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# Barriers to Foreign Direct Investment Under Political Instability

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Foreign direct investment (FDI), as pointed out by Kindleberger (1969), arises when the host country has an investment opportunity that it cannot exploit by itself because it lacks the means or technical know-how, or because of market incompleteness (that is, access to capital markets is restricted). A multinational corporation (MNC) may be able to exploit such an opportunity because it has the necessary capital, technology, and managerial skills to do so. Even though the return to foreign direct investment is potentially large in many developing countries (for example, the opening up of Eastern Europe provided advantages to multinational firms because of the low cost of labor, low levels of capital in place, and the proximity to major markets), the flow of direct investment is concentrated in just a few countries.<sup>1</sup> Lucas (1990) attributes this lack of FDI in countries with potentially large marginal returns to capital to the fact that many developing countries face higher political risk than industrialized ones.

A distinctive characteristic of FDI is that once an investment has been made, a foreign investor cannot prevent the government in the host country from changing the environment in which the investment decision was made. Despite attempts to establish international tribunals, contracts between multinational corporations (MNCs) and sovereign countries are almost impossible to enforce. The quality of institutions, and in particular, the degree of protection of property rights, are key in determining the expected return to foreign

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<sup>1</sup> The United Nations (1996) reports that 80 percent of the total investment flowing to developing countries in 1995 was received by only ten countries.

investors. Countries with relatively poor legal protection of assets, and a high degree of political instability, generally exhibit high rates of expropriation and this makes investment less attractive. In practice, expropriation can take different forms. A *direct* act of expropriation involves nationalization of foreign-owned corporations, in which the government simply takes control of the capital stock (Kobrin 1980, 1984). There are also *indirect* forms of expropriation that multinational corporations face. Examples include excessive taxation, capital controls, manipulation of exchange rates, and bribes and permits demanded by government officials.

In this article, we describe some stylized facts about expropriation episodes and other lessons learned from the empirical literature on FDI. We then summarize some of the main theories attempting to explain the effects of expropriation on investment and growth. Finally, we develop a theory that relates each type of expropriation to political instability and concentration of power.

A simple two-period political economy model is presented in which groups with access to an expropriation technology alternate in power according to an exogenous probability. The group that controls the government in the first period has the ability to obtain bribes from foreign investors who are attempting to gain access to production in the host country. This form of indirect expropriation is analogous to an investment tax, in the sense that it distorts the optimal allocation of international capital by imposing additional costs to potential investors. After investment decisions have been made (in the second period), the group in office decides how much capital should be seized or nationalized, a direct form of expropriation.

Following the literature on FDI, we will assume that any capital expropriated by the host country becomes unproductive. This stylized representation tries to characterize the empirical observation that MNCs are usually more efficient in running production than the host country. For example, Minor (1994) documents that about 35 percent of all enterprises that were expropriated between 1960 and 1979 have been privatized between 1980 and 1992, indicating public “disillusion with the typical result of expropriation, the state-owned enterprise” (see Biais and Perotti 2002 for more on recent trends on privatizations). Theoretically, the costs associated with expropriation arise mainly because of two reasons. First, there is usually a reduction in the technological spillovers embodied in foreign capital. Second, because the capital installed by foreign investors may be specific to the manager’s skills, it may take time for domestic workers to acquire the know-how needed to operate the foreign technology. As a consequence, reductions in the capital stock installed by MNCs imply productivity losses and depressed domestic wages.

At any point in time, the benefit associated with expropriation is given by the amount of goods that can be transferred from MNCs to domestic agents. The tradeoff faced by policymakers is, therefore, given by the redistributive gains of expropriation versus the income loss suffered by local workers.

A key assumption is that there are no institutional barriers to discretionary redistribution, so any group can appropriate all expropriated resources. Because the group in power is not forced to transfer resources to other groups, a “tragedy of the commons” arises: there is too much expropriation in equilibrium. A tragedy of commons occurs when property rights of an asset cannot be enforced; a typical example is fishing on a lake. Typically this gives rise to over-consumption or under-investment (see Gordon 1954 or Lancaster 1973). In our model, it is precisely the fact that groups cannot ensure *ex ante* that they will receive the benefits of expropriation in the future that cause over-expropriation in the first period, making the level of bribes inefficiently large. The degree of such inefficiency is related to how likely it is that the current group in government retains power in the second period. That is, the degree of such inefficiency is related to the political instability.

While countries that have higher political instability are predicted to exhibit higher levels of indirect expropriation, direct expropriation levels are lower. The intuition is as follows: because each group finds its chances of being in power in the second period very unlikely, it becomes shortsighted and demands a large quantity of bribes when in power (i.e., in the first period). This discourages investment, and the reduction of capital decreases the marginal cost of direct expropriation, encouraging more expropriation in the second period. The marginal benefit is reduced as well because the tax base shrinks, which reduces the incentives to expropriate. Under a Cobb-Douglas technology assumption, the latter effect dominates and direct expropriation goes down.

A second interesting result derived in this article is related to the concentration of power. Following Tornell and Lane (1999), power is concentrated when there are few groups competing for government. They find that the relation between indirect expropriation and the number of groups in power is non-monotonic. When there is high concentration of power initially, a dilution of concentration results in more indirect expropriation, but this relationship reverts when concentration is small (i.e., there is a large number of groups to begin with). Direct expropriation, on the contrary, always increases with the number of groups. We provide some details on the intuition behind this result at the end of Section 4.

The organization of the paper is as follows. We define the different types of expropriation in Section 1 and summarize the main empirical findings in the literature in Section 2. We then proceed to describe some of the most influential theoretical articles on expropriation in Section 3. In Section 4, our model is described and the main results are derived. Section 5 concludes.

## 1. DEFINING EXPROPRIATION

Expropriation refers, in general, to policies that adversely affect the private value of the stock and/or returns of foreign investment. As mentioned in the previous section, we can distinguish between “direct” and “indirect” expropriation.

OECD (2004) provides an extensive analysis of the concept of expropriation, where jurisprudence, state practice, and literature on international investment law are considered. According to the survey, *direct expropriation* is “. . . an act where there is a compulsory transfer of property rights by the host state. . . . An investment is nationalised or otherwise directly expropriated through formal transfer of title or outright physical seizure. In addition to the term expropriation, terms such as ‘dispossession,’ ‘taking,’ ‘deprivation,’ or ‘privation’ are also used.” Kobrin (1980, 1984) and Minor (1994) define direct expropriation as the “forced divestment of equity ownership of a foreign direct investor.” The principal characteristic is that such divestment is involuntary, against the will of the owners and/or managers of the enterprise, and must entail managerial control through equity ownership across national borders.

*Indirect expropriation* stands for other forms of change in the institutional environment that reduce the value of an investment, but in which property is not necessarily seized. Schlemmer-Schulte (1999) characterizes indirect expropriation “. . . as excessive and repetitive tax or regulatory measures that have a *de facto* confiscatory effect in that their combined results deprive the investor in fact of his ownership, control or interests in the investment . . .” This may be accomplished, in addition to the raising of taxes, through manipulation of exchange rates (i.e., devaluations), fees or bribes charged to the enterprise, the return of the firm to public ownership at unfair terms, the stiffening of regulation, or the institution of non-tariff barriers, such as restrictions in the repatriation of profits or other capital transactions (referred to as “transfer risk” by insurance companies). This form of indirect expropriation is also referred to as “disguised” or “creeping expropriation.” In contrast to the case of direct expropriation, there is no generally accepted definition of indirect expropriation in international law. Moreover, the distinction between this form of expropriation and non-compensable regulation (i.e., antitrust laws, environmental protection, etc.) is not clear.<sup>2</sup>

## 2. LESSONS FROM THE EMPIRICAL LITERATURE

In this section, we will analyze alternative forms of expropriation and describe their changes over the past 30 years. Afterward, we summarize some of the

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<sup>2</sup> See Organization for Economic Cooperation and Development (2004) for an extensive discussion on the issue.

empirical articles documenting the relationship between expropriation (and other measures of the quality of institutions) and FDI.

### **Direct Expropriation**

According to Minor (1994), there were 575 expropriation acts between 1960 and 1992, committed by 79 developing host countries against foreign multinationals. Africa was the region with the highest concentration of expropriation events in the 1960s and 1970s, but Latin America and Asia became more active during the 1980s. The manufacturing and petroleum sectors were the most affected by direct expropriation: they account for about 40 percent of all expropriation events between 1960 and 1964, and this percentage rises to almost 50 percent in the period 1976–1979. Jensen (2005) points out that another industry recently affected by major political events was privately financed infrastructure, in which some projects have been directly expropriated (for example, the government of Thailand's seizure of a private expressway in 1993). Li (2004) documents that out of 520 expropriation acts committed between 1960 and 1990, autocratic governments committed 423 acts while democratic governments committed only 97 acts. This finding relates to the fact that democratic governments have stronger institutions protecting property rights.

Minor shows a decline in the number of expropriation events after the 1970s. This is explained by the fact that international conditions in the late 1970s increased the benefits of FDI inflows and the freedom of action over some multinational corporations was limited. For example, in 1990 a paragraph in the Chinese-Foreign Joint Venture Law added a “no nationalization” clause (Robertson and Chen 1990). Tanzania adopted the National Investment Protection Policy Act that offers legal protection against nationalization (Corkran 1991). Of course, whether host countries respect such agreements *ex post* is not obvious. A more important factor that reduced the incentives to nationalize multinational corporations was the failure of state-owned enterprises. As mentioned earlier, more than 35 percent of the enterprises that were expropriated prior to 1980 were subsequently privatized. This indicates that multinational corporations have an advantage over domestic governments in running production (because investments are specific to the skills of their foreign managers, for example), an assumption that will be made in the theoretical section of the article.

According to the Organization for Economic Cooperation and Development (OECD), “Disputes on direct expropriation—mainly related to nationalization that marked the 1970s and 1980s—have been replaced by disputes related to foreign investment regulation and ‘indirect expropriation’” (OECD 2004, 2). The following section describes the particular form that this type of expropriation has taken in recent years.

## **Indirect Expropriation**

Indirect expropriation acts are more difficult to document in a consistent manner because of the lack of a formal or legal definition. In this subsection, we will restrict attention to a set of examples to highlight the nature of these expropriation acts.

Argentina's financial crisis of 2001–2002, when the “corralito” was imposed, provides a good example of indirect expropriation: the government restricted capital transactions and “pesified” contracts and financial assets. Foreign firms' funds were converted into pesos, and many contracts, especially in infrastructure, were rewritten or canceled. At the same time, capital was not allowed to leave the country (hence the name, “corralito,” which means “little fence”).

Janeba (2002) provides some other examples of indirect expropriation. In 1995, China announced the dissolution of various benefits that foreign firms received in the form of exemptions from custom duties or tax rebates when using local materials. Russia frequently considered introducing a “super profits tax” for foreign oil companies investing in Russia. Government renegotiation of power, electricity, and water contracts after financial crises in Argentina, Indonesia, Pakistan, and the Philippines constitute further examples (see Moran 2003). More recent examples include foreign oil companies being forced out of their joint venture contracts, for example, such as the company, TNK-BP in Russia.

Shleifer and Vishny (1993) argue that indirect expropriation is particularly distortive for countries with unstable governments in which an entrepreneur may have to bribe several public officials and still face the possibility that none of them really has the power to allow the project to proceed.

## **Stylized Facts**

### *Trends*

Researchers at the World Bank's Multilateral Investment Guarantee Agency (MIGA) found that U.S. investors in emerging markets were subject to both direct and indirect acts of expropriations between 1970 and 2001. The researchers note that between 1971 and 1980, U.S. investors were exposed to restrictions on transferring and repatriating funds (transfer risk) and also subject to a number of direct expropriations. During the period of 1981–1990, an even greater increase in the number of transfer risks claims as well as major reductions in the number of expropriations occurred. Chifor (2002) notes, “In the past two decades, indirect expropriation has supplanted direct takings as the dominant form of state interference with foreign investment, as host countries have learned that more value can be extracted from foreign enterprises through the more subtle instrument of regulatory control rather than outright

seizures.” The period of 1996–2000 was risky for multinational corporations, mainly because political violence and civil war claims increased dramatically. For most firms, however, direct expropriation was the most damaging. As Jensen (2005) notes, “Of all the dollars paid out by OPIC from 1970-1978, 96% of these claims were for expropriation. From 1991-2004, even after the major financial crises that triggered a number of transfer claims, 84% of the settlement amounts of OPIC claims were for expropriation.”<sup>3</sup>

### *FDI, Expropriation, and Institutions*

There are a large number of empirical articles that attempt to assess the quantitative importance of expropriations and the quality of institutions on FDI inflows. Most studies make no distinction between the effects of direct and indirect forms of expropriation. An exception to this are articles focusing on corruption, a form of creeping expropriation. Mauro (1995) finds that corruption has a negative effect on total and private investment, thus hindering growth. Wei (2000), using data on OECD countries, shows that corruption indices are strongly and negatively correlated with FDI inflows. For example, he estimates that an increase in Singapore’s level of corruption to that of Mexico’s would have the same negative effect on inward FDI as raising the tax rate on multinational corporations by 50 percentage points. Hines (1995) documents a reduction in U.S. FDI in the period following the 1977 U.S. Foreign Corrupt Practices Act, which stipulated penalties for U.S. multinational firms found to be bribing foreign officials. Asiedu (2006), using a panel data for 22 countries over the period 1984–2000, shows that a decline in Nigeria’s level of corruption to that of South Africa’s has the same positive effect on FDI as increasing the share of fuels and minerals in total exports by about 35 percent. He concludes that countries that are small or lack natural resources can attract FDI by improving their institutions and policy environment.

Variables contained in the Political Risk Services/International Country Risk Guide (PRS/ICRG) political risk dataset, such as corruption in government, expropriation risk, bureaucratic quality, risk of repudiation of contracts by the government, and law and order, are used in other studies to explain differences in FDI inflows across countries. These variables are collected in order to provide a comparable measure across countries of how expected returns to capital investment are reduced by direct and indirect forms of expropriation. While some components such as expropriation risk, for example, only incorporate the probability that capital is expropriated after investment, others such as corruption in government, for example, refer to reductions in profitability that will occur almost with certainty (i.e., bribes).

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<sup>3</sup>The United States Overseas Private Investment Corporation (OPIC) provides investment insurance for U.S. firms.

Daude and Stein (2001), using a simple average of the variables in the PRS/ICRG dataset mentioned previously (for the year 1995), find that a one standard deviation improvement in the quality of institutions increases FDI by a factor of 2.2. When focusing on risk of repudiation of contracts by the government, an improvement of one standard deviation—for example, from the level of Egypt to that of Finland—increases FDI by a factor of 1.4. They also find that variables measuring economic policy predictability are positively correlated with FDI inflows. Busse and Hefeker (forthcoming), using the same dataset for the period 1984–2005, find that the quality of institutions is a relevant factor for determining FDI inflows. The degree of ethnic tensions, law and order, and government stability are all statistically significant factors affecting net FDI inflows.

Hausmann and Fernández-Arias (2000) analyze the effects of institutional variables in the composition of capital inflows using variables compiled by Kaufmann, Kraay, and Zoido-Lobato (1999). They find that lack of regulatory quality, government effectiveness and shareholder rights are significant factors explaining reductions in the share of inflows represented by FDI. Using the Institutional Investor Index as a measure of country risk, Raff and Srinivasan (1998) find that in the manufacturing sector there is a -0.55 correlation between country risk and inward FDI. Li and Resnick (2003) find that both property rights protection and democracy-related property rights protection encourage FDI inflows.

In summary, there is concrete evidence from the empirical literature that (1) poor quality of institutions, (2) alternative forms of expropriation, and (3) lack of commitment of policy all have negative effects on FDI inflows. In the next section, we will describe how the theoretical literature attempts to explain these correlations.

### **3. LESSONS FROM THE THEORETICAL LITERATURE**

Most of the theoretical literature assumes that local governments' incentives to expropriate depend on the difference between the benefits of obtaining income from foreign capital (or the ownership of capital) and the opportunity costs of expropriation. Affiliate operation is frequently less successful when managed by the host government rather than by the MNC. This applies specifically to projects in which the hosts import not only physical capital but also foreign entrepreneurship, either in the form of managerial skills or technological know-how.

Under these assumptions, Eaton and Gersovitz (1984) present one of the most influential articles on expropriation theory. They analyze a static economy where competitive investors decide on the amount of foreign investment to be placed in a small open economy. The host country decides whether to expropriate the whole stock of physical capital in order to maximize national



income. The cost of such policy is given by the loss in productivity suffered because managerial services are no longer available after expropriation occurs. Foreseeing that their capital might be expropriated *ex post*, foreign investors will never increase their investment to the level where expropriation becomes optimal. As a result, even though no expropriation occurs in equilibrium, the international allocation of capital is distorted, and FDI remains inefficiently low. Consequently, the ability of the government to expropriate when it lacks the commitment to make binding promises on policy may actually reduce the government's welfare. Empirically, this explains why domestic factor prices may not reflect social returns when the supply of investment is affected by the threat of expropriation. This also supports the finding that commodity trade fails to equate the returns to capital across countries.

Thomas and Worrall (1994) extend this idea to an infinite-horizon economy and characterize the set of self-enforcing agreements between the host government and an MNC (i.e., in a bilateral monopoly environment). The contract specifies the level of investment the MNC should make each period and the amount of output that must be transferred to the host country. The key is that the host government may have a short-term gain by reneging on the contract and expropriating output or capital at any point. In this case, the MNC retaliates by not investing in the future which entails a long-run cost because the domestic economy returns to "autarky." The sustainable contract prescribes that investments should be inefficiently low in the initial periods with no transfers to the host country. Investment rises afterward to a stationary level, in which the host country starts receiving transfers. Investment is pro-cyclical, and transfers are positively serially correlated. Because the temptation to expropriate is larger when output is high, the optimal contract offers more transfers in the future. The back-loading result can be interpreted as a tax holiday, in which the host country exempts investors from tax obligations. It provides some direct transfers and allows for duty-free imports.

Thomas and Worrall's article is closely related to Doyle and van Wijnbergen (1994) who find tax holidays as the outcome of a bargaining game between a foreign investor and a small country, but in which the host country can commit to tax rates for one period. Schnitzer (1999) obtains a similar result by assuming that the foreign investor can switch to production facilities in other countries, rather than assuming commitment to taxes. In contrast to the previous articles, the self-enforcing contract may exhibit overinvestment.

While the previous studies were mostly concerned with explaining the level of expropriation, Aguiar, Amador, and Gopinath (2006) focus on its cyclical properties. The role of the government is to insure the wages of domestic workers, who do not have access to financial markets and are subject to output risk. The government can obtain resources from taxing the MNC's profits (which the authors interpret as an indirect form of expropriation) and redistributing them as lump sum transfers to workers. They show that the

combination of lack of commitment and incomplete markets results in policy that generates amplification and prolongation of shocks to output. The government's credibility not to expropriate is scarcest when the economy is in a recession, which depresses investment and prolongs downturns. If the government had the ability to commit to a policy sequence, it would use countercyclical and undistortionary taxes. When it lacks commitment, it distorts foreign investment in bad times and cannot achieve full insurance.

The articles mentioned previously have a common characteristic: governments are benevolent. Policymakers want to maximize welfare (or national output), but they cannot achieve the first best because they are tempted to expropriate too much *ex post*. The lack of commitment to policy is the main friction in these studies. One aspect that they do not address is that such policies cause redistribution within agents in the host country. Interaction between powerful groups that compete to gain control and appropriate national resources can lead to another source of inefficiencies that distort investment decisions. The political economy game in which a "tragedy of commons" arises, resulting in suboptimal investment levels, is studied in a series of articles by Tornell and co-authors. Tornell and Velasco (1992) explain why, even though poor countries have a higher marginal productivity of capital, they are subject to capital flights toward richer countries. Their main idea is that in countries with weak institutions and poor protection of property rights, some groups can appropriate the returns of other groups by controlling fiscal policy. By investing some of their assets in foreign markets, domestic agents can ensure private access and avoid "overappropriation" (i.e., indirect expropriation) from other groups. Tornell and Lane (1999) use a similar environment to explain how this dynamic interaction between groups leads to a slowdown in economic growth. They show that dilution in the concentration of power ameliorates this problem, a result in contrast to the traditional wisdom in models with a common pool problem. The explanation is based on the fact that groups do not cooperate. So as the number of groups increases, each group must reduce its appropriation rate to make sure its rate of return is no lower than that of its outside option (i.e., investing in the more inefficient informal sector). These articles are closer to ours, due to their emphasis on political factors such as disagreement over redistributive policy across the population of the host country.

Our article is also closely related to Amador (2003), who finds that government borrowing is inefficiently high if there is some probability of losing power in the future. It is also related to Azzimonti (2005), who provides microfoundations in a probabilistic voting model for the shortsightedness of parties in an environment in which the government chooses public investment and the provision of a consumable public good. The underlying force driving the inefficiency of policy is common to all three articles; the difference being that in Azzimonti's environment, investment is chosen by the party in power

and taxes are imposed on the domestic group. In the current article, investment is made by foreign investors who have an outside option and the proceeds of expropriating part of it are distributed to a specific group. The article is also related to a body of literature characterizing equilibria that rules out reputation. See, for example, Azzimonti, Sarte, and Soares (2006); Quadrini (2005); or Klein, Krusell, and Ríos-Rull (2004), which characterize Markov-perfect equilibria (the analogous to our equilibrium concept in an infinite-horizon economy). Finally, it is related to a set of political economy models in which redistributive uncertainty results in inefficiencies (see Lizzeri 1999, Alesina and Tabellini 1990, or Battaglini and Coate forthcoming).

#### 4. THE EXPROPRIATION GAME

In this section, we describe the environment and derive our main results. We proceed by specifying the timing and then solving for the subgame-perfect equilibrium through backward induction.

##### The Environment

The economy is populated by a government, domestic agents, and foreign capitalists. Agents live for two periods. They are endowed with both one unit of time each period and  $e$  units of the only consumption good in the economy. We can interpret  $e$  as an agent's share of local production (which is not explicitly modeled). Additional output can be produced by identical firms interacting in competitive markets. Shares of these firms are owned by foreign investors who supply capital (denoted by  $K$ ) but not labor. The opportunity cost of installing capital is given by the world interest rate  $r^*$  that could be obtained by investing the funds in riskless bonds in international financial markets. Following Eaton and Gersovitz (1984), we will assume that "managerial services" are the intangible assets that foreign investors bring to the production process: organizational skills, technological knowledge, access to overseas markets, etc. The main difference between managerial skills and physical capital is that the former cannot be expropriated by the government. More importantly, if expropriation occurs, the managerial services of the foreign capitalist are no longer available for production. This implies that any capital expropriated by the government becomes unproductive, because either the domestic worker does not have the necessary skills to run production by himself or because the capital installed by the foreign investor was specific to the manager's skills. Therefore, it cannot be used to produce using the foreign technology.

Production requires two inputs, domestic labor  $L$  and capital  $K$  and uses the following technology:

**Assumption 1** *The production function satisfies*

$$f(K, L) = AK^\alpha L^{1-\alpha}.$$

Domestic agents (the *workers*) supply labor inelastically at the competitive wage rate  $w$ , and have no international mobility. Each belongs to one of  $n$  groups (we can also interpret a group as a collection of individuals residing in one of  $n$  districts), with total population normalized to one. Agents are identical, so for symmetry we will assume that there is a measure  $\frac{1}{n}$  of agents per group or district. Their preferences over consumption satisfy standard assumptions, as shown below.

**Assumption 2** *Instantaneous utility is logarithmic and additively separable, and agents discount the future at rate  $\beta \in (0, 1)$ . Thus,*

$$u(c_1, c_2) = \log(c_1) + \beta \log(c_2).$$

As described in Section 2, expropriation can take two forms: (1) direct expropriation, in which the government takes part or all of the already installed capital, and (2) creeping expropriation, in which transnational corporations are required to pay bribes or licenses that allow them to produce in the host country. Notice that while the former takes place *after* investment decisions have been made, the latter takes place beforehand. This asymmetry will have important implications regarding the effects of electoral uncertainty on expropriation rates.

We will model both forms of expropriation as proportional rates. The government will demand a proportion  $\tau$  out of total investment to be paid by any firm that intends to produce in the country. Notice that we refer to it as a bribe, but in terms of the modeling technique, it is observationally equivalent to an investment tax. The rate at which installed capital is expropriated ex post will be denoted by  $\theta$ . Notice that activities are homogeneous in this model, so the host country expropriates all activities at the same rate.<sup>4</sup>

The resources collected by either form of expropriation are used to provide lump sum transfers that can be targeted toward different groups in the population. We will denote the transfer that group  $i$  receives, as a function of the expropriation rate, by  $T^i(\theta)$ .

**Assumption 3** *A group's objective, when in power, is to maximize the utility of its members.*

The government expropriates FDI and distributes the proceeds between agents residing in different districts in the country. Two remarks are relevant at this point.

First, even though the expropriation rate by acting as an investment tax distorts the optimal allocation of capital, it serves as an instrument to transfer resources from foreign investors to local workers. The government, who only

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<sup>4</sup>We are abstracting from the fact that some sectors are more vulnerable to expropriation than others.

cares about the well-being of domestic agents, might be willing to compromise future production (that will be reduced because inflows of  $K$  decrease) in order to collect part of the dividends that would otherwise go to the hands of foreigners. This tradeoff will determine the optimal level of creeping expropriation chosen over time. Notice that the dynamic nature of the game implies that, in general, it would not be optimal for the government to require bribes at a level where investment in the country drops to zero (that is, a  $\tau$  that drives  $I = 0$ ). Given the assumptions on technology, it would also never be optimal to expropriate capital completely *ex post*. An important assumption behind this result is the fact that domestic agents cannot produce with the transnational corporation's technology, as described previously.

This environment is a stylized version of an economy where output can be produced with a domestic technology and a (possibly superior) foreign technology. Because we want to focus on the problem of expropriation, rather than on the dynamics of the labor market, we assume that agents are simply endowed with  $e$  units of the good and supply labor, inelastically, to foreign firms. It would be interesting to analyze, as an extension, the case in which labor decisions are endogenous and domestic firms compete with transnational corporations for domestic labor. Reallocation of workers from one sector to another after expropriation will cause some distortions—and probably benefit some types of workers while hurting others—that are ignored in the following analysis.

Secondly, since transfers can be targeted toward specific districts, it is reasonable to expect each region to lobby in order to obtain them. The disagreement over how the budget should be allocated across districts can be resolved by some form of voting. One way to model this would be by assuming that there are  $n$  parties, each one representing a district that alternates in power according to a Markov process. Amador (2003) presents a model with symmetric parties that want to maximize the group's consumption and face some probability of being in power at each point in time (election dates are uncertain). Once in power, the elected party chooses policy so as to maximize the utility of its constituency. Azzimonti (2005) provides microfoundations for the probabilities in a model of endogenous voting (but in which elections occur at regular intervals). An alternative approach, presented in Battaglini and Coate (forthcoming), assumes that legislators representing a district bargain in congress over redistribution of the budget. These approaches share the property that redistributive uncertainty—captured by the probability of being the decisionmaker in the following period—plays a key role in the level of distortions imposed by policy because of the shortsightedness it introduces.

The sequence of events can be divided into four stages as described below.

### Timing

- Period 1:
  1. Creeping Expropriation Stage: the group in power decides the level of bribes they will demand from foreign investors,  $\tau$ .
  2. Investment Stage: foreign firms decide how much to invest,  $I$ , in the host country. Bribes are collected, targeted transfers  $T_1^i$  are made, and consumption  $c_1$  takes place.
- Period 2:
  1. Expropriation Stage: one of the groups gains control of the government and expropriates a proportion  $\theta$  of already installed capital.
  2. Post-Expropriation Stage: the good is produced, wages are paid, targeted transfers  $T_2^i$  are made, and consumption  $c_2$  takes place.

Notice that we are assuming that there is no transnational corporation in Period 1, so consumption at that point will be the sum of the endowment an agent possesses and the transfers it obtains from the government (that collected resources in the form of creeping expropriation). We made this assumption to simplify the exposition, but the model can easily be extended to a case in which the government can also expropriate capital installed in the first period of a firm that invested in the country at some point in the past.

We will solve the problem by backward induction, starting from the last stage in Period 2.

### The Second Period

#### *Post-Expropriation Stage*

This subsection describes the optimization problem faced by the manager of a representative firm. Considering a particular specification for technology and preferences, it characterizes a competitive equilibrium given the expropriation rate and transfers for this economy.

At this stage, the government has already expropriated  $\theta K$  out of the total capital stock, hence the firm produces with the remaining amount of capital  $(1 - \theta)K \equiv \tilde{K}$ . Firms take prices (the wage rate for local workers  $w$ ) as given, and demand labor in the local market to maximize profits

$$\max f(\tilde{K}, L) + (1 - \delta)\tilde{K} - wL,$$

where  $\delta$  denotes the depreciation rate of capital.

The FOC is

$$f_L(\tilde{K}, L) = w,$$

so labor is paid its marginal productivity. For our given production function, this is equivalent to

$$(1 - \alpha) A \tilde{K}^\alpha L^{-\alpha} = w.$$

Notice that since  $\tilde{K} \leq K$ , the wage rate goes down after an expropriation. This occurs because with a lower level of capital installed, workers are less productive (this would hold for any arbitrary function that satisfies  $f_{LK} > 0$ ).

Recall that agents do not have access to capital markets, so their only income is wage income  $wl$ , where  $l = 1$  is the individual labor supply, plus any transfers  $T_2^i$  received from the government. Their budget constraint can be written as

$$c_2^i = e + w + T_2^i.$$

**Proposition 1** *A competitive equilibrium given policy  $\{\theta, \{T_2^i(\theta)\}_{i=1}^n\}$ , is a set of prices  $\{w\}$  and allocations  $\{L, \{c_2^i\}_{i=1}^n\}$  such that*

1. *consumption of agent  $i$  satisfies*

$$c_2^i = e + w + T_2^i(\theta),$$

2. *labor supply is  $L = 1$ ,*

3. *wages are competitive*

$$w = (1 - \alpha) A H^n \tilde{K}^\alpha L^{-\alpha}, \text{ and} \tag{1}$$

4. *the government's budget constraint holds*

$$\sum_{i=1}^n \frac{1}{n} T_2^i(\theta) = \theta K.$$

### **Expropriation Stage**

This is the stage in which after a group gains power, it chooses the proportion  $\theta$  of total capital to be expropriated.<sup>5</sup> A group's objective is to maximize the utility of its supporters. This implies that, while they do not put any weight on the welfare of other regions or groups, policymakers are "benevolent planners" for their own region.<sup>6</sup>

<sup>5</sup> Because groups are homogeneous, we can focus on the problem of a representative one.

<sup>6</sup> In the political economy literature, these policymakers are referred to as *partisan*. An alternative approach, also studied in the literature, assumes that the leaders' sole objective is to maximize their probability of controlling the government because they either obtain some ego-rents from being in power or they can redistribute resources to themselves (*kleptocrats*).

It is assumed that there is no commitment technology: once in power, the group will choose what is best for its constituency from that point on, taking the capital stock as given. This implies that promises made before the political uncertainty is resolved are not credible. In particular, groups cannot credibly promise to transfer resources to other regions in the future. As a result, it is in no group's interest to provide transfers to regions different than its own once it is in power. Mathematically, this implies that group  $i$  will optimally set

$$T_2^j = 0 \text{ for } j \neq i.$$

This is the case because (1) groups do not derive utility from the well-being of other regions, and (2) because they cannot sign binding contracts with other groups over policy.

The government balances its budget, so the total amount expropriated is divided among the members of the group controlling the government. In other words,

$$\frac{1}{n} T_2^i = \theta K.$$

The maximization problem of the group in power at this point (where we have omitted the  $i$  subscripts for clarity) is

$$\begin{aligned} \max_{\theta} u(c_2) \quad \text{s.t.}, \\ c_2 &= e + w + T_2, \\ T_2 &= n\theta K, \text{ and} \\ \theta &\leq 1, \end{aligned}$$

where  $w$  satisfies equation (1). Replacing the constraints above, we can simplify the objective function to  $u(e + w + n\theta K)$ . This implies that at the second stage the government maximizes utility by maximizing per capita consumption of the group it represents, so the problem becomes simply

$$\max_{\theta \leq 1} \{e + w + n\theta K\}.$$

The first-order condition is

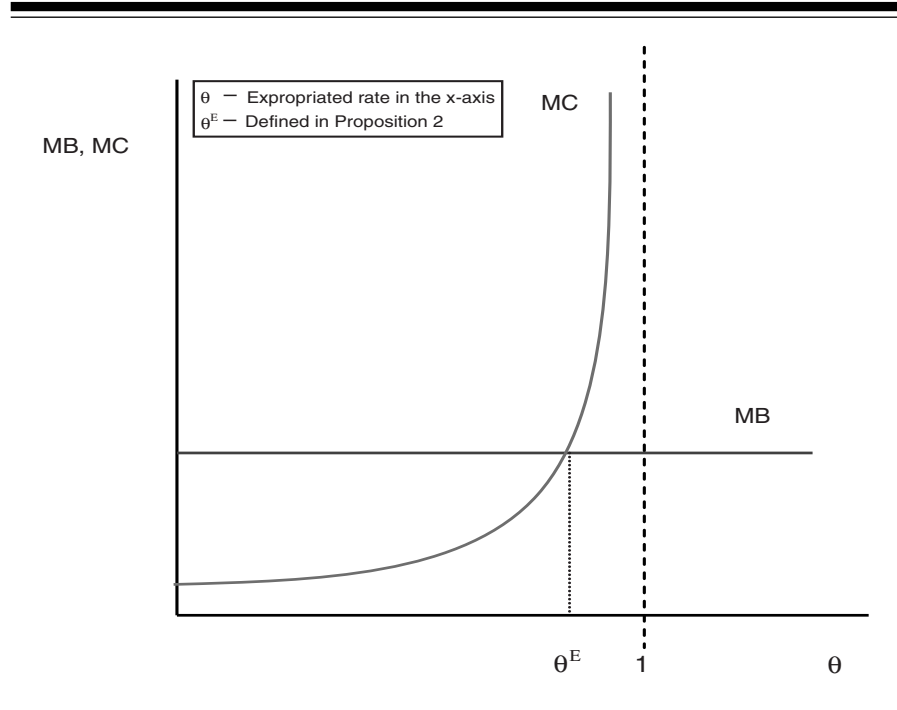
$$\frac{\partial w}{\partial \theta} + \frac{\partial T_2}{\partial \theta} \leq 0 \quad (= 0 \text{ if } \theta < 1).$$

The marginal benefit of increasing the expropriation rate is given by the extra consumption that can be afforded by an increase in the transfer,

$$MB \equiv \frac{\partial T_2}{\partial \theta} = nK > 0.$$



**Figure 1 Marginal Benefits (MB) and Costs of Expropriation (MC)**



Notice that the marginal benefit is independent of the level of  $\theta$ . Graphically, it can be represented by a horizontal line (see Figure 1).

The marginal cost is given by a decrease in the agent's labor income due to a reduction in the domestic wage rate,

$$\begin{aligned}
 MC &\equiv -\frac{\partial w}{\partial \theta} = -\frac{\partial w}{\partial \tilde{K}} \frac{\partial \tilde{K}}{\partial \theta}, \text{ and} \\
 &= (1 - \alpha) \alpha A (1 - \theta)^{\alpha-1} K^\alpha.
 \end{aligned}$$

This function is increasing and convex in the rate of expropriation as long as  $\alpha < 1$ , as typically assumed with a Cobb-Douglas production technology. Moreover, because the MC becomes infinitely large as  $\theta \rightarrow 1$ , the intersection between the two curves will occur at an interior point (again, refer to Figure 1).

The optimal level of expropriation is found by equating the marginal costs and benefits of increasing  $\theta$ .

$$(1 - \alpha) \alpha A (1 - \theta)^{\alpha-1} K^\alpha = nK.$$

**Proposition 2** *The optimal expropriation rate is given by*

$$\theta^E = 1 - \frac{1}{K} \left[ \frac{1}{n} (1 - \alpha) \alpha A \right]^{\frac{1}{1-\alpha}}.$$

*Thus, it is not optimal for any group in power to fully expropriate foreign investment. That is,  $\theta^E < 1$ .*

Since all other groups are identical, the amount of expropriation in this economy is independent of the identity of the group in power. An interesting extension would be to analyze the case in which sectors were heterogeneous, either in their capital intensity or in the ability of the government to expropriate them. In this case, workers would also be heterogeneous and disagree on the rate of expropriation (and not only on where to target the transfers).

### The First Period

Recall that there are two relevant stages in this period: investment and creeping expropriation stages. We discuss them in the following section.

#### *Investment Stage*

We now move to the decision problem of a foreign firm considering whether the project is worth pursuing in the host country. Expropriation affects this decision on two margins. On the one hand, the cost of investment is increased by the proportion of bribes that will need to be paid to the group in power. On the other hand, the future returns of such investment will be reduced by the fact that some proportion of capital will be expropriated in the second period.

Firms discount the future at the rate  $\frac{1}{1+r^*}$ , as  $r^*$  represents their outside option. The maximization problem faced by an investor at this stage is

$$\begin{aligned} \max_I & -I(1 + \tau) + \frac{1}{1 + r^*} \pi(I) \text{ s.t.,} \\ \pi(I) & = f(\tilde{I}, L) + (1 - \delta)\tilde{I} - wL, \text{ and} \\ \tilde{I} & = (1 - \theta)I. \end{aligned}$$

The cost of the investment is incurred today, while the benefits  $\pi(I)$  are received next period, which is why they are discounted. The investor knows that for each unit of investment, he will need to pay a proportion  $\tau$  today in bribes or permits. He also knows that for each unit of capital installed, only a fraction  $(1 - \theta)$  will be productive: the rest is expropriated by the host country.

The assumption of atomistic competitive investors implies that the action of one of them does not affect the level of expropriation. In other words, each takes  $\theta$  and  $\tau$  as given (for the case where the transnational corporation has monopoly, and hence bargaining power, see Doyle and van Wijnbergen 1984

or Thomas and Worrall 1994). The first-order condition for an investor is

$$\underbrace{-(1 + \tau)}_{MC} + \underbrace{\frac{1}{1 + r^*} \frac{\partial \pi(I)}{\partial I}}_{MB} = 0.$$

Therefore, the transnational corporation equates the marginal cost of investment to the discounted value of the marginal benefit received from its investment opportunity. A marginal increase in installed capital causes an increase in benefits of

$$\frac{\partial \pi(I)}{\partial I} = (1 - \theta) \left[ f_I(\tilde{I}, L) + (1 - \delta) \right].$$

The right-hand side is the marginal increase in production, plus the marginal increase in undepreciated capital, all multiplied by the proportion  $(1 - \theta)$  that can be utilized. We can interpret  $\theta \left[ f_I(\tilde{I}, L) + (1 - \delta) \right]$  as the opportunity cost of expropriation: it represents the amount of potential benefits that the foreign investor could have obtained if it was not expropriated.

Notice that this value introduces a wedge-distorting investment decision: it produces inefficiencies. This can be seen more clearly from the following equation in which we have replaced the marginal benefit and rearranged the optimality condition:

$$f_I(\tilde{I}, L) + (1 - \delta) = (1 + r^*) (1 + \tau) \frac{1}{(1 - \theta)}.$$

Under our functional forms and noting that in equilibrium  $I = K$ , the optimality condition becomes

$$\alpha ((1 - \theta)K)^{\alpha-1} A + (1 - \delta) = \frac{(1 + r^*)(1 + \tau)}{(1 - \theta)}.$$

**Lemma 1** *The optimal level of investment under expropriation is*

$$K^E = \left( \frac{\alpha A (1 - \theta)^\alpha}{(1 + r^*) (1 + \tau) - (1 - \delta)(1 - \theta)} \right)^{\frac{1}{1-\alpha}}.$$

If there was no expropriation, a foreign firm would invest  $K^{NE}$  (where NE stands for “no expropriation”).

$$K^{NE} = \left( \frac{\alpha A}{(1 + r^*) (1 + \tau) - (1 - \delta)} \right)^{\frac{1}{1-\alpha}} > K^E.$$

As expected, expropriation discourages investment in the host country. We can now replace  $\theta$  by  $\theta^E$  to find the value of FDI in equilibrium,

$$K^E = \frac{\phi(n)}{1 + \tau},$$

where

$$\phi(n) = \frac{1}{1+r^*} \left( A\alpha \frac{(1-\alpha)}{n} \right)^{\frac{1}{1-\alpha}} \left[ 1 - \delta + \frac{n}{1-\alpha} \right]. \quad (2)$$

### *Creeping Expropriation Stage*

At this stage, it is the group in power in Period 1 that decides the level of bribes  $\tau$ , which it will demand from potential investors. There are two main differences between the tradeoffs faced by policymakers at this point, relative to those faced in the second period, when choosing (ex post) direct expropriation. First, because capital has not yet been installed, FDI is more “elastic.” Given the outside opportunities faced by investors, this imposes a constraint on the level of bribes, which in principle, should decrease the temptation to extract too many resources from multinational corporations. Because of this, we would expect creeping expropriation to be less harmful than direct expropriation. On the other hand, the group decides on the level of  $\tau$  without knowing whether it will be in power next period. This introduces uncertainty over who will have control of the expropriation technology in the second period. More importantly, it introduces uncertainty on the identity of the group receiving the benefits of such expropriation. With probability  $1 - p$ , another group gains control and distributes resources only toward its own region. This second difference with respect to direct expropriation, given by the existence of *redistributional uncertainty*, induces greater expropriation in the present through bribes by *any* group in power in Period 1. Therefore, it is not clear which type of expropriation is more distortive at the end.

Before solving for the optimal level of  $\tau$ , we need to specify the process by which groups gain control of the government. In this article, we will assume that groups alternate in power according to a stochastic Markov process: the probability of being the decisionmaker next period, given that the group in power today is denoted by  $p$ . Notice that this reduced-form specification is silent on whether groups gain control via a democratic process in which parties compete for elections, or the turnover follows from revolutions and coups following a nondemocratic (and possibly violent) process.

Consider the problem faced by a representative group in power in Period 1. It needs to choose the creeping expropriation rate  $\tau$  on FDI inflows, taking as given the behavior of the domestic sector and foreign firms, as well as competitive prices and aggregates. In particular, it needs to take into account the effects of the bribes and other forms of creeping expropriation chosen based on the following:

1. The consumption of its constituency when the group is in power, because it is maximizing its utility

$$c_1 = e + T_1, \text{ and}$$

$$c_2 = e + w + T_2.$$

2. The consumption of its constituency when the group is *out* of power, because there is a probability that next period a different group is in power,

$$\tilde{c}_2 = e + w.$$

3. FDI inflows,  $I = K^E$  (in equilibrium), because foreign investors decide after knowing the level of  $\tau$

$$K^E = \frac{\phi(n)}{1 + \tau},$$

where  $\phi(n)$  is defined in equation (2).

4. Transfers to the region it represents, via the government budget constraint

$$\begin{aligned} T_1 &= \tau n K^E \text{ and} \\ T_2 &= \theta^E n K^E. \end{aligned}$$

5. Second period's expropriation rate  $\theta^E$ ,

$$\theta^E = 1 - \frac{1}{K^E} \left[ \frac{1}{n} (1 - \alpha) \alpha A \right]^{\frac{1}{1-\alpha}}.$$

6. Equilibrium prices, because they affect their constituency's consumption

$$w = (1 - \alpha) A [(1 - \theta^E) K^E]^\alpha.$$

The group solves

$$\max_{\tau} u(c_1) + \beta \{ p u(c_2) + (1 - p) u(\tilde{c}_2) \},$$

subject to the conditions listed above.

The first-order condition reads as

$$u_c(c_1) \frac{dc_1}{d\tau} + \beta \left\{ p u_c(c_2) \frac{dc_2}{d\tau} + (1 - p) u_c(\tilde{c}_2) \frac{d\tilde{c}_2}{d\tau} \right\} = 0.$$

When the rate of creeping expropriation increases today, there is a direct effect in agents' consumption—captured in the first term of the expression—since those favored by the group in control receive an increase in the transfer of

$$\frac{dT_1}{d\tau} = \frac{n K^E}{1 + \tau}.$$

Firms react to a larger  $\tau$  by cutting FDI,

$$\frac{dI}{d\tau} = - \frac{K^E}{1 + \tau}.$$

This reduces the amount of capital available for production next period (recall that  $\frac{dI}{d\tau} = \frac{dK^E}{d\tau}$ ), which modifies tomorrow's consumption because the next policymaker will face a lower tax base, and thus be forced to reduce the level of transfers  $T_2$ . Moreover, from condition 5 this triggers a reduction in direct expropriation ( $\theta^E$ ) as well. The total effect in transfers is given by

$$\begin{aligned} \frac{dT_2}{d\tau} &= n \left[ K^E \frac{d\theta^E}{d\tau} + \theta^E \frac{dK^E}{d\tau} \right] \text{ and} \\ &= -\frac{nK^E}{1+\tau}. \end{aligned}$$

Notice that since  $(1-\theta^E)K^E$  is independent of  $\tau$  (see condition 5 above), then from condition 6 so is  $w$ . Because second period wages are unaffected by creeping expropriation, the level of consumption when a group is out of power is independent of  $\tau$ . In other words,  $\frac{d\bar{c}_2}{d\tau} = 0$ , so the last term in the first-order condition cancels out. The fact that  $\bar{c}_2$  is independent of the level of bribes is a result of the particular assumption on preferences, because under logarithmic utility income and substitution effects cancel out. This results in optimal direct expropriation rates being inversely proportional to the stock of capital, so  $(1-\theta)K$  is constant and independent of  $\tau$ . Replacing  $u$  by a logarithmic utility, we obtain the following lemma:

**Lemma 2** *Under assumption 2, redistributive uncertainty introduces a wedge in the efficient growth rate of consumption since, in the political equilibrium*

$$c_2 = \beta p c_1.$$

Absent the redistributive uncertainty (i.e., where groups act in a coordinated fashion) the government would choose policy so that  $c_2 = \beta c_1$ . Because  $p < 1$ , the equation above shows that the ratio of consumption between the two periods is suboptimally low. In other words, the political uncertainty makes policymakers *too impatient*.

**Proposition 3** *Under assumptions 1 and 2, the optimal rate of creeping expropriation is given by*

$$\tau = \frac{\gamma(n) - e\beta p}{(1 + \beta p)n\phi(n) - \gamma(n) + e\beta p},$$

where

$$\gamma(n) = n\phi(n) \left[ 1 + \frac{(1+r^*)(1-\alpha)}{\alpha \left[ 1 - \delta + \frac{n}{1-\alpha} \right]} \right] + e.$$

### Expropriation and Political Instability

Political instability refers to the frequency by which groups alternate in power. Countries facing high turnover rates are those where  $p$  is relatively small. Why is this the case? Because the probability that any given group remains in control of the government in the second period is low.

In this section, we analyze the implications of political instability on the level of expropriation predicted by the model and contrast it to what the empirical literature has found.

Proposition 4 characterizes how each rate of expropriation changes with  $p$ .

**Proposition 4** *Under assumptions 1 and 2, we can show that*

1. *creeping expropriation is larger in countries with greater political instability (i.e., low  $p$ )*

$$\frac{d\tau}{dp} < 0, \text{ and}$$

2. *direct expropriation is lower in countries with greater political instability*

$$\frac{d\theta}{dp} > 0.$$

We can understand the intuition behind the negative relationship between the amount of bribes and permits demanded by foreign investors  $\tau$ , and the probability of keeping control of the government  $p$ , by looking at the expression in Lemma 2. When the group in power faces relatively low political instability, the chances of being able to appropriate transfers next period are large. In this case, policymakers want to increase relative consumption (i.e., the ratio  $\frac{c_2}{c_1}$ ). The change in  $p$  is equivalent to an increase in the degree of patience of the group in power. Consumption in the second period becomes relatively cheaper, creating a substitution effect toward less consumption today and more consumption tomorrow. Due to market incompleteness, the only way to achieve this transfer of resources is via a reduction in the degree of creeping expropriation today, by lowering  $T_1$  and, thus,  $c_1$ . Because transnational corporations bring human capital and technology, they are more efficient in production than the local country. It is then optimal for any group to wait and expropriate after investments have been made when  $p$  increases, because the proportion of investment that will not be expropriated ex post will be productive:  $K^E$  increases with lower  $\tau$  rates. If the country had access to borrowing and lending, this effect would be reduced, but nonetheless, present. Therefore, we should expect that countries with low turnover impose

relatively low barriers to FDI inflows—that is, require lower bribes and make construction and production permits cheaper to foreign investors.

The effect of  $p$  on direct expropriation is more subtle and has to do with inter-group manipulation. Because  $\theta$  is chosen after the political uncertainty has been resolved, it is, in principle, unaffected by  $p$ . There is no direct effect of turnover on expropriation ex post. Indirectly, however, increases in  $p$  reduce creeping expropriation in the first period and attract more FDI. In other words,  $K^E$  increases. Because there is a larger tax base, the MB of expropriating in Period 2 increases. The marginal cost also increases but in a lower proportion (this is due to the Cobb-Douglas technology assumption). As a result,  $\theta$  goes up. Another way to understand the intuition behind this second result is to consider the costs and benefits of the group deciding today. If  $p$  is relatively low, another group will gain control in Period 2 with high probability. If the current group happens to be out of power tomorrow (a likely event), direct expropriation imposes large costs in terms of reduced production and no benefits, because no transfers are received. There are incentives, therefore, to manipulate future decisions by affecting the stock of capital inherited by tomorrow's policymaker and make direct expropriation less attractive. From the expression in condition 5, Section 4, this can be achieved by decreasing  $K^E$ . How can the group controlling the government in Period 1 reduce future capital? This can be accomplished by making FDI less attractive—increasing the barriers to its entrance. We should, therefore, expect a negative correlation between political instability and direct expropriation rates.

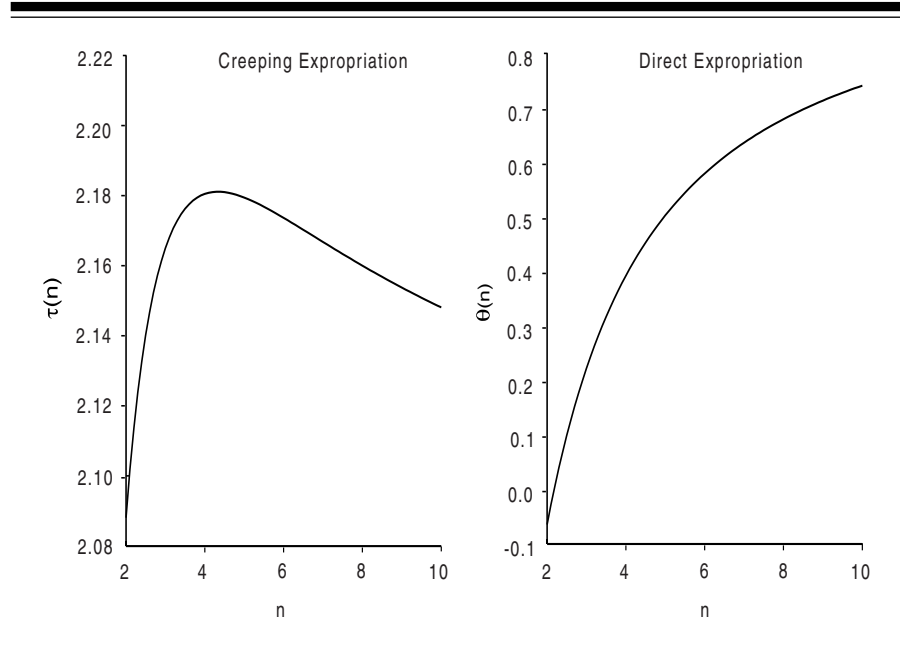
Notice that this analysis is partial in the sense that we are only considering a once-and-for-all investment decision. There is no action that a government in the second period can take to undo the manipulation of the first period policymaker. In an economy with a longer horizon, in which investment decisions were made every period, the group in power in Period 2 could also demand bribes and permits, and thus break the link between first period bribes and the allocation of foreign capital in the country. That possibility would give groups controlling the government in Period 2 an extra degree of freedom. It would then be interesting to extend the analysis to a case with an infinite-horizon economy.

### **Expropriation and Concentration of Power**

The previous section assumed that differences in political instability only correspond to political factors and were independent of other fundamentals of the economy. In a model where such probability was endogenized, we would expect  $p$  to be related to the number of groups in the economy,  $n$ . If there were many groups fighting for power, given the same aggregate size of the population, the probability of keeping control of the government would probably be low, and we already know the effects this reduction has on expropriation. On the other hand, a larger value of  $n$  implies that if a given group happened



**Figure 2 Expropriation and Concentration of Power**



to gain control, then the benefits of expropriation *per member* in the group would increase because per capita transfers would be larger. This implies that, in principle, the relation between concentration of power and expropriation could be non-monotonic.

We have calculated how creeping expropriation changes as we reduce the concentration of power for a numerical example (the parameter values were not calibrated but rather chosen to illustrate our point). The probability of staying in power faced by any group is assumed to satisfy

$$p = \frac{1}{n} + \xi,$$

where  $\xi$  represents an “incumbency advantage” term, reflecting the fact that the group in power has greater chances to gain control next period than any other group in the opposition. The political economy literature has documented the existence of such an advantage in democratic elections. In more authoritarian systems, we often see groups or families in control of the government for long periods of time because they have access to military force and other means of repression. Increases in  $\xi$  can be interpreted as changes in political instability not related to the concentration of power, which were studied in the previous section, whereas the effects of concentration can be analyzed separately by looking at the effects of changes in  $n$ .

Inspection of Figure 2 tells us that when there is relatively large concentration of power (i.e.,  $n$  close to 2), increases in the number of groups result in more expropriation of both types. This happens because larger values of  $n$  reduce  $p$  and, from the intuition in the previous section, this encourages creeping expropriation activities, that is, rises in  $\tau$ . On the other hand, when there is little concentration of power, increases in the number of groups in a given economy result in *lower* levels of  $\tau$ . While the probability of remaining in power decreases with  $n$ , transfers per capita increase, but in a larger proportion and, therefore, dominate. Even though each group is less likely to stay in power, the benefits of expropriating in Period 1 more than compensate the costs driven by an increase in the risk of losing control of the government in Period 2. This result is different from the one found in the previous section, and it gives a direct testable implication of the model. If countries have greater political instability because there is low incumbency advantage, more creeping expropriation is to be expected. If, on the other hand, it is due to the composition of competing groups, and there is a relatively large number of them, then we should expect *less* creeping expropriation as political instability increases.

## 5. CONCLUSIONS

We reviewed the empirical evidence on the effects of expropriation on FDI inflows, mainly focusing on developing countries. We then discussed theoretical models explaining how the quality of institutions affects FDI and growth. In particular, we described how the different frictions present in the political process result in policies that discourage FDI inflows. Finally, we presented a simple model that sheds some light on the effects of expropriation on FDI under: (1) lack of commitment to policy from the government, (2) redistributive uncertainty resulting from stochastic alternation of groups in power, and (3) the interaction between alternative forms of expropriation. The main contribution of this work is twofold: the analysis of a model in which both direct and indirect forms of expropriation are present and the study of how the two types of expropriation relate to political instability. We also discussed the effects of the concentration of power on the incentives to use each type of expropriation and their resulting effects on investment.

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