x^c - U_{\bar{x},2}^c = (1 - T)(1 - \mu)P - (\gamma_{\bar{x}} - \gamma_x)\theta G - 2[1 - (1 - \gamma_{\bar{x}})\theta][1 - (1 - T)\mu]. \quad (5')$$

Solving these as in the previous sub-chapter, yields the analogue cut-off points that determine the areas for the pooling-, separating-, and semi-separating equilibria:

$$\check{\theta} = \frac{1 - \mu(1 - T) - (1 - T)(1 - \mu)P}{(1 - \gamma_{\bar{x}})[1 - \mu(1 - T)] - (\gamma_{\bar{x}} - \gamma_x)G} \quad (6')$$

$$\hat{\theta} = \frac{2(1 - \mu(1 - T)) - (1 - T)(1 - \mu)P}{2(1 - \gamma_{\bar{x}})[1 - \mu(1 - T)] - (\gamma_{\bar{x}} - \gamma_x)G}. \quad (7')$$

Comparing (6) to (6') it is clear that the cutoff point that determines the end of the pooling equilibrium,  $\check{\theta}$ , is higher when voters are responsive to the president's actions. Similarly it is easy to show that the cutoff point described in (7') is larger than the one in (7). In sum, this shows that overall, expropriations are less likely when voters are responsive to the president's actions than when they vote strictly according to group identity. Starting from the situation where  $\gamma_{\bar{x}} = \gamma_x = \gamma$ , and gradually letting the former increase while the latter decreases, it is trivial to show that incentives to expropriate in (4') and (5') fall, and the cutoff-points  $\check{\theta}$  and  $\hat{\theta}$  in (6') and (7') go towards infinity. This implies that for sufficiently responsive voters, there will never be expropriations in the first period. This is due to the fact that as voters get more responsive to the president's actions, incentives for opportunistic presidents to pretend to be of the investor-friendly kind increase. This is in itself interesting, and similar to the results in Padró I Miquel (2007). However, comparative statics are not very interesting in the case where  $\check{\theta} > 1$  and expropriations in the first period never occur. I thus focus on parameter values

that assure that the three kinds of equilibria all still exist in the following.

Looking at the differentials with respect to  $P$  and  $\mu$  we see that they follow the pattern from the simple model, and predictions 1 and 3 do therefore still hold in the simple two-period framework. However, the effect of higher levels of political competition is now no longer linear.

$$\begin{aligned} & \frac{\partial (U_x^P - U_{\bar{x},1}^P)}{\partial \theta} \\ &= [1 - \mu(1 - T)] \left[ (1 - \gamma_{\bar{x}}) + \theta \frac{\partial (1 - \gamma_{\bar{x}})}{\partial \theta} \right] - (\gamma_{\bar{x}} - \gamma_x) G - \theta G \frac{\partial (\gamma_{\bar{x}} - \gamma_x)}{\partial \theta}. \end{aligned}$$

Here the additional terms compared to the simpler version are both negative, with absolute values increasing in  $\theta$ , meaning that for sufficiently high levels of  $\theta$ , a further increase in  $\theta$  will reduce incentives to expropriate. This implies that if the shape of  $f$  is such that voters are very responsive to the president's actions, and  $\theta$  is sufficiently large, the disciplining effect of elections will dominate the discounting effect of the same for lower values of democracy. In terms of the model, this can be explained as follows. Assume a  $\theta$ -value below  $\check{\theta}$ , so that we are in the pooling equilibrium where expropriations never occur in the first period. An increase in political competition will now have two effects; it will move the president's incentive constraint towards the ex-ante cutoff point  $\check{\theta}$ , at which point expropriations will become a viable option. Simultaneously, however, the increase in  $\theta$  will also define a new value for  $\check{\theta}$ , that is higher than before, thus moving the incentives relatively further away from the cutoff point. When voters are sufficiently responsive, the increase in  $\check{\theta}$  will be larger than the increase in  $\theta$ , thus in total moving the president's incentive constraint down the scale, relative to the cutoff points. For values of  $\theta$  just above  $\check{\theta}$ , an increase in  $\theta$  may thus cause the new situation to move from the semi-separating equilibrium to the pooling equilibrium, thus reducing the risk of expropriation.

*Prediction 4: In countries with sufficiently high levels of political competition, and sufficiently responsive voters, expropriations are less likely.*

In countries with low levels of democracy increases in the likelihood of elections will increase the incentives to expropriate, but this effect decreases as voters

become more responsive to the incumbent's performance. The discounting effect of elections is linear in the level of political competition. The disciplining effect through voters' responsiveness, however, is zero for  $\theta = 0$ , but negative and concave as this variable increases. The total effect of an increase in political competition will thus start out as increasing the likelihood of expropriations, but this effect will decrease as levels of competition increase, and may under certain parameter values turn negative for sufficiently high levels of political competition.

Note also that the effect of an increase in  $\theta$  is lower for higher values of  $G$ , the size of other state revenue, relative to revenue from foreign investments. This means that:

*Prediction 5: When revenues from foreign direct investments are high relative to other national income, the risk of expropriations is more responsive to increases in political competition.*

The mechanism behind this result is that expropriating in the first period has two sources of potential future costs for the president: the lack of investment in the second period, and the increased possibility of being removed from office in an election. This second cost is obviously increasing in the size of the available funds that the president would have if he remained in office, and thus the disciplining effect of elections is increasing in the relative importance of other income relative to foreign investments.

The model, with its implications, thus extends the existing literature in several important ways. First of all, democracy, social divisions, and uncertainty of continuing as president may introduce a gap between the president's and the voters' interests, where a president may rationally choose to expropriate a foreign investment although this generates welfare losses for the country as a whole. Further, the model predicts that, at least below a certain level of political competition, an increased likelihood of elections will increase expropriation risks, whereas political constraints on the executive will always reduce these risks. In traditional principal-agent models this is typically not an issue, since the principal is a country as a whole that acts in its own self-interest as if governed by a total welfare-maximizing social planner. Thus, when decisions made by the executive may affect some groups of the population adversely, the possibility for these groups to veto the president's

decisions is important.

### 3 Data and econometric model

In this section I test the theoretical predictions derived from the model on a data set from Duncan (2006) on government expropriations in developing countries in seven major mineral sectors between 1960 and 2002. The data are collected at the sector level, and also contain information on countries producing lead, silver, copper, nickel, zinc, bauxite, and tin. In each sector the eight largest developing country exporters, based on average exports during the period 1965-75, are chosen. Expropriations are defined as "any seizure of assets, demand for equity stake or increase in taxes by the host government that was not a condition of the original contract" (Duncan, 2006). In the whole sample there are only 50 cases of expropriations, of which 20 were seizures of assets, 12 were uncontracted increases in equity, and the remaining 18 were uncontracted increases in taxes on the mining companies. Tax increases that were economy-wide, and not specifically aimed at the investment were not classified as expropriations. There was at least one expropriation in 18 of the 27 countries in the data set, and mines in all seven mineral sectors were expropriated. In addition to expropriations, the price variable is collected at the sector level, using the international price for each mineral in the sample as the relevant price for each sector, normalized so that the average price over the entire period, over all sectors, is equal to 1. All other control variables are at the country level.

For the political competition variable I use Vanhanen's (2000) political competition index, which is simply the relative size of the opposition measured by support in elections. I chose this variable among the many similar alternatives because it measures more directly the risk of being ousted from office through elections, compared with other indices that use a broader concept of democracy that often includes and overlaps partly with my political constraints variable. Testing the robustness of the results by replacing this variable with alternative specifications of political competition I also use Vanhanen's index of democracy, which is constructed by multiplying the political competition index variable by the degree of participation in the elections, as well as the Polity2 index from the Polity IV



database (Marshall et al., 2006), which ranges from -10 (strongly autocratic) to 10 (strongly democratic). Following a common practice in the literature (Persson and Tabellini, 2006; Jones and Olken, 2005; and others), I also construct a dummy taking the value one when the polity variable is positive, and zero otherwise. Different cut-off values for this dummy generate similar results, so these results are not reported here. Finally, I use a dummy for whether the country chooses its executive through elections (Marshall et al., 2006).

To capture the political constraints on the executive, I use the index constructed in Henisz (2000), which uses the number of veto players and their distribution of preferences as an indication of limits to the executive's power. In addition to being one of the most complete indexes over political constraints, this variable also enjoys the advantage of representing a similar specification of constraints on the executive to the one used in the theoretical model in the previous section. I also test the model proxying political constraints using a dummy that takes the value one when the executive answers to a legislative body, and zero otherwise. My goal in this section is to test the separate effects of political competition, and political constraints, so my preferred variables *ex ante* are the political competition index from Vanhanen, and the political constraint index from Henisz.

The institutional constraints on the executive pose a potential endogeneity problem. Expropriations may affect the political climate in several directions. It may coincide with or trigger a wave of nationalism, or it might even cause a strengthening of private property protection in order to attract new investments after old ones have been expropriated. To avoid any problems from this I follow Acemoglu et al. (2001) and use mortality rates of early colonists as an instrument for institutions. Put briefly, the intuition behind this is that in colonies where Europeans faced high mortality rates, they did not settle to the same degree as in colonies where the climate and the disease environment were favorable. Where they did not settle, they were more likely to set up extractive institutions, while where they settled they set up institutions with stronger property right protection. The institutions set up around 1900 have been shown to be quite persistent, and early settler mortality can thus be used as an instrument for institutions today. For a more thorough discussion of the suitability of this instrument, see Acemoglu et al. (2001; 2006) and Albouy (2008).

Country-specific control variables are taken from the IMF’s International Financial Statistics database (IMF, 2007). Descriptive statistics are shown in Table 1, separately for the observations where expropriations took place, and in the ones where it did not.

Expropriation	Political competition	Political constraints	Colonists mortality rates	Price	Past expropriations	GDP per capita
No	26.98	0.21	4.64	0.99	0.06	2239.07
Yes	23.91	0.19	4.78	1.38	0.42	1972.17
Total	26.91	0.21	4.65	1.00	0.07	2231.07

Expropriation	Real GDP growth	International reserves per cap.	Balance of payments	Newly independent	Openness	N
No	3.65	125.67	-3.31	0.11	53.08	2,358
Yes	3.72	49.69	-1.34	0.14	70.44	50
Total	3.65	124.11	-3.26	0.11	53.47	2,408

Table 1: Descriptive statistics

The descriptive statistics show that the cases in which there were expropriations differ from the observations where no expropriations took place in several ways. Looking at the main variables of interest, political competition and political constraints, both are lower in the expropriation cases, although the difference does not seem striking. There are larger differences when we look at the current price of the mineral in question. In years where mines were expropriated, the price of the mineral that was expropriated was, on average, 38% above the sample price average. Past expropriations, defined as the occurrence of expropriation(s) in any of the past three years, are also much greater in the expropriation part of the sample. This variable is generated at the country level, and not the sector level, as the intuition goes that past expropriations damage the reputation of the government, independently of which sector it expropriated. Maybe somewhat surprisingly, real GDP growth, balance of payments, and the degree of openness are all higher in the expropriating cases, whereas GDP per capita and international reserves per capita are both higher in the non-expropriating cases. I will return to the discussion around the importance and intuition behind these variables below.

The empirical analysis studies the determinants of host country expropriations of foreign investments in various mining sectors. I test this by estimating variations over the following equation

$$\begin{aligned} \Pr (EXPR_{ijt} = 1|X_{ijt}, Z_{it}) &= \alpha + X'_{ijt}\beta + \gamma'Z_{it} + \varepsilon_{ijt} \\ &= \Phi (\alpha + X'_{ijt}\beta + Z'_{it}\gamma), \end{aligned} \quad (10)$$

where  $EXPR_{ijt} = 1$  means that an expropriation took place in country  $i$ , in sector  $j$  in year  $t$ , and zero otherwise.  $\Phi (\cdot)$  is the standard normal distribution function,  $\alpha$  is a constant, and  $Z_{it}$  is a vector of controls, including region dummies and trend adjusting variables. These controls are discussed in more detail below.  $X_{ijt}$  is the vector of my variables of interest, namely political competition, political constraints, and price.

### 3.1 Results

Initially I test predictions 1 through 3, that expropriations are more likely when prices are high, when political competition is strong, and when political constraints are weak.

Regression (1) in Table 2 shows the most direct estimation of the theoretical model with only region dummies as controls. All variables are of the expected sign, and all but the political constraint variable are significantly different from zero. It can be argued that there might be reverse causality from expropriations to the price of the expropriated mineral. Simple regressions of the effect of expropriations on the price support this. Both the expropriation variable and the lagged expropriation variable have positive and significant effects on the price in simple regressions, also when it is controlled for time trends and world growth. I therefore use the lagged price variable in all further regressions. In regression (2) we see that the variables keep their sign, but that the lagged price variable is not significant. Duncan (2006) uses a "boom" dummy which takes the value one whenever the lagged price is more than 50% above the sample average, and found this to be a strong predictor of expropriations. Constructing the boom dummy from the lagged price, however, again yields insignificant results. There thus seem to be

some indications that above normal prices may drive expropriations, but without any good instruments to control for the possible reverse causality it is difficult to draw any strong conclusions on this question. As this is not the main focus of this paper, I leave this discussion to others, and use the lagged price variable in the following.

As argued before, there might also be endogeneity issues with the political constraint variable, which I aim to solve by instrumenting political constraints by settler mortality rates. The results can be seen in regression (2) in Table 2. The political constraint variable is still negative, but now also statistically significant. The validity of settler mortality as an instrument for institutions that secure property rights has been argued above. The first-step regression shows that settler mortality has strong explanatory power for the degree of political constraints. A case could be made, however, that it could also be used as an instrument for democratic rights, including political competition, protecting the citizens' right to influence the government. To check for this I try using settler mortality as an instrument for political competition, but the first-step regression now shows that settler mortality has no significant effect on this variable, and I take this to show that my instrument captures the right aspects of democracy. I also run a rare effect logit as suggested by King and Zeng (2001), that should adjust for the fact that the dependent variable only takes the value one in about 5% of the observations. The results from this regression are not significantly different from the regular probit regression, but complicates the use of instrumental variables, so I choose to use the regular probit model in the rest of the tests.

Previous literature and intuition suggest that there may be factors affecting the probability of expropriations other than political competition, political constraints, and prices. I thus control for a series of other variables, individually and simultaneously. Regression (3) shows the results from the full model. In the theoretical model no investments take place if the sitting president expropriated in the previous period, as expropriations would be certain to happen in the second period in this case. In real life there is uncertainty along other a number of dimensions, and some investments might occur even after a country has expropriated in one period. In this situation the executive does not have much reputation to lose by expropriating again however, and may be more likely to do so again. To control

for this I use past expropriations, as defined above. The sign of this variable is positive as expected, and statistically significant.

	(1) Probit	(2) IV-Probit	(3) IV-Probit	(4) IV-Probit
Political constraints	-0.210 (-0.78)	-3.455 <sup>***</sup> (-4.71)	-4.094 <sup>***</sup> (-10.26)	-6.521 <sup>***</sup> (-3.60)
Political competition	0.0102 <sup>***</sup> (3.30)	0.0227 <sup>***</sup> (8.65)	0.0170 <sup>***</sup> (5.59)	0.0272 <sup>***</sup> (4.17)
Price	0.487 <sup>***</sup> (3.53)			
Lagged price		-0.0295 (-0.26)	-0.00143 (-0.01)	0.0711 (0.43)
Past expropriations			0.308 <sup>***</sup> (2.65)	-0.0307 (-0.22)
Real GDP growth			0.00742 (0.73)	-0.0261 (-1.64)
GDP per capita			0.0000383 (0.68)	0.00176 <sup>***</sup> (5.73)
International reserves per capita			0.00601 <sup>***</sup> (3.33)	-0.0135 <sup>***</sup> (-3.56)
Balance of payment			0.0141 (1.19)	0.0553 <sup>***</sup> (3.13)
Newly independent			1.333 <sup>***</sup> (3.46)	1.383 <sup>***</sup> (3.32)
Government expenditure			0.0164 <sup>**</sup> (2.00)	0.00920 (0.80)
Openness			-0.00968 <sup>***</sup> (-2.41)	-0.0107 <sup>***</sup> (-2.48)
Country dummies	No	No	No	Yes
Region dummies	Yes	Yes	Yes	No
Pseudo R <sup>2</sup>	0.160			
N	1518	1277	956	601

*t* statistics in parentheses  
<sup>\*</sup>  $p < 0.10$ , <sup>\*\*</sup>  $p < 0.05$ , <sup>\*\*\*</sup>  $p < 0.01$

Table 2: Test of Predictions 1-3

Previous empirical studies have found that the expropriation risk is low when GDP growth is high (see for example Jones, 1984 and Picht and Stüven, 1991). I therefore include real GDP growth as a control variable, but this turns out to be insignificant. It is also possible that expropriations could be caused by the need

for foreign currency, whereas conversely it could also be argued that since many expropriations include some form of compensation, more international reserves make expropriations relatively less costly. The sign of this variable turns out to be positive, and statistically significant, indicating that the compensation story might have more hold in reality.<sup>8</sup>

The level of economic development should also be controlled for. It could affect the risk of expropriation directly, but it could also be important to control for it merely because it is expected to be correlated both with the level of political competition and political constraints, although the direction of the causality in these relationships is a topic that is beside the focus of this paper. I include GDP per capita as a proxy for economic development, and this turns out to be positive, but not significant. Further, it does not seem to affect the coefficient or significance of the political constraint, or the political competition variables.

In all regressions where I include the control variables individually and also in the full model, the variables of interest seem largely unaffected by the inclusion of various control variables, and remain of the expected sign and highly significant in all specifications. The conclusion that political competition increases the risk of expropriations when political constraints are controlled for seems to be robust for different specifications of the model. Since my data set is compiled from different and only partly overlapping sources, each included control variable causes me to lose observations. As the number of observations is already limited I therefore drop all control variables that do not have any effect on the coefficients of interest in the rest of the analysis.

Controlling for unobserved fixed effects would be natural in these regressions; however, consistent fixed effect estimators in probit-regressions is problematic. Some of the effect should be captured by the regional dummies, but for a better control I include country dummies. The results are shown in regression (4). Again, the main findings are unchanged, except that even more observations are dropped when I include country dummies. This is because countries that have never experienced expropriations are dropped since their corresponding dummy perfectly predicts the dependent variable. Since these observations do contain some rele-

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<sup>8</sup>As shown below, though, this result seems to be driven by a few observations, and should be interpreted with caution.

vant information about the risk of expropriation, and since the main results do not seem to change drastically, I choose to use only the region dummies to control for unobserved fixed effects in the following.

To make sure that the results are not driven by the construction of the competition and constraint variables, I also test the results against different measures of political constraints and political competition. Table 3 shows the results for various combinations of alternative specifications of the variables of interest. In all regressions I include the control variables from regression (3).

	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Political constraints	-3.828*** (-9.97)	-4.065*** (-11.21)	-3.170*** (-4.84)	-3.638*** (-7.52)	-3.958*** (-10.26)					
Legislative body						-2.755*** (-21.56)	-2.928*** (-33.44)	-2.585*** (-23.60)	-2.585*** (-47.00)	-2.528*** (-41.77)
Index of democracy	0.0396*** (4.06)					0.0997*** (10.07)				
Political competition		0.0179*** (6.20)					0.0336*** (14.11)			
PolityIV			0.0928*** (6.80)					0.0962*** (8.57)		
PolityIV dummy				1.191*** (7.76)					1.001*** (8.68)	
Elections					1.147*** (5.84)					0.426*** (4.00)
N	993	993	1077	1077	993	1008	1008	1077	1077	993

f statistics in parentheses  
\*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01

Table 3: Alternative political indicators

In regressions (5) to (9) I still use Henisz's political constraint index, but replace Vanhanen's political competition index with alternative variables in the following order: First, the same author's index of democracy. Secondly I replace it with the commonly used Polity2 index, and the dummy variable constructed from the same index. Finally, I use a dummy for whether elections are held or not as an indicator of political competition. As the results show, all specifications of political competition significantly increase the probability of expropriations. Further, the political constraint variable remains negative and significant for all the alternative

specifications of competition.

In the second part of Table 3 I repeat the above exercise, but this time with political constraints measured with a dummy that takes the value one if the executive answers to a legislature, according to the ACLP database (Alvarez et al., 1996). Again all measures of political competition are positive and all are highly significant. Further, the political constraint measure is also negative and significant through all the different specifications of competition. This shows that in addition to being robust to other control variables, my findings seem robust to alternative measures of political constraints and -competition.

### **3.2 The disciplining effect of elections**

Predictions 1 to 3 could be derived from the most simple version of the theoretical model. When voters were assumed to be responsive to the president's expropriation decisions, however, the effect of democracy became more complex. In this section I therefore test Predictions 4 and 5, that the effect of an increase in the political competition could reduce the probability of expropriations if the level of democracy is sufficiently high, or if the relative value of inward FDI is low.

It is hard to get good measures of voters' responsiveness, so my best test of Prediction 4 will be to study the non-linearity of the index of democracy on the probability of expropriations. I do this by including a squared term of the variable in a regression with the same specifications as regression (3).

Table 4 shows the results. The first regression (15) reports the results when testing Prediction 4 on the full sample. The signs of the political competition variable and its square are both as expected, but only the linear variable is statistically significant. Investigating the relationship further, I find that there is a negative effect on the probability of expropriation when increasing the political competition from the minimum level of zero. Regression (16) thus shows the result when I exclude all observations in the sample with political competition equal to zero. The absolute values of the coefficients are now larger, and also strongly significant. This regression partly supports Prediction 4, that for a sufficiently high level of political competition, increased competition will work in a disciplinary manner, and reduce the probability of expropriations. For countries with a political competition



score of about 51 or more, further increases in political competition reduces the risk of expropriation. This is the case for about 20% of the observations in my sample. It should be pointed out, however, that all the countries in the sample are developing countries, and that the measured effects may not be representative for all countries. The difference between regressions (15) and (16) shows that there is also an effect at work in the countries with the weakest political competition that is not captured by my model.

	(15)	(16)	(17) Low FDI	(18) High FDI
Political constraints	-4.137*** (-10.44)	-4.643*** (-11.64)	-11.66*** (-4.30)	-5.143*** (-27.70)
Political competition	0.019** (2.07)	0.083*** (6.07)	0.00849 (0.88)	0.0221*** (7.80)
Political competition squared	-0.0000349 (-0.21)	-0.0007991*** (-4.17)		
Lagged price	-0.0031 (-0.02)	-0.1165 (-0.97)	-0.129 (-0.48)	-0.0234 (-0.20)
GDP per capita	0.000033 (0.58)	0.000204*** (2.77)	0.000865*** (2.96)	0.000925*** (10.51)
International reserves per capita	0.00613*** (3.44)	0.00498** (2.03)	-0.00104 (-0.09)	-0.00254 (-1.61)
Openness	-0.01008** (-2.56)	-0.00556 (-1.45)	0.0713*** (3.75)	-0.0132*** (-5.92)
Past expropriations	0.305*** (2.64)	0.270** (2.35)		
Real GDP growth	0.0078 (0.75)	-0.0087 (-0.55)		
Balance of payments	0.0136 (1.18)	0.0206 (1.49)		
Newly independent	1.316*** (3.48)	1.364*** (4.22)		
Government expenditure	0.0164** (2.05)	0.0403*** (5.06)		
N	956	615	480	551

f statistics in parentheses  
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4: Test of Predictions 4-5

The last two regressions in Table 4 show the results from splitting the sample between countries with high and low levels of inward stock of FDI relative to GDP, respectively. The coefficient for political competition is 2.6 times larger for

the high FDI sub-sample than for the low FDI sub-sample, in accordance with the theoretical predictions. However, a test to see if the coefficients are significantly different only yields a chi squared of 1.83, and the zero hypothesis of no statistical difference cannot be dismissed.

## 4 Conclusions

I have developed a theoretical model that explicitly shows three channels through which two important concepts of liberal democracy affect the likelihood of expropriations of foreign property. Whereas checks and balances that constrain the executive power always reduce the probability of expropriations, competition for political power has a more complex effect on such risks. For one, the risk of losing power through elections may work as an increased discount factor, making the president favor short-term gains over long-term costs, and thus increasing the likelihood of expropriations. On the other hand, if the president depends on the support of the voters in order to stay in office, he may be forced to act more in the long-term interest of the country as a whole, and expropriations might thus become less likely when competition for power is stronger. In my theoretical framework the former effect is dominant for low levels of democratic competition, but the net effect may be reversed for sufficiently high levels. Similarly high levels of incoming FDI relative to national revenue make short term gains relatively higher, compared to the potential loss of utility from being ousted in elections. In countries where national production is higher, relative to incoming FDI, the disciplining effect of elections will dominate the discounting effect, and more political competition may reduce the risk of expropriations.

Testing these predictions on a data set of actual expropriations in important mineral industries in developing countries, I find support for the main predictions of the model. Since the predicted effect of democratic competition is non-linear in both the importance of inward FDI and in the general level of democracy itself, it would be interesting to test if these results hold when including developed countries, and in general on a larger data set of expropriations that might allow for more complex robustness tests of the results. Even so, these findings highlight the importance of specifying which aspect of democracy one is using when measuring

its effect on different measures of economic performance. Many indices of democracy include both checks and balances and competition for power as parts of the measure, meaning that countries that according to this paper are very different with respect to their predicted respect for private property might still end up with the same democracy score, and thus influence the predicted effect of democracy on economic performance.

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