FOREIGN INVESTMENT AND EXPROPRIATION UNDER OLIGARCHY AND DEMOCRACY

FACUNDO ALBORNOZ[*], SEBASTIAN GALIANI AND DANIEL HEYMANN

We study the incentives to expropriate foreign capital under democracy and oligarchy. We model a two-sector small open economy where foreign investment triggers Stolper–Samuelson effects through reducing exporting costs. The incentives to expropriate depend on the distributional effects associated to the investment. How investment affects the incomes of the different groups in society depends on the sectors where these investments are undertaken and on structural features of the economy such as factor intensity, factor substitutability, and price and output elasticities. We characterize the equilibria of the expropriation game and show that if investment is undertaken in the sector that uses labor less intensively then democratic expropriations are more likely to take place. We test this prediction and provide strong evidence of its validity.

1. INTRODUCTION

Foreign direct investment (FDI) has historically been controversial in host countries, especially in developing economies. The controversy is often focused on distributional effects. The conflicting views are expressed in different policies ranging from active pro-FDI measures to outright expropriation. As property rights abroad and international contracts are difficult to enforce, FDI is particularly influenced by political considerations (Eaton and Gersovitz, 1983). As a consequence, the type of political institutions in the host country should play an important role in the decision to expropriate FDI. This relationship has only recently been recognized.[1]

In this article, we investigate the incentives to expropriate foreign investment under democracy and oligarchy (as a political regime under the control of the economic elite). Our model shows that the expropriation risk associated with different political regimes depends on the sector favored by FDI and the structural characteristics of the host economy, such as trade specialization, factor abundance, or the technology characterizing domestic production (factor intensity, factor substitutability, and price and output elasticities).

We study a two-sector small open economy where the conflicting distributional impact of FDI on the income of different social groups triggers Stolper–Samuelson (1941). The model consists of two goods which are internationally tradable and produced with land and labor. Landowners constitute the economic elite, holding the political power in an oligarchic society. Workers are the majority of the population and therefore exert their influence under democracy.

In this economy, FDI is associated with exporting activities. Basically, the net price faced by suppliers of the exportable good is decreasing in the FDI in that sector. To

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*Corresponding author: Facundo Albornoz. E-mail: f.albornoz@bham.ac.uk
[1]See for example, Li (2009).

motivate this assumption, we associate FDI to investment in infrastructure like building railroads.[2] This has expositional advantages but is grounded in historical reasons.[3] The analysis would clearly apply also to any foreign investment affecting the profitability of the exportable sector like refrigeration industries, trading services, or joint production with the domestic elite.[4]

The relationship between expropriation of foreign investment and democracy depends on structural features and specialization of the economy. Consider the case where the exportable good is land-intensive and the importable good is labor-intensive. Thus, a reduction in the cost of transporting the exportable good would benefit landowners and harm workers, as it follows from the Stolper–Samuelson theorem. This allows us to derive the treatment of property rights under different institutional arrangements, without assuming that a simple relation exists between the type of political regime and its incentives to expropriate. The answer depends on the type of investment, on structural features like the factor intensities of activities that make use of the services, and the prices charged for those services.

Our main result is that democracies are more prone to expropriate foreign investment in land (and resource) abundant countries. Conversely, in those countries, democratic expropriations do not threaten foreign capital in the manufacturing sector.[5] This connection between political attitudes, the type of foreign investment, and the trade specialization and production structure of the recipient country has not been previously emphasized in the literature. This result is also consistent with Bohn and Deacon (2000) who find that the empirical relationship between investment and expropriation risk depends on the type of resource associated with investment.

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[2] The effect pro-trade of foreign-owned railways in developing countries is uncontroversial. For example, Donaldson (2010) provides strong evidence that British railways in India decreased export transport costs and therefore enhanced trade and income.

[3] A clear example of the connection between the distributional effects of foreign investment and the propensities to expropriate under different political regimes is offered by the wave of FDI in railroads that took place throughout the world, and particularly in Latin America, in the late nineteenth and early twentieth centuries. Coatsworth (1979), Cortés Conde (1979) and Summerhill (2006), provide economic histories of these processes. Between 1870 and 1930, the length of railway tracks in service in Latin America went from practically 0 to approximately 150,000 km; see Sanz Fernandez (1998). Foreign investment in transport and food conservation technologies has been identified as a cause of the rise of Latin American inequality during the nineteenth century. According to Coatsworth (2005), the effect of concentration of land ownership in Latin America on the concentration of wealth and income was limited until the installation of railroads and the use of newly developed refrigeration techniques enhanced the opportunities for profitable land exploitation and raised land values.

[4] Foreign investment in infrastructure provides a useful focus for the analysis, as it concerns immobile investments of a type that can generate conflicts of interests between social groups that are differently represented by democracy and autocracy. When operated by foreigners, like, for example, in the case of railway investment, foreign infrastructure investment involves complicated incentives to expropriate requiring clarification. In this regard, we find conditions under which investment is threatened, even by the regime that represents the sector that is relatively favored by the presence of foreign capital. In a complementary analysis, Pinto and Pinto (2008) associate the treatment received by the FDI with the ideology of the recently elected government. They find, for example, that left-leaning incumbents favor FDI in sectors intensive in labor.

[5] This type of analysis can easily be extended to other forms of political regimes. Consider, for example, colonialism as a form under which the home country of overseas investments avoids expropriation risks. Everything else equal, our analysis would suggest that colonial domination would be more likely to take place in countries receiving investments in exporting sectors of primary goods where the economic elite holds weak political power. This complements Frieden (1994) who reaches a similar conclusion by emphasizing that monitoring and enforcing property rights are more costly for foreign investment in extractive and agricultural sectors.

In some cases, expropriation takes the form of policies that reduce the return to foreign investment. These activities, known as creeping expropriation, force foreign investors to disinvest or simply abandon their fixed capital or physical infrastructure, which in turn justifies nationalization. We show how this and other policy alternatives can easily be accommodated in our model leaving the message unchanged.[6] This result is important insofar the number of outright expropriation episodes is decreasing over time (Minor, 1994).

Our analysis also clarifies the conditions under which foreign investment takes place even under the shadow of expropriation. First, foreign investment requires a minimum level of efficiency. We show that how binding is such requirement depends on alternative investment opportunities, the cost of alternative infrastructure, political stability, captured by the probability of social states in which expropriation is possible, and the discount factor associated with the foreign investor.

The model also shows that expropriation might be induced by the strategic choices of foreign investors. Even if oligarchies are in power in a resource-rich country, high returns to FDI (high transport prices in our model) may provide incentives for expropriation, while increasing the expected revenues associated with the investment. This induces a tradeoff from the point of view of the investors between higher but risky and lower but safer returns. To illustrate this theoretical possibility, we show that conditional on structural features of the economy (like the elasticity of land rents to product prices) there is an equilibrium where unsafe investment is a consequence of a price negotiation between the investor and the government, even in situations where the foreign investor is able to set the railway price unilaterally. The attraction of high present revenues may make unsafe investment preferred by the foreign investor to a state with lower current prices which would make a future landlord government unwilling to expropriate (see Haber et al., 2003). This result casts doubts on the commonsensical prescription according to which an expropriation-free environment is always needed for foreign investment to occur.

To provide support to the novel mechanism emphasized in our article, we test the prediction of our model and the results are very encouraging. We examine the probability of observing expropriation of FDI in a sample of 150 countries and show that the risk of expropriation under democracies increases in land and resource abundant countries. This result stands a number of robustness checks and, importantly, is stronger once we focus on expropriations taking place exclusively in land and resource intensive sectors.

After discussing the related literature (section 2), we describe the economy and the distributional effects of investment in infrastructure in section 3. In section 4, we develop the expropriation game and compare the incentives to expropriate under democracy and oligarchy. The test of the main results is described in section 5. In section 6, we study the negotiation of fees raised by the foreign investor.

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[6]The relevance of analyzing expropriation of foreign infrastructure investment goes beyond historical interest. Although expropriation of foreign investment has declined in past years, tensions still remain as expropriation can take subtler forms, such as regulatory risks or high levels of taxation, usually referred to as creeping expropriation. Interestingly, Schiffer and Weder (2000) find that infrastructure foreign investment in developing countries, involving more than US$150 billion during the 1980s, is particularly at risk of expropriation, which stands in stark contrast to the rest of investment in developing countries only subject to the risk of creeping expropriation.

We show that expropriation may be induced by the foreign investor. Section 7 concludes.

2. LITERATURE REVIEW

This article is related to several branches of the literature. First, our analysis is relevant for the burgeoning empirical literature on the political determinants of foreign investment, which has not reached a consensus so far. Our results imply that there is no unambiguous relationship between the type of political regime and the way a government behaves toward FDI. Thus, the lack of consistent and convincing results on how, for example, democracy attracts more or less FDI is unsurprising.[7] Furthermore, our analysis suggests that the right question for empirical research does not seem to be whether democracy *per se* or other forms of governments are relatively more prone to expropriate, as it is investigated by most of the literature on the relationship between political institutions and political risk.[8] Instead, our model provides a guidance on what the effects of political regimes on foreign investment would be under different circumstances. We can therefore explain why expropriations of foreign infrastructure were undertaken by popular democratic governments in Latin America, as, for example, the case of Perón in Argentina, or under non-democratic governments, like in the cases of Morocco in 1963 or Tunisia in 1965, where French and Spanish infrastructure companies were nationalized.

Our model emphasizes that the basic results of the theory of international trade – including, above all, the well-known theorem of Stolper and Samuelson (1941) – have an impact on whether, under what circumstances, and possibly in what way, different political regimens might choose to expropriate FDI. Nevertheless, these differences in behavior are predictable, and depend on the factor intensities of the different sectors of the economy, the sector in which the investment is undertaken and the type of government that rules the country. In this sense, our arguments in this article contribute to a broader literature that emphasizes the role of trade on domestic political cleavages and domestic institutions (see e.g., Baldwin, 1989; Gardodo and Faletto, 1979; Rogowski, 1986, 1987, 1989).

The literature on property rights and political regimes offers no definitive answers on the effect of democratic institutions on expropriation risk. While North and Weingast (1989) and Olson (1993) highlight that democratic institutions reduce the expropriation risk of investment,[9] Acemoglu (2008) emphasizes instead that the investments of the elites might be more secure under oligarchic rule than under democratic governance. Following this line of reasoning, if FDI benefits the economic interests of those elites it might be more secure in an oligarchic society than in a democratic one. We contribute to this debate by exploring how the distributional effects of foreign investment determine the incentives to expropriate foreign capital under different political organizations such as democracy and oligarchy.

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[7]For example, Buthe and Milner (2008) show that democracy has no effect on FDI inflows once some forms of trade policy, WTO membership, or preferential trade agreements, are controlled for. See also Henisz (2002), Jensen (2003, 2008), Li (2006) and Li and Resnick (2003).

[8]See, for example, Henisz (2004), Jensen (2006, 2008) and Pinto and Pinto (2008).

[9]Jensen (2006) argues that this logic might also apply to the case of FDI.

Our article is related to a recent research linking trade and different forms of social conflict. Dal Bó and Dal Bó (forthcoming) show that positive shocks on capital-intensive sectors in situations where appropriation activities are labor-intensive exacerbate violence in society. A similar result is offered in Ghosh and Robertson (forthcoming), where trade can induce crime if the country is abundant in skilled labor. In a different setting, Stefanadis (forthcoming) shows that trade may exacerbate predation activities in economies with weak property rights. More related to our result, Garfinke et al. (2008) show that trade induces over-exporting resources under dispute. Thus, trade may induce conflict in countries with comparative advantage in those resources. Our approach is different (and complementary) to this literature. We focus on expropriation by governments, not individuals, where trade is enhanced by foreign investment. This allows us to clarify how the emerging distributional conflict is mediated by different political regimes. In our focus on trade and government, our results are related to Clarida and Findlay (1992) who show that trade may reduce government investment in land-abundant countries.

3.   THE ECONOMY

3.1.   Foreign Investment

To ease the analysis, we refer to foreign investment as railway investment.[10] This captures different aspects of foreign investment: foreign capital is immobile and triggers distributional effects that depend on the sector where the investment is undertaken.[11]

3.2.   The Economic structure

We consider an infinite horizon economy where a continuum of individuals on the [0,1] interval is divided between a proportion $L > \frac{1}{2}$ of workers and a fraction $1 - L$ of landowners. In each period, every worker is endowed with one unit of labor, so that the total supply of labor in the economy is L. Similarly, each landowner is endowed with one unit of land, corresponding to a total stock $T = 1 - L$.

The economy produces two tradable goods using labor and land, with different factor intensities. We denote the land-intensive good by X and the labor-intensive good by S.

For expositional reasons, we make the following assumption.

Assumption 1. The economy is relatively abundant in land.

This assumption implies that this economy is a net exporter of X. Assumption 1 is clearly more appropriate for some countries than others (e.g., Latin America). However, it will be clear after the analysis how our results are reverted once Assumption 1 does not hold. This way we can clarify how the relationship between different political regimes and expropriation of foreign investment depends on the production characteristics of the host economy.

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[10]The analysis would immediately follow for other forms of investment in infrastructure like roads, ports, or refrigeration techniques.

[11]As long as the investment is immobile, we also capture joint production with domestic producers.

Producers solve:

$$\max_{L_X, T_X} z A_X T_X^{1-\gamma_X} L_X^{\gamma_X} - w L_X - r T_X$$

and

$$\max_{L_S, T_S} p_S A_S T_S^{1-\gamma_S} L_S^{\gamma_S} - w L_S - r T_S,$$

where w and r are wages and rents, which are equalized between sectors because of perfect factor mobility. A_X and A_S represent total factor productivities in each sector. The output elasticity with respect to labor is denoted by γ_X in sector X and by γ_S in sector S; z and p_S are, respectively, the net prices faced by the producers of goods X and S, respectively. p_S is determined in the international market. On the other hand, z depends on the world price of good X, p_X, and the transport costs faced by producers.

The railroad lowers the transport cost of shipping good X, but has no direct effect on good S.[12] The unit cost (in terms of X) associated with an alternative method of transportation is α. We assume that the transport capacity (measured in terms of the maximum amount of good X that can be transported at zero cost) is increasing in the initial (sunk) investment, denoted by K (good X serving as numeraire). κ is a constant indicating the capital stock required to transport a unit of good X. Clearly, this cost is increasing in κ. The railroad charges a price ϕ per unit of good transported. Therefore, if p_X is the world price of good X, and assuming that the demand for transportation does not exceed capacity, the net price received by the producers of good X would be

$$z = \begin{cases} p_X(1 - \varphi) & \text{if railway} \\ p_X(1 - \alpha) & \text{if no investment.} \end{cases}$$

3.3. The effect of the railway

Clearly, landowners would be interested in the railway if and only if the shipping cost is lower than using the alternative transport method ($\phi < \alpha$), so that the investment leads to an increase in z. Let $\hat{z} > 0$ be the proportional change in the net price change for a given international price because of the existence of the railroad. Equilibrium, zero-profit, conditions in industries S and X imply the following:[13]

$$\hat{z} = \gamma_X \hat{w} + (1 - \gamma_X)\hat{r},$$
$$0 = \gamma_S \hat{w} + (1 - \gamma_S)\hat{r}.$$

Rearranging the terms, we obtain

$$\hat{w}/\hat{z} \equiv (1 - \gamma_S)/(\gamma_X - \gamma_S) \equiv \hat{\gamma}_1, \tag{1}$$

$$\hat{r}/\hat{z} \equiv \gamma_S/(\gamma_S - \gamma_X) = \hat{\gamma}_2. \tag{2}$$

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[12]In fact, the railroad would, if anything, reduce the domestic price of S, which would reinforce the effects on production and wages/rents that we analyze in this article.
[13]To facilitate the exposition, we treat the changes as if they were of infinitesimal magnitudes, and proceed to use linear approximations.

It is clear that, if as assumed, $\gamma_S > \gamma_X$, then $\hat{\gamma}_1 < 0$ and $\hat{\gamma}_2 > 1$. Therefore, an increase in z induces an unambiguous (in terms of both goods) fall in real wages, and an equally unambiguous rise in the real value of land rents. This is the well-known Stolper–Samuelson result.

We use equations (1) and (2) to determine the payoffs of workers and landlords after the railway is in place. First, we note that

$$\hat{z} = \frac{z(A) - z(B)}{z(B)} = \frac{\alpha - \varphi}{1 - \alpha}.$$

Let $w(B)$ and $w(A)$ be the wage rates before (B) and after (A) the railway is set up, where $w(A) = w(B) + \Delta w$. Define $r(B)$ and $r(A)$ in a similar way. The variations in payoffs levels are

$$\Delta w = \hat{\gamma}_1 \frac{\alpha - \varphi}{1 - \alpha} w(B),$$
$$\Delta r = \hat{\gamma}_2 \frac{\alpha - \varphi}{1 - \alpha} r(B),$$

which imply

$$w(A) = \left[1 - |\hat{\gamma}_1| \frac{\alpha - \varphi}{1 - \alpha} \right] w(B), \tag{3}$$

$$r(A) = \left[1 + \hat{\gamma}_2 \frac{\alpha - \varphi}{1 - \alpha} \right] r(B). \tag{4}$$

Equations (3) and (4) indicate the effects of the railroad on factor prices. Here, $w(A) < w(B)$ and $r(A) > r(B)$. Note, however, that the opposite would be the case if the sector served by the railroad were relatively labor-intensive. Therefore, foreign investments in infrastructure can clearly induce conflicts of interests between different factors, depending on the economic structure and the nature of the capital which is to be put in place.

4. INVESTMENT AND EXPROPRIATION

We assume that the economy lacks the capital and technical resources required to undertake the necessary investments to build the railway, and that some sort of foreign knowledge is required to operate the project initially. This rules out the possibility of financing the investments with international loans, and identifies the project with an FDI. Building and starting the operation of the railway requires the involvement of a foreign investor who provides both the capital and technical knowledge. This fits well the case, for example, of British railway investment in countries like Mexico and Argentina, and that of US railway investments in Brazil.

By assumption, the railroad has no explicit operational costs. The investment is made instantaneously; when it has taken place, the railway company sets a price for transport services, which must satisfy the participation constraints of both the government (as this must authorize the investment) and the foreign investor. Once the railroad is in place, and after it has operated for one period at the price established initially, the government decides whether to expropriate or not. We consider two political regimes, which determine different possible objectives for the authorities. Under oligarchy, the government represents the interests of the landowners and, therefore, behaves in a way that maximizes their payoff. In a democracy, the government represents the median voter, a worker by assumption, and therefore, seeks to maximize the payoff of workers.

We treat the government as one player and the foreign investor as another player in a dynamic game. The government has the faculty to negotiate with the foreign investor the installation of the railway and later decide whether to expropriate it or not. We focus on Markov's perfect equilibria where each optimal strategy derives from payoff-relevant states, characterized by the expropriation costs.

If the government decides to expropriate, the economy incurs a loss of total income denoted by μ and assumed to be equally distributed among all the residents.[14] We introduce uncertainty about the cost of expropriation and focus on the parameter space where expropriation is not always possible. That is, the cost of expropriation depends on the state of nature (S_t^s). This captures the idea that large-scale political decisions of the sort require particular conditions regarding, for example, the coherence of attitudes and the relative strengths of the parties involved.[15] We model this by considering two states: if $S_t^s = L$, then $\mu = \infty$ and expropriation is not possible; if, on the other hand, $S_t^s = H$, then $\mu < \infty$ and the government might be willing to pay the cost of expropriation. The probability that the social state is $L(H)$ is denoted by ψ $(1 - \psi)$. The sequence of events in the dynamic game we consider here are as follows:

1. The price of the freight service is determined.
2. In the initial period, the foreign investor decides whether to invest K units of resources in the project. If the decision is not to invest, the investor gets the returns given by the world interest rate, consumption takes place and the period ends.
3. The state S_t^s is revealed.
4. If investment took place in the previous period, the local government, democratic or oligarchic, decides whether to expropriate or not. Expropriation is not reversible.
5. Production, consumption, and trade take place.
6. If the government decided not to expropriate, steps 3 to 5 are repeated with infinite horizon.

The implication of this timing structure is that the investment decision will take into account the possibility of expropriation. For most of the analysis we are going to consider the price of freight as exogenously given. This will allow for a characterization of the different equilibria of the expropriation game that provides a simple comparison of the different incentives to expropriate in democracy and autocracy. In the last part of the article, we explore the determination of the freight price and obtain some interesting results on the attitudes of the foreign investor when facing expropriation risk.

4.1. Expropriation

We first consider the incentives for expropriation perceived by an oligarchy and a democracy for a given price of the transport service that has already been fixed.[16] In a

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[14]We assume that the country suffers as a whole due to the consequences of expropriation as it might be difficult to impose targeted reprisals against some individuals. This avoids potential problems with free-riding behavior as discussed by Acemoglu and Robinson (2006) in the case of the cost of a revolution.

[15]There are alternative reasons to adopt this type of representation as, for example, the "obsolescing bargain" hypothesis. As suggested by Kindeleberger (1969) and emphasized by Vernon (1971), the faculty to impose domestic conditions on existing foreign investment increases over time. In the limit, the host government can renege on initial agreements and seize the control of the investment.

[16]We rule out the possibility of any renegotiation of the contract to concentrate on the decision to expropriate. Alternatively, we could assume that renegotiation entails a fixed cost for the government, so that in fact its variable choice is whether to expropriate or not.

second step, we analyze the incentives to invest and we determine the relevant range of prices that generate the different types of equilibria of the dynamic game: investment with no expected expropriation, expropriable investment, and no investment.

Expropriation under Oligarchy. Let $r(E)$ be the land rent after expropriation. Clearly, if the oligarchic government decides to expropriate, the market incomes of its constituents are maximized by setting the price of the service at zero: $\phi = 0$. Using equation (4), we then obtain

$$r(E) = \left(1 + \hat{\gamma}_2 \frac{\alpha}{1-\alpha}\right) r(B).$$

We can now compute the continuation values (discounted expected net present values) for the elite in both cases: expropriation (E) and non-expropriation (NE).

$$W^E(NE) = \frac{r(A)}{1-\beta}, \tag{5}$$

$$W^E(E) = \frac{\psi}{1-(1-\psi)\beta} \left[\frac{r(E)}{1-\beta} + \frac{r(A)(1-\psi)}{\psi} - \mu\right], \tag{6}$$

where β is the discount factor.

We implicitly make some assumptions that need clarification. First, ϕ remains, for the time being, exogenously given. Second, the railroad does not deteriorate over time and therefore its cost-reducing effect is permanent. We also assume that the railway functioning is independent on who is running it. This implies that, once in place, the railway may be run by foreign investors, democratic, or autocratic governments without any additional cost. Finally, we do not consider the possibility of new foreign investments after expropriation.

Under oligarchy, expropriation takes place if $W^E(E) > W^E(NE)$. Using equations (5) and (6), this condition implies

$$\frac{r(E)}{1-\beta} - \mu \geq \frac{r(A)}{1-\beta}.$$

This is an intuitive condition. The oligarchic government will choose expropriation in a state allowing for it, if and only if the difference between the present value of the (infinite) flow of rents at zero transport cost exceeds the value of rents at the given transport price by more than the current costs that expropriation imposes on landlords.

After rearranging, this condition becomes

$$\varphi > \frac{\mu(1-\beta)(1-\alpha)}{r(B)\hat{\gamma}_2} \equiv \varphi_{1A}. \tag{7}$$

In the case of $\phi > \phi_{1A}$, expropriation gains for the elite are large enough so that the oligarchic government would rather incur the cost μ and take over the railway.

Expropriation under Democracy. The democratic government will act to maximize the welfare of workers. When no expropriation takes place, the continuation value for workers is given by

$$W^w(NE) = \frac{w(A)}{1-\beta}.$$

Democratic expropriation may potentially take different forms to benefit workers. We consider the case in which expropriation implies eliminating the service that the investment provides to export activities, which would make wages increase to the pre-investment level. That is, the Stolper–Samuelson effects of the railroad would be entirely reversed by expropriation. We also assume that there is no market for expropriated capital.[17] This assumption makes the incentive for expropriation rely exclusively on the factor-price effects, ruling out other motives for expropriation.

It is straightforward to show that the expected utility of the government (i.e., that of the representative worker) after expropriation is

$$V^w(H) = \frac{w(B)}{1-\beta} - \mu. \tag{8}$$

On the other hand, the expected utility for the representative worker associated with non-expropriation is

$$V^w(L) = w(A) + \beta W^w(E), \tag{9}$$

where $W^w(E) = \psi V^w(H) + (1 - \psi)V^w(L)$ is the continuation value associated with expropriation. After using equations (8) and (9), $W^w(E)$ becomes

$$W^w(E) = \frac{\psi}{1 - (1-\psi)\beta} \left[\frac{w(B)}{1-\beta} + \frac{(1-\psi)w(A)}{\psi} - \mu \right].$$

Thus, the democratic government will expropriate whenever $W^w(E) > W^w(NE)$; that is, if

$$\frac{w(B)}{1-\beta} - \mu > \frac{w(A)}{1-\beta}.$$

This condition has a similar straightforward interpretation as in the case of the oligarchic government. The corresponding condition for ϕ is

$$\varphi < \alpha - \frac{(1-\beta)(1-\alpha)\mu}{|\hat{\gamma}_1|w(B)} \equiv \varphi_{1D}. \tag{10}$$

Democracy versus Oligarchy.   In this section, we compare the incentives to expropriate under democracy and oligarchy. The first step consists in identifying conditions for expropriation to occur under both regimes. Notice first that a feasible railway requires $\phi < \alpha$. We assume that this holds. The question now is to study the relative magnitude of the expropriation bounds, ϕ_{1A} and ϕ_{1D}. In principle, both cases are possible: $\phi_{1A} \geq \phi_{1D}$ or $\phi_{1A} < \phi_{1D}$. To characterize such cases, observe that both thresholds depend on α in an opposite way: while ϕ_{1A} decreases in α, ϕ_{1D} increases in α. This implies that ϕ_{1D} is higher than ϕ_{1A} for sufficiently high levels of α. More specifically, this is true for

$$\frac{\alpha}{1-\alpha} > \mu(1-\beta)\left[\frac{1}{|\hat{\gamma}_1|w(B)} + \frac{1}{\hat{\gamma}_2 r(B)} \right]. \tag{11}$$

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[17]We could assume as well that expropriated capital can somehow be sold. If the proceeds are redistributed, this would generate an additional incentive to expropriate under democracy. The magnitude of this additional motive depends on how specific the railway capital is and on how large is the population of workers relative to the capital invested (K).

When inequality (11) holds, it follows that

1. if $\phi < \phi_{1A}$, only democracies expropriate;
2. if $\phi \in [\phi_{1A}, \phi_{1D}]$, both democracies and autocracies expropriate;
3. if $\phi > \phi_{1D}$, only oligarchies expropriate. When inequality (11) does not hold, it follows that
4. if $\phi < \phi_{1D}$, only democracies expropriate;
5. if $\phi \in [\phi_{1D}, \phi_{1A}]$, neither democracies nor autocracies expropriate;
6. if $\phi > \phi_{1A}$, only oligarchies expropriate.

The aforementioned cases capture important features of the link between expropriation and political regimes. Only democracies expropriate when ϕ is sufficiently low (cases 1 and 4). This is because of the fact that a lower ϕ implies a larger Stolper–Samuelson effect and therefore the railway is very profitable for landowners and very negative for the interests of the workers. When the transportation price is sufficiently high, only oligarchies expropriate (cases 3 and 6). From the point of view of the workers, the magnitude of the Stolper–Samuelson effect does not compensate the expropriation cost. For the oligarchy, however, the incentive to expropriate is strong as they could raise the land returns considerably by lowering the transportation price. Naturally, low values of α reduce the potential size of the Stolper–Samuelson effects. If α is sufficiently low, there are cases under which expropriation never occurs.

We find that an oligarchy finds it convenient to expropriate when railway prices are high (thus generating a strong conflict of interest between the local landlord elite and the railroad firm), while the opposite holds for a democracy. However, and interestingly enough for our main argument, note that these incentives would be symmetrically different if the exportable good transported by the railroad was labor intensive.

Even though the previous analysis shows that expropriation may occur under both political regimes, under the assumptions made, we find the following.

Proposition 1. Let Assumption 1 hold, then democracies tend to expropriate for a larger set of transportation prices than oligarchies.

Proof. $\alpha - \phi_{1A} < \phi_{1D}$ implies $\alpha - \frac{\mu(1-\alpha)(1-\beta)}{\hat{\gamma}_2 r(B)} < \alpha - \frac{\mu(1-\alpha)(1-\beta)}{|\hat{\gamma}_1| w(B)}$, which requires $\hat{\gamma}_2 r(B)T > |\hat{\gamma}_1| w(B)L$ to be satisfied. Observe that this implies $\frac{T_S}{T} < \frac{L_S}{L}$, which is always satisfied by assumption.

The opposite result immediately follows in cases under which Assumption 1 is reversed.[18]

This result implies the following prediction as a corollary.

Prediction 1. Expropriation under democracy is more likely to take place in land-abundant countries.

We test this prediction in section 5.

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[18]The analysis is available upon request.

4.2. The Investment Decision

The foreign investor has to decide whether to invest or not. We consider the railway project as a lump-sum investment of size K. This entitles the investor to get revenues from transporting good X by charging a unit price ϕ. As the railway increases production in sector X, railway revenues depend on the volume of output after the railway is in place $[X^{ARW}(\phi)]$. We show in the online appendix A[19] that

$$X^{ARW}(\varphi) = (1 + \epsilon \frac{\alpha - \varphi}{1 - \alpha}) X^{BRW}(\varphi), \tag{12}$$

where $\epsilon = \frac{\widehat{y_X}}{\widehat{z}}$ is the output elasticity of the agricultural good with respect to the net price z and $\hat{X}^{BRW}(\phi)$ is the level of production of X before the railway has been built.

The opportunity cost of investing in the railway is given by the world interest rate i^*. To calculate the continuation value for the investor we need to consider two cases: when ϕ is such that the government will expropriate as soon as the state of the nature allows for it (i.e., $S_t^s = H$), and the case in which expropriation will never take place.

Under the threat of expropriation, the value of the project for the investor is

$$W^{FI}(E) = \psi V^{FI}(H) + (1 - \psi) V^{FI}(L),$$

where, given that expropriation drives the revenues to zero, the value of the project for the investor in that state is: $V^{FI}(H) = 0$. When expropriation does not take place (i.e., while $S_t^s = B$), the foreign investor gets an income per period $\phi X^{ARW}(\phi)$ and therefore the value of the project is

$$W^{FI}(E) = \frac{(1 - \psi)\varphi X^{ARW}(\varphi)}{1 - (1 - \psi)\beta}.$$

The railway is a better investment than the opportunity cost if

$$\varphi X^{ARW}(\varphi) \left(\frac{1 - \psi}{1 - (1 - \psi)\beta} \right) \geq \frac{i^* K}{1 - \beta}. \tag{13}$$

This is the investment constraint. The condition can be reformulated to highlight the role of the parameter κ, which measures the volume of investment required per unit of transport capacity: $\kappa = \frac{K}{X^{ARW}}$. Clearly, a lower κ implies a cheaper railway infrastructure per unit of services supplied. Rearranging equation (13), we obtain

$$\kappa \leq \frac{\varphi}{i^*\Omega},$$

where $\Omega = \frac{1 - (1 - \psi)\beta}{(1 - \psi)(1 - \beta)}$. The expected return on investment exceeds the opportunity cost if the invested capital per unit of services is lower than the expected present value of prices charged, suitably discounted (taking into account the possibility of expropriation). This defines a bound for the price of services for the project to be undertaken under the risk of expropriation. Thus, foreign investment will take place in this situation if

$$\varphi_2 \geq i^*\Omega\kappa. \tag{14}$$

Clearly, a lower value of κ reduces the minimum price acceptable to investors.

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[19]Available at: http://www.socscistaff.bham.ac.uk/albornoz/papers.htm

In the case where expropriation will never take place, investment is undertaken if

$$\kappa \leq \frac{\varphi}{i^*},$$

which establishes the bound for profitable investment under no expropriation

$$\varphi_3 \geq i^* \kappa.$$

Notice that $\Omega > 1$; thus, $\phi_3 < \phi_2$, which states the obvious but reassuring result that safe investment is likelier than expropriable investment.

We have identified the existence of values of ϕ, both for safe and expropriable investments, which make the project more attractive for the investor than the alternative placement of the resources in international capital markets. The remaining question is whether there is a railway price that would make the foreign investor prefer undertaking the project under risk over a situation free of expropriation.

We analyze the case of oligarchy.[20] The first thing is to establish a tradeoff between maximizing earnings under no expropriation and incurring an expropriation risk. This is done by showing that single-period revenues of the railroad are maximized at a price higher than the one (ϕ_{1A}) that would induce the government to expropriate if it had the chance to choose. This means that we need to investigate whether there exists ϕ such that $\phi X^{ARW}(\phi > \phi_{1A}) > \phi_{1A} X^{ARW}(\phi_{1A})$. Solving this implies the following proposition.

Proposition 2. There exist levels of the railway price

$$\varphi > 1 - \alpha(1 + \epsilon) - \frac{\mu(1 - \alpha)(1 - \beta)}{r(B)\hat{\gamma}_2} \equiv \varphi^* \tag{15}$$

such that, while the investor controls the project, the revenues generated when the investment is subject to expropriation are larger than those that would accrue at a price that makes the project immune to expropriation risk.

Proof. $\phi X(\phi > \phi_{1A}) - \phi_{1A} X(\phi_{1A}) > 0$ implies

$$\varphi \left[1 + \epsilon \frac{\alpha}{1 - \alpha} \right] - \frac{\varphi^2}{1 - \alpha} - \frac{\mu(1 - \alpha)(1 - \beta)}{r(B)\hat{\gamma}_2} \left[1 + \epsilon \left(\frac{\alpha}{1 - \alpha} - \frac{\mu(1 - \beta)}{r(B)\hat{\gamma}_2} \right) \right] > 0.$$

This has two solutions:

1. $\frac{\mu(1 - \beta)(1 - \alpha)}{r(B)\hat{\gamma}_2}$
2. $1 - \alpha(1 + \epsilon) - \frac{\mu}{r(B)\hat{\gamma}_2}[(1 - \alpha)(1 - \beta)]$

It is immediate that only solution 2 satisfies $\phi X(\phi > \phi_{1A}) > \phi_{1A} X(\phi_{1A})$.

This result suggests that expropriation may potentially be induced by the foreign investor if given the possibility of choosing the railway price. We explore this possibility further in section 6.

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[20]The analysis for democracy is similar and is available upon request.

4.3. Equilibrium Characterization

We have identified the investment and expropriation constraints. These are determined by wage and rent levels, which are themselves functions of the price associated with the railway.[21] We can therefore find solutions for a given ϕ and state the corresponding expropriation behavior of democracies and oligarchies.

We need to show the existence of prices allowing for railway investment. As the break even thresholds under no expropriation risk (ϕ_3) and without that risk (ϕ_2) are such that $\phi_3 < \phi_2$, the potential existence of both safe and expropriable investments requires the existence of values of ϕ such as $\phi \in [\phi_2, \alpha]$. This is equivalent to show that $\phi_2 < \alpha$. The following lemma states the condition for this possibility.

Lemma 1. Foreign investment takes place in equilibrium if the following condition holds.

Condition 1:

$$\kappa \leq \frac{\alpha}{i^* \Omega}.$$

Proof. It immediately follows from inspecting $\phi_2 < \alpha$ using equation (14).

This result involves an interesting implication. We can interpret κ^{-1} as a measure of railway efficiency. Therefore, investment requires a minimum level of efficiency. Simple comparative statics show that how binding in such requirement depends on investment opportunities abroad (i^*), the cost of alternative transport methods (α), political stability, captured by the probability of social states in which expropriation is possible (ψ), and the discount factor (β).[22]

We state now the existence of equilibrium of the expropriation game for any given ϕ.

Proposition 3. When Condition 1 holds, there exists $\phi \in (\phi_3, \alpha)$ such that, given the intervals

$$Z_1 = \{\varphi \in X : \varphi \leq \varphi_{1D} \wedge \varphi \leq \varphi_{1A}\},$$
$$Z_2 = \{\varphi \in X : \varphi > \varphi_{1D} \wedge \varphi \geq \varphi_{1A}\},$$
$$Z_3 = \{\varphi \in X : \varphi \leq \varphi_{1D} \wedge \varphi \geq \varphi_{1A}\},$$
$$Z_4 = \{\varphi \in X : \varphi \geq \varphi_{1D} \wedge \varphi \leq \varphi_{1A}\}.$$

Then:
- $\phi \in Z_1$ implies that expropriation only occurs under democracy;
- $\phi \in Z_2$ implies that expropriation only occurs under oligarchy;
- $\phi \in Z_3$ implies that both types of governments expropriate;
- $\phi \in Z_4$ implies that neither a democratic government nor an autocratic government expropriate.

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[21]We study alternative policies in online appendix D (http://www.socscistaff.bham.ac.uk/albornoz/papers.htm).

[22]Note that both ψ and β are implicit in Ω.

Proof. See online Appendix B[23] where we define the conditions for non-emptiness of Z_1 to Z_4.

This result summarizes the previous analysis and demonstrates the existence of cases Z_1 to Z_4.

5. EMPIRICAL EVIDENCE

As stated before, we predict that, ceteris paribus, democracies are comparatively more likely to expropriate foreign investment in land-abundant countries. The opposite would be true for land-scarce countries, where expropriations are expected to take place when the government is under the control of oligarchies. To illustrate how expropriation of foreign investment depends on its distributional effects and, hence, on the structural characteristics of the economy, we modeled the investment as an infrastructure project serving the export sector. As discussed before, historical examples motivated this modeling choice. However, the logic of our argument would straightforwardly apply to foreign investments of any different nature that tend to increase the output of exportable goods. With this in mind, the implications of the model can be put to econometric test using existing data on expropriation records depending on the relative factor abundance of the economy and the type of government in place.

5.1. A Simple Test

To show how the effect of democracy on the probability of expropriation is affected by whether the country is rich in land or natural resources, we estimate

$$
\begin{aligned}
Prob[Expropriation_{j,t} = 1] = {} & \beta_1 Resource - Rich_j + \beta_2 Democracy_{j,t} \\
& + \beta_3 Resource - Rich_j \times Democracy_{j,t} + FE_t + \epsilon_{j,t},
\end{aligned}
\tag{16}
$$

where *Resource-Rich* is a dummy indicating whether country j specializes in primary or other natural-resource-based goods and *Democracy* is a continuous variable capturing the level of democracy. We also control for year fixed effects (FE_t). In other specifications, we will include (per capita) gross domestic product GDP, FDI, and regional fixed effects.[24] While our model is silent on the expected signs of β_1 or β_2, $\beta_3 > 0$ would provide support to the prediction of our model.

5.2. Data

The original data on expropriation was collected by Kobrin (1980, 1984) for the period 1960–1979. Kobrin's dataset was successively extended by Minor (1994) up to 1990 and recently by Hajzler (2011) who included data for the years 1990–2000. As this original datatset focused on developing countries, we added information for Organization for Economic Cooperation and Development countries. An expropriation episode is defined following Kobrin as an "act" of "forced divestment of foreign property" in a given year within a given three-digit sector. Thus, our expropriation dataset covers the period 1960–2000 and includes information for about 150 countries, 85 of which experienced at least one expropriation of foreign capital.

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[23]Available at: http://www.socscistaff.bham.ac.uk/albornoz/papers.htm
[24]Regions are defined as continents.

We have to classify political regimes according to their distributive bias, which is not a feature easily established through measurable information. As an approximation, we will associate authoritarian governments with "oligarchies" in our definition, while political democracies will be considered as pro-labor governments. This is consistent with, for example, Rodrik (1998) who shows that wages are higher under democracy. To distinguish between democracies and autocracies we use the widely used democracy index developed by the Polity IV Project. This index takes values between −10 and +10, which we normalize to the interval [0,1].

Country specialization is captured by the variable *Resource-Rich*. This variable takes the value of 1 if the country's main exports were based on natural resources and 0 otherwise. To make this classification, we took the data on country exports from the CIA World Factbook of 2010. We report in the Appendix the list of countries according to their specialization.

Data on FDI are from UNCTAD (United Nations Conference on Trade and Development) and they refer to inward direct investment, measured in US dollars at nominal current prices and current exchange rates; it starts in 1970 and ends in 2009. Data on GDP per capita comes from Penn World Table 7. It is defined as the "Real Gross Product per Capita"; that is, it is measured in purchasing power parity of 2005.

5.3. Results

In Table 1, we report the results of different specifications of equation (16). In all cases we estimate conditional logit models. We start by estimating the direct effects of resource abundance and democracy. As shown in column (1), expropriation of foreign capital is more likely to take place in resource-abundant countries. Moreover, the coefficient associated with democracy is not significant, suggesting political regimes do

TABLE 1 RESULTS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Resource-Rich$_j$	1.047***	−0.019	0.031	0.390	0.008	0.060	0.874*
	(0.155)	(0.237)	(0.255)	(0.323)	(0.255)	(0.405)	(0.528)
Democracy$_{j,t}$	0.022	−1.656***	−1.203***	−1.167***	−0.768**	−1.761***	−0.581
	(0.067)	(0.343)	(0.375)	(0.432)	(0.377)	(0.635)	(0.693)
Resource-Rich$_j$ × *Democracy$_{j,t}$*		1.760***	1.363***	1.312***	0.866**	1.869***	0.655
		(0.354)	(0.438)	(0.444)	(0.386)	(0.654)	(0.708)
pc-GDP			−0.106***				
			(0.0392)				
pc-FDI				−0.282			
				(0.361)			
Year *FE*	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region *FE*					Yes		
Sample	All	All	All	All	All	Primary sectors	Manufacturing sectors
Observations	4,296	4,296	4,036	3,080	4,296	2,616	2,597
R-squared	0.03	0.05	0.06	0.05	0.09	0.05	0.04

Notes: Robust standard errors are in parentheses.
***$p < 0.01$,
**$p < 0.05$,
*$p < 0.1$.

not have a direct effect on expropriation. If anything, the effect of democracy is conditional on resource abundance as we shall show in the following estimations.

Column (2) displays the most basic specification of our test. The signs associated with *Resource-Rich* and *Democracy* are both negative but only the coefficient associated to *Democracy* is statistically significant. This would indicate that autocracies are, ceteris paribus, more likely to expropriate FDI. The interaction of these two variables, however, comes with a positive and significant coefficient, providing support to our main theoretical prediction.

Of course, many other factors affect a country's decision to expropriate foreign investment, such as the level of development, the relevance of foreign direct investment and regional characteristics. We control for all these factors in specifications 2–5. As can be seen, all the results are extremely robust to the different specifications adopted. Observe in column (3) that the effect of per capita GDP (*pc-GDP*) is to reduce the probability of expropriation. As to the relevance of *FDI* (*pc-FDI*), we can observe in column (4) that the sign suggests that the probability decreases in the importance of FDI, although the effect is not statistically significant. In column (5), we control for regional fixed effects. Importantly for our purposes, more democracy in *Resource-Rich* countries rises the probability of expropriation in all the specifications. This effect is robust across all specifications.

Unfortunately, the existing data on expropriations do not permit us to fully identify whether the expropriated foreign capital was associated with lower exporting cost or other export activities. It does however provide information on the sector in which the expropriation took place. So we can distinguish between expropriation in primary sectors from those involving manufacturing activities. Clearly, the effect of democracy in resource-abundant countries should be stronger for expropriations in the primary sector. To test this, we split the sample according to the sector of the expropriated capital: in column (6) we display the regression for expropriations in the primary sector; and in column (7) we focus on expropriations taking place in the manufacturing sector. As can be seen the coefficient β_3 not only remains positive but also gets bigger when we focus on the primary sector. Importantly, this coefficient comes up as nonsignificant for the case of expropriations in the manufacturing sector. This differential effect provides additional support to our mechanism.

We performed additional robustness checks. These include: (i) estimating linear probability models instead of conditional logits, (ii) using dichotomic and measures of democracy, (iii) focusing on new democracies instead of any democracy, (iv) excluding socialist states to focus on pro-elite dictatorships. In all these estimations, not reported to save space but available upon request, the coefficient associated with *Resource-Rich* × *Democracy* is positive and statistically significant.

6. EXPROPRIATION RISK INDUCED BY THE FOREIGN INVESTOR

So far we have treated the railway price as exogenous. As suggested by Proposition 2, we now turn to investigate whether prices yielding to expropriation can be imposed by the foreign investor in a negotiation with the government.

We consider now the case in which freight prices are determined through a negotiation between the government and the investor. A variety of outcomes can emerge depending on the respective bargaining powers, the value of expropriation costs, the political regime, and the economic structure. The possibility of both expropriable and

safe investments amplifies the number of candidate equilibria. Instead of fully characterizing all these cases, we focus on situations where expropriation is an outcome in the case where the bargaining power lies fully with the investor.

Given the configuration of the economy, a democratic government would be a tougher negotiator than the one representing oligarchic interests because of the negative Stolper–Samuelson effect on wages.[25] The landlord group, in contrast, would welcome railway investments per se as means to raise their rents. We focus then on the case of an oligarchy.

The key question is whether expropriation is an equilibrium outcome in situations where the oligarchic government negotiates with the investor. Consider the case of Nash bargaining. Any incentive compatible price resulting from negotiation must satisfy the conditions given in Proposition 3. This implies, for example, that an incentive compatible price yielding an equilibrium with expropriation has to be greater than ϕ_2 (so that the investor is willing to invest) and also higher than ϕ_{1A} (so that the government chooses to expropriate when the opportunity arises).

We need to establish first when the government is willing ex ante to accept a deal with the investor yielding expropriation in the future. If the railroad is to be built, the landlord group must obtain a greater payoff than the one resulting in the absence of the railway, that is,

$$\frac{\psi}{1-(1-\psi)\beta}\left[\frac{r(E)}{1-\beta}+\frac{r(A)(1-\psi)}{\psi}-\mu\right]\geq\frac{r(B)}{1-\beta},$$

which is satisfied for

$$\varphi<\alpha\left(\frac{1-(1-\psi)\beta}{(1-\psi)(1-\beta)}\right)-(1-\alpha)\left(\frac{\psi}{1-\psi}\frac{\mu}{\hat{\gamma}_2 r(B)}\right)\equiv\varphi'_{1A}. \tag{17}$$

The upper bound φ'_{1A} depends positively on α, because a higher transport cost before the railway increases the payoff for the landlords of having the railroad; the negative dependence on the expropriation cost μ derives from the fact that, with higher expropriation costs, the government requires a larger payoff to find the railroad project acceptable. An equilibrium involving expropriation requires $\varphi_{1A}<\varphi'_{1A}$ (i.e., the maximum price not generating expropriation incentives must be lower than the maximum price for which the government would accept the railroad under a transport price that will induce expropriation). Otherwise, any outcome of the negotiation allowing the railway will imply no future expropriation. The condition for $\varphi_{1A}<\varphi'_{1A}$ is

$$\mu<\frac{\alpha r(B)\hat{\gamma}_2}{(1-\alpha)(1-\beta)}\equiv\mu_1. \qquad\qquad (expropriation\ condition)$$

A low expropriation cost relative to the transport costs saved by the railroad raises the incentives of the government to take over the railroad when the opportunity emerges, and it increases the value of having the railroad built given future expropriation. Observe as well that μ_1 is increasing in $\hat{\gamma}_2$. This means that a higher price elasticity of land rents implies higher benefits from expropriation, which is reflected in both a lower ϕ_{1A} and a higher φ'_{1A}.

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[25]A democratic government may still be interested in the railway if expropriation gains are expected to be sufficiently high. However, this would require benefits accruing from running the railroad (through redistributed incomes) and not only through a reversal of the Stolper–Samuelson effect.

A simple representation of the bargaining scenario results from looking at the extreme cases where one of the participants can impose its preferred price subject to an incentive compatibility constraint for the other party. We are interested in cases where the foreign investor can induce her preferred railway price.[26] To make calculations simpler, we assume that the revenues from the railroad are increasing in the price within the range between 0 and α, that is, the elasticity of the traffic with respect to the price is less than unity in that range. This simply requires ε to be greater than $\frac{1-\alpha}{\alpha}$ (i.e., a sufficiently high output elasticity with respect to the net price of the exportable good). Then, the investor will choose ϕ_{1A} in the case of safe investment and $\min\{\alpha - \varsigma, \varphi'_{1A}\}$ for ς infinitesimally low in the case of expropriable investment.

The investor prefers imposing a high railway price which makes the project liable for future expropriation when

$$W^{FI}(NX, \varphi_{1A}) < W^{FI}(X, \min\{\alpha - \varsigma, \varphi'_{1A}\}), \tag{18}$$

that is,

$$\frac{\varphi_{1A} X^{ARW}(\varphi_{1A})}{1 - \beta} < \frac{(1 - \psi)\min\{\alpha - \varsigma, \varphi'_{1A}\} X^{ARW}(\min\{\alpha - \varsigma, \varphi'_{1A}\})}{1 - (1 - \psi)\beta}. \tag{19}$$

It can be shown that sufficiently low expropriation costs would make the foreign investor choose a price associated with expropriation. We develop in the online Appendix C[27] the inequality in equation (19) for both $\varphi'_{1A} \geq \alpha$ and $\varphi'_{1A} < \alpha$. In both cases, equation (19) is clearly satisfied for $\mu = 0$. Observe that both sides of equation (19) are continuously differentiable with respect to μ. As the left-hand side is increasing in ϕ_{1A}, it is increasing in μ too. This implies that expropriation is chosen by investors for sufficiently low values of μ (i.e., for $\mu < \bar{\mu} \in (0, \infty]$). Obviously, this condition is more likely to be satisfied for low levels of ψ which means that this strategy is likelier in relatively stable social states where expropriation is unlikely.

Let us summarize the analysis by the following proposition.

Proposition 4. (Expropriation with prices chosen by the investor). An equilibrium with expropriable investment is a consequence of the foreign investor's choice for

$$\mu < \min\{\mu_1, \bar{\mu}\}.$$

For low expropriation costs, the investor prefers obtaining high revenues up to the moment when expropriation takes place instead of lowering the railway price enough to conserve the permanent right to exploit the railroad; a similar result would hold for an impatient investor. Higher values of μ eliminate the expropriation equilibrium and, at the same time, they increase the ability of the investor to extract the rents from the project if it has the bargaining power on its side.

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[26]Alternatively, consider this brief sketch of the case where the oligarchic government can impose the price that will make the foreign investor just willing to build the railroad. As the landlords's payoff decreases in price, the government will choose between the two minimum prices that will induce investment, without expropriation in one case, and with expected expropriation in the other. We know from our previous discussion that these prices are ϕ_3 for the safe investment, and ϕ_{1A}, for expropriable investment. Thus, the government will choose according to the comparison between the values of $W^E(NX, \phi_3)$ and $W^{NE}(X, \phi_{1A})$.

[27]Available at: http://www.socscistaff.bham.ac.uk/albornoz/papers.htm

7. CONCLUDING REMARKS

We have studied the incentives to expropriate foreign capital in a setup where government incentives vary according to the actual effects of investments on the incomes of different social groups, and with the weights the authorities attach to the welfare of those groups. The attitudes toward FDI depend on the nature of the investments and the economic structure of the receiving country. Whether democracies are more or less prone to expropriation than oligarchies depends crucially, but in a predictable way, on the type of investment considered and on structural features of the economy such as the factor intensities of activities that make use of the services provided by the investments in question. Our analysis suggests that there need not be an unambiguous relation between the type of the government and its behavior towards FDI. Therefore, the right question for empirical research does not seem to be whether democracies or other forms of governments are more prone to expropriation. A fuller and more concrete analysis may start from the proposition that governments typically express objectives biased toward the interests of certain social groups, and that large investment projects might have sizeable distributive effects among segments of the population in the host country.

Our analysis offers, for example, one plausible rationalization for the fact that mass democracies in Latin America during the twentieth century were prone to nationalize FDI projects directed to the provision of services to the production of tradable goods controlled by agricultural elites. In the context studied, foreign investments, through Stolper–Samuelson effects, benefited landlords and hurt labor-intensive activities, thus tending to lower wages. Naturally, under oligarchic rule, those investments were desirable for the government, and were undertaken by foreign investors. Once the institutional framework of those investments was inherited by governments that put high weights on the interests of workers, incentives to expropriate emerged. This, however, is not an intrinsic characteristic of democracies, but results in particular configurations of economic interests associated with the comparative advantages of the countries. With different economic structures, democracies could have different incentives with respect to FDI projects that provide services to the production of exportable goods.

Another interesting result emerging from our analysis is that, conditional on structural features of the economy, it would be possible to reach equilibrium states where expropriable investment is a consequence of a price negotiation between the investor and the government, even in situations where the foreign investor is capable of setting that price unilaterally. The attraction of high revenues in no-expropriation states may make expropriable investment preferred by the foreign investor to a scenario with lower prices, which would make a future landlord government unwilling to expropriate. An implication of this result is that, under plausible circumstances, the assurance of no future expropriation is not necessarily a pre-condition for foreign investment but instead, expropriation risk is endogenously determined by the interaction between domestic governments and foreign investment.

We have concentrated on cases that would correspond to investments made at relatively early stages of economic development in economies like those of Latin America, where foreign investment tends to take place in sectors linked to foreign trade, and foster the interests of relatively homogeneous local elites, whose economic

activities are complementary with foreign capital or infrastructure. In this situation, expropriation of foreign infrastructure capital was undertaken by democratic and popular governments. In other contexts, like in northern Africa, expropriations took place under non-democratic governments. The model could easily predict that this would be the case for foreign investment in labor-intensive sectors. As we have shown before, the answer would depend on the type of investment, on structural features like the factor intensities of activities that make use of the services, and the prices charged for those services. In either case, as an economy develops and diversifies, the complementarities and conflicts of interest become more intricate. Social groups, and business sectors, in particular, can exploit their political influence to induce the government to undertake actions in their favor. Whether governments are more sensitive to lobbying under democracies or autocracies is a question that we leave open for future research.

APPENDIX: LIST OF COUNTRIES

Abundant in Land or Natural Resources

Afghanistan, Algeria, Angola, Argentina, Bahrain, Benin, Bolivia, Cameroon, Central African Republic, Chad, Chile, Colombia, Congo Dem. Rep., Congo Rep., Costa Rica, Dominican Rep., Ecuador, Egypt, El Salvador, Ethiopia, Gabon, Gambia, Ghana, Guatemala, Guinea, Guyana, Haiti, Honduras, Iran, Iraq, Ivory Coast, Kenya, Kuwait, Laos, Lesotho, Liberia, Libya, Madagascar, Malawi, Mauritania, Mozambique, Myanmar (Burma), Nepal, New Zealand, Nicaragua, Nigeria, Oman, Peru, Qatar, Saudi Arabia, Senegal, Sierra Leone, Somalia, Sudan, Syria, Tanzania, Togo, Trinidad, Uganda, Venezuela, Yemen, Zambia, and Zimbabwe.

Non-Abundant in Land or Natural Resources

Australia, Austria, Bangladesh, Belgium, Brazil, Cambodia, Canada, Denmark, Finland, France, Georgia, Germany, Greece, India, Indonesia, Ireland, Italy, Jamaica, Japan, Korea South, Lebanon, Malaysia, Mexico, Morocco, The Netherlands, Norway, Pakistan, Panama, Philippines, Portugal, Spain, Sri Lanka, Swaziland, Sweden, Switzerland, Thailand, Turkey, United Kingdom, and United States.

FACUNDO ALBORNOZ   SEBASTIAN GALIANI
University of Birmingham   *Washington University in St. Louis*

DANIEL HEYMANN
*Universidad of Buenos Aires and
Universidad de San Andrés*

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Appendix A: Determination of $X^{\mathrm{ARW}}(\varphi)$.

Appendix B: Proof of Proposition 3.

Appendix C: Proof of Proposition 4.

Appendix D: Alternative policies.

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