Mode of International Investment and Endogenous Risk of Expropriation

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Abstract

In this paper, we develop a politico-economic model to analyze the relationship between the mode of international investment and institutional quality of the host country. Foreign investors from the North can either purchase productive assets in the South and transfer their capital within multinational firms or they can form joint ventures with local asset owners. The South is ruled by an autocratic elite that uses its political power to implement expropriatory policies. In an integrated firm the risk of expropriation targets the foreign investor, whereas in a joint venture the domestic agent bears the risk. This effect lowers the incentives for specific investments in an integrated firm and it distorts the decision between a joint venture and integrated production. In this setting, we determine the equilibrium institutional quality of the host county, i.e. the risk of expropriation and the resulting pattern of international production. We then analyze how globalization, which is reflected in a decline in investment costs, influences institutional quality.

JEL classification: F21, L22, P48

Keywords: Foreign direct investment, joint venture, property rights, expropriation

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1 Introduction

Recent literature on the organization of international firms has emphasized the role of property rights in a world with incomplete contracts and opportunistic behavior. The key insight from the property rights approach is that ownership matters as it improves the incentives to undertake specific investments. In a joint relationship that is characterized by incomplete contracts and hold-up, ownership of a production asset entails a better outside option and thereby raises the bargaining power when it comes to surplus sharing.\(^1\) Considering a production technology with two different inputs, one owned by a firm in the North and one by a firm in the South, Antras and Helpman (2004) show that, depending on their productivity, firms choose different modes of international production. Low-productivity firms stay in the North, firms with intermediate productivities outsource to the South, whereas high-productivity firms choose integrated production in the form of foreign direct investments. The mode of international production also depends on the relative importance of the specific inputs supplied by firms from the North.

The property rights mechanism can only work adequately if asset owners are protected against interventions by third parties, most notably the government of the host country. However, many countries in the South are plagued by insufficient institutions, poorly protected property rights and sizable expropriation risks. For example, the average scores of Sub-Saharan Africa and Central Asia in the Legal and Political Environment Index of the International Property Rights Index Report stand out as lowest in comparison with other regions in the world.\(^2\) Notably, a large part of the countries with weak economic institutions can be characterized as non-democratic. According to a study by Li (2010), more than four of five expropriatory acts towards foreign investors occur in autocratic regimes. In the year 2008, Central Asian and the African countries constitute more than half of the world’s authoritarian


\(^{2}\)The Legal and Political Environment Index consists of four sub-components, namely judicial independence, rule of law, political stability, and control of corruption (see International Property Rights Index 2010 Report). A similar picture emerges from the investment profile index of the International Country Risk Guide, which captures a broader measure of the expropriation risk.
regimes (see The EIU’s Index of Democracy 2008).³

Ownership provides far weaker residual control rights and investment incentives in such countries compared to other locations with better institutions. Obviously, this has consequences for the organizational form of international production. The institutional quality of host countries, in turn, is not exogenously given. Instead, as has been argued by Acemoglu and Robinson (2000, 2006) and Acemoglu et al. (2005), the quality of domestic institutions is the outcome of the political process. To elaborate the mutual relationship between institutional quality and the activities of international investors, we integrate the property rights approach into a politico-economic model that endogenizes institutional quality. In line with the prevalence of non-democratic regimes mentioned above, our model considers situations in which the political power rests with a small elite in the society.⁴

Our model considers a small capital importing economy in the South with heterogeneous local producers. Each producer owns a specific asset whose exogenous productivity differs between the agents. To start up production, producers need foreign capital that is provided by investors of the North. Producer and investor choose between two organizational forms to transfer capital and to produce in the South: The first institutional arrangement is integrated production or foreign direct investment, i.e. the investor purchases the asset in the South and transfers capital internally within the resulting multinational firm. Second, both partners may form a joint venture, in which ownership of the asset rests with the producer in the South.

The ruling elite in the capital importing country in the South determines the institutional framework under which production can take place. Specifically, we assume that the elite sets the institutional quality which in turn determines the expropriation risk, i.e. the degree to which property rights are protected in the country. We assume that only the local asset can be expropriated, but not foreign capital.⁵ In a joint venture, the domestic agent bears the risk of expropriation, whereas this risk is directed towards the foreign investor in the case of an integrated firm. As a consequence, the risk of losing the local asset due to expropriation lowers the incentive to invest

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³In addition, Jensen (2008) shows that democratic regimes have a lower political risk for multinational investors.

⁴See Bourguignon and Verdier (2005); Albornoz et al. (2008); Myerson (2010); Rajan and Zingales (2003); Dadasov et al. (2010) for different approaches to analyze the interaction between financial integration and institutional quality.

⁵Hajzler (2008) documents the distribution of expropriation acts among different sectors across countries. Between 1990 and 2006 40% of all expropriation acts occurred in the primary sector. This may be interpreted as indirect evidence for the relevance of the expropriation of local assets.
capital in the integrated firm, which makes integration less attractive as an organizational form. As foreign investors provide less capital in a joint venture than in an integrated firms, the expropriation risk not only lowers capital transfers at the intensive margin (i.e. within a single integrated firm) but also at the extensive margin (by lowering the number of integrated firms) – even though foreign capital cannot be expropriated. These results find empirical support in the literature: According to Asiedu and Esfahani (2001), US multinationals are more likely to choose whole ownership for their foreign investment projects if the country risk of expropriation declines. Similarly, Henisz (2000) shows empirically that political hazards, which cover regulation policies as well as outright expropriation, decrease the probability of choosing majority-owned plant relative to minority owned joint ventures. However, controlling for the degree of contractual hazards reduces the negative impact of political constraints.  

6 In addition, substantial empirical evidence shows that the risk of expropriation influences international capital inflows or the volume of FDI.  

By determining the quality of domestic institutions, the elite faces a trade-off: On the one hand, weakening the protection of property rights raises the expected share of output that the elite can appropriate. On the other hand, it distorts international capital flows and thereby lowers the output level. From this trade-off, we can derive the equilibrium expropriation risk and its determinants. In particular, we are interested in the effects of economic integration on the institutional quality in the South. Interpreting globalization as a change in investments costs, we show that a decline in the fixed costs of setting up an integrated firm lowers the risk of expropriation whereas a decline in the fixed costs of running a joint venture raises it. A change in marginal costs of capital investments in turn does not influence the equilibrium risk of expropriation. Here, two opposing effects exactly offset each other. On the one hand, the elite is induced to extract more rents, but on the other hand, the distortionary effect of expropriation increases. Finally, we extend our model allowing additionally for expropriation of foreign capital. The basic mechanisms of our model do not change. Instead, a broader risk amplifies the distortion in investment incentives. Hence, the level of investments and aggregate returns are lower than in our basic specification. 

Our paper is related to other contributions on the relationship between

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6There is also some indirect support for our theoretical results through the findings of Wei and Javorcik (2009) and Straub (2008) who show that an increase in corruption shifts the ownership structure from FDI toward joint ventures. Bloom et al. (2009) show that trust and the rule of law promote the decentralization of firms.

7See e.g. Alfaro et al. (2008); Asiedu et al. (2009); Busse and Hefeker (2007); Gastanaga et al. (1998); Papaioannou (2009).
the mode of international investments and institutional quality of domestic countries. In the framework by Che and Facchini (2009) a MNC can choose three different strategies to enter a market, depending on the allocation of the authority within an organization: a licensing agreement, a joint venture and a wholly owned subsidiary. The mode of entry decision depends on the multinational’s knowledge of the local market and on the exogenous expropriation risk by the local partner. The authors show that the relationship between optimal entry mode and institutional environment is non-monotonic. Straub (2008) considers a foreign firm which can either sell its superior technology to a developing country or make a greenfield investment. Expropriation might occur in the form of a default, i.e. the local government refuses to pay the price for the technology. In his model FDI is therefore preferred over debt financing in the presence of political risk. Asiedu and Esfahani (2001) develop a theoretical model that builds on the transaction cost approach to explain the determinants of ownership in international investments. The risk of expropriation, however, enters their model only indirectly as it is assumed to influence the comparative advantage of the local partner in the joint project. Several papers analyze expropriation of foreign investors in the resource extraction sector. For example, Guriev et al. (2009) set up a dynamic framework to explain the fact that expropriations in the oil industry are more likely to occur in periods with a high oil price. They also show empirically that the expropriation risk is higher in countries with weak political institutions. 

2 The Model

We consider a small open economy that is populated by a ruling elite and a continuum of heterogeneous local producers with unit mass. Each producer owns a specific asset, for example a production plant or access to natural resources. The utilization of this asset requires the fixed input of specific skills by the producer such that asset and skills jointly produce a local intermediate input $A$. The productivity of this input differs between producers, and it is distributed according to the cumulative distribution function $G(A)$ over $[0, \infty)$. The local input $A$ can be used productively only in combination with

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8Bohn and Deacon (2000) find a strong negative effect of ownership risk on investments in resource extraction. Hajzler (2008) theoretically explains why the FDI share in resource extraction is disproportionally higher than in other sectors despite the higher risk of expropriation.
capital $K$ according to the Cobb-Douglas production function

$$y = \frac{1}{\theta} K^{\theta} A^{1-\theta}. \quad (1)$$

The economy under consideration does not own any domestic capital, and therefore, has to rely on foreign capital imports for production. Output $y$ is sold on the world market for a given price of one.

Building on Grossman and Hart (1986) and Hart and Moore (1990), we consider a relationship between foreign investor and domestic producer that is subject to a hold-up problem. Both potential partners are not able to contract upon the level of investments \textit{ex ante} or on the returns for this investment. Instead, they bargain about revenue sharing \textit{ex post} after the investment decision has been made. Anticipating that the marginal return on capital not fully accrues to her, the international investor does set capital supply to an inefficiently low level. To mitigate this inefficiency, both partners can transfer ownership of the specific asset from the local producer to the foreign investor. This improves the bargaining position of the international investor when it comes to sharing the joint surplus. Consequently, ownership affects the incentives of the foreign investor to provide capital. If the foreign investor does not own the asset, she will invest less relative to the situation in which the property right rests with her. Depending on the ownership structure, we distinguish the following two ideal organizational forms:

- Disintegrated production (joint venture), i.e. the local producer holds the property right of the asset
- Integrated production (foreign direct investment), i.e. the foreign investor acquires the asset from the local producer

In a joint venture, the foreign investor’s claim over the joint surplus solely results from her ownership of the factor capital. With integration, the foreign investor purchases the local asset and thereby raises her claim. As mentioned in the introduction, we consider a country with a weak institutional environment in the sense that property rights are insecure. This lowers the value of ownership of the asset for the international investor and therefore also influences the choice of the organizational form of international production.

The institutional quality in the host country is characterized by the parameter $\tau \in [0, 1]$ that measures the risk of expropriation. The elite of the host country sets the institutional environment and thereby determines the expropriation risk. For example, the elite may determine how clearly property rights are defined, under which conditions property may be confiscated, or to which degree independent courts may review expropriation decisions.
In the context of our paper, expropriation of an asset implies that the ruling elite instead of the original owner can claim a part of the revenue. The elite chooses the economic institutions to maximize its own income, and this choice determines the risk of expropriation. A convenient and straightforward way to incorporate this mechanism into our framework is to assume that the elite directly controls the probability of expropriation. The risk of expropriation is the same for all asset owners, and it does not depend on the organizational form of production. We assume, for the time being, that this is the only form of institutional distortion. Specifically, it is not possible for the elite to expropriate foreign capital or the specific skills supplied by the local producer. This has an important implication for the organizational form that the foreign investor and the domestic producer choose: Whereas with integration there is a risk for the foreign investor of being expropriated, under a joint venture the domestic agent – as the owner of the asset – bears this risk.

The following sequence of events summarizes the structure of the model:

1. The elite determines $\tau$ to maximize its own expected income
2. Foreign investors and domestic asset owners choose the organizational form that maximizes their expected joint payoff
3. Foreign investors decide how much $K$ they invest
4. Expropriation of individual assets occurs with probability $\tau$
5. Revenues are realized and shared

3 International Investment and Institutional Quality

To solve the model, we proceed by backward induction, beginning with the sharing of revenues in the final stage. Following the property rights approach, bargaining over dividing the joint surplus takes place both in a joint venture and under integration. This is due to the fact that the foreign investor – though being the asset owner under integration – still depends on the

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9See e.g. Besley and Ghatak (2009) for a similar approach.
10This distinguishes the current set-up from the transaction cost approach in which integration completely solves the hold-up problem. For an application of transaction cost models in the context of the international organization of firms see e.g. McLaren (2000) and Grossman and Helpman (2002).
specific skills of the local producer. To simplify the exposition, we refrain
from explicitly modeling the bargaining game. Instead, we assume that each
factor owner’s expected share of the aggregate surplus is exogenously given.
In particular, we apply following notation: $\alpha$ denotes the expected share of
the respective asset owner, $\beta$ is the expected share of the local producer,
which results from his specific skills, and finally $\gamma$ is the expected share of
the capital owner. Note that $\alpha + \beta + \gamma = 1$. A model framework that
yields this outcome is an ultimatum bargaining game in which the owner of
a particular factor of production is chosen with a given probability to make
an offer that can only be accepted or rejected and in which the outside option
of the respective bargaining partner is zero. The parameter $\alpha$, for example,
denotes the probability that the asset owner can make a proposal.

Given this outcome of the revenue sharing stage, the international investor
has to decide on the capital stock she invests. This decision is characterized
by the equality of the marginal return – either from a joint venture or from an
integrated firm – with her opportunity costs. With a frictionless international
capital market, these opportunity costs are given by the world interest rate $R$.
As mentioned above, the investor expects a revenue share of $\gamma$ under the joint
venture. The investment level in this case can be derived from maximizing
$\gamma y_j - RK_j$, where the subscript denotes the case of a joint venture. From
the first order condition of this maximization, we can derive

$$K_j^* = \left( \frac{\gamma}{R} \right)^{\frac{1}{1+\theta}} A \equiv \delta_j A$$

(2)
as the optimal investment level in this case.

With integration, the international investor expects a revenue share of $\alpha +
\gamma - \alpha \tau$ and therefore chooses the investment level to maximize $(\gamma + \alpha - \alpha \tau) y_i -
RK_i$, with $i$ denoting the integrated firm. This yields

$$K_i^* = \left( \frac{\gamma + \alpha - \alpha \tau}{R} \right)^{\frac{1}{1+\theta}} A \equiv \delta_i(\tau) A$$

(3)

Describing the hold-up problem in the previous section, we have emphasized
the relevance of ownership for the investment decision. The optimal invest-
ment level under integration is higher than in a joint venture since in the first
case the foreign investor has the control rights over the asset and thereby re-
ceives a larger share of the revenue. This mitigates the hold-up problem
which distorts the investment decision. According to the above equations
$K_i^* > K_j^*$ for all $\tau \in [0, 1)$. Taking the derivative of (3) with respect to $\tau$, we
find $\partial \delta_i / \partial \tau < 0$. Thus, the investment level in an integrated firm decreases
with the expropriation risk. Figure 1 depicts the investment levels under
the two alternative organizational forms. In a perfect institutional environment – i.e. with no risk of expropriation – investments are highest. As the institutional quality deteriorates \((\tau \text{ increases})\), investments in an integrated firm decline, and finally, in the limit case of a definite expropriation \((\tau = 1)\) ownership of the asset becomes worthless for the international investor, and she chooses the same investment level under both organizational forms. The investment level in a joint venture is not affected by \(\tau\).

![Figure 1: Institutional Quality and Investment Incentives](image)

Inserting (3) and (2) into (1) yields the following output levels:

\[
y_i = \frac{\delta_i(\tau)^\theta}{\theta} A \quad \text{and} \quad y_j = \frac{\delta_j^\theta}{\theta} A .
\]

Turning to the choice of organizational form, we assume that the foreign investor and the domestic producer jointly choose the mode of foreign investment that maximizes the expected joint profit from the bilateral relationship. That is, we allow for side payments between the foreign investor and the domestic producer. With a joint venture, the domestic producer is expropriated with probability \(\tau\) and sticks with an output share of \(\beta\) in this case. In case of non-expropriation, she receives a share \(\alpha + \beta\) of \(y_j\). Expropriation does not target the foreign investor who receives a share \(\gamma\). In an integrated firm, the domestic producer sticks to a share of \(\beta\), whereas the international investor gets \(\alpha + \gamma\) in the case of non-expropriation and \(\gamma\) if the asset is expropriated. As Antras and Helpman (2004), we assume
that international investments cause fixed costs for the international investor that depend on the organizational form. We denote these fixed costs by \( f_i \) and \( f_j \), respectively. The expected joint profits in a joint venture and in an integrated firm are respectively given by

\[
E[\pi_j] = [\tau \beta + (1 - \tau)(\alpha + \beta)] y_j + \gamma y_j - f_j = (1 - \alpha \tau) y_j - f_j \quad \text{and} \quad (5)
\]

\[
E[\pi_i] = \beta y_i + [\tau \gamma + (1 - \tau)(\alpha + \gamma)] y_i - f_i = (1 - \alpha \tau) y_i - f_i. \quad (6)
\]

Because of the fixed costs, minimum productivity levels are required for the different modes of production. We now determine these critical values and thereby obtain the organizational pattern of firms in equilibrium. The minimum productivity level that is needed to establish a joint venture is obtained from the zero profit condition \( E[\pi_j] = 0 \):

\[
A^*_j = \frac{\theta f_j}{\delta^\theta (1 - \alpha \tau)}. \quad (7)
\]

Accordingly, for an integrated firm to be at least as profitable as a joint venture, the following inequality has to hold: \( E[\pi_j] \leq E[\pi_i] \). This inequality determines a second critical productivity level:

\[
A^*_i = \frac{\theta (f_i - f_j)}{(1 - \alpha \tau)(\delta_i(\tau)^\theta - \delta_j^\theta)}. \quad (8)
\]

In what follows, we make a parametric assumption that guarantees \( A^*_i > A^*_j \) for all \( \tau \in [0, 1) \):\(^{11}\)

\[
f_i > \left( \frac{\gamma + \alpha}{\gamma} \right)^{\frac{\theta}{\theta - \alpha}} f_j.
\]

Figure 2 illustrates these productivity cut-off levels, depicting the profit functions (6) and (5) for a given value of \( \tau \). Note that \( E[\pi_i] \) is steeper in \( A \) than \( E[\pi_j] \). The intersection of \( E[\pi_j] \) with the abscissa determines the minimum productivity level \( A^*_j \). All domestic asset owners, who are less productive than \( A^*_j \), do not receive any investments from abroad and are, therefore, inactive on the market. The intersection between \( E[\pi_j] \) and \( E[\pi_i] \) determines the threshold productivity level required for a FDI, \( A^*_i \). In the range \([A^*_j, A^*_i] \) it is not profitable to form an integrated firm due to the higher fixed costs. Therefore, this range corresponds to the firms that form joint ventures in the economy. Finally, expected profits from integration exceed profits from a joint venture for all productivity values higher than \( A^*_i \).

\(^{11}\) \( A^*_i > A^*_j \) if \( \delta^\theta f_i > \delta_i(\tau)^\theta f_j \). Using (3) and (2) and taking into account that \( \delta_i(\tau) \) takes the highest values for \( \tau = 0 \) yields this assumption.
The institutional quality of the host country affects the critical cut-off levels between the different organizational forms, as we show in the following. Taking derivatives of (7) and (8) yields:

\[
\frac{\partial A^*_j}{\partial \tau} = \frac{\alpha}{1 - \alpha \tau} A^*_j \quad \text{and} \quad \frac{\partial A^*_i}{\partial \tau} = \frac{\alpha}{1 - \alpha \tau} A^*_i + \frac{\alpha \delta_i(\tau)\theta}{[\gamma + \alpha(1 - \tau)](1 - \theta) (\delta_i(\tau)\theta - \delta^\theta)} A^*_i. \quad (10)
\]

An increase in \( \tau \) shifts both cut-off levels to the right, with \( \frac{\partial A^*_j}{\partial \tau} > \frac{\partial A^*_i}{\partial \tau} > 0 \). That is, an increase in \( \tau \) has a stronger effect on the value of \( A^*_i \) (critical productivity for an integrated firm) than on \( A^*_j \) (critical productivity for a joint venture). As a result, the mass of integrated firms declines whereas that of joint ventures increases. The intuition behind this result is that an increase in \( \tau \) has two effects: First, it directly lowers expected joint profits in both organizational forms. As the size of this effect is proportional to the productivity of the local asset, it has a stronger influence on \( A^*_j \) than on \( A^*_i \). Second, in an integrated firm an increase in \( \tau \) reduces the quantity of capital supplied by the foreign investor, which additionally lowers output and expected joint profits. The second term in (10) captures this effect.

Figure 2 also demonstrates the influence of \( \tau \) on the cut-off productivities. An exogenous increase in \( \tau \) makes the expected income lines flatter (illustrated by the dashed lines), with a larger absolute change in the slope of \( E[\pi_i] \). As a consequence, there is a stronger shift in \( A^*_i \) than in \( A^*_j \). Hence,
a reallocation of the organizational structure of firms takes place shifting ownership toward joint ventures. Furthermore, since the minimum productivity level that is necessary for market entry rises, the total mass of active firms in the host country declines, which raises the average productivity of the remaining firms.

The influence of the expropriation risk on the critical productivities suggests that a deterioration of the institutional quality harms the economy in the host country. By deriving the effect of a change in $\tau$ on domestic production (GDP) and incomes, we analyze these effects more systematically. GDP – denoted by $Y^G$ – is composed of the aggregate production by joint ventures and integrated firms.

\[
Y^G = \frac{\delta_j^\theta}{\theta} \int_{A_j^*(\tau)} A g(A) dA + \frac{\delta_i^\theta}{\theta} \int_{A_i^*(\tau)} \infty A g(A) dA ,
\]

(11)

where $g(A)$ denotes the density of the corresponding distribution function $G(A)$. From now on, we assume that $G(A)$ follows a Pareto distribution:

\[
G(A) = 1 - \left(\frac{b}{A}\right)^k ,
\]

where $b$ denotes the minimum possible value for $A$, and $k > 2$. With this specification, GDP can be written as follows:

\[
Y^G(\tau) = \frac{kb}{\theta(k-1)} \left[ \delta_j^\theta A_j^*(\tau)^{1-k} + (\delta_i^\theta - \delta_j^\theta) A_i^*(\tau)^{1-k} \right] .
\]

(12)

Differentiating (12) with respect to $\tau$ yields

\[
\frac{\partial Y^G}{\partial \tau} = \frac{\alpha(1-k)}{1-\alpha\tau} Y^G(\tau) - \frac{k^2b^k\alpha\delta_i^\theta \delta_j^\theta}{(k-1)[\gamma + \alpha(1-\tau)](1-\theta)} < 0 .
\]

(13)

Hence, an increase in the risk of expropriation lowers domestic production. However, the impact of a deterioration in institutional quality on incomes of domestic asset owners is not that obvious. A rise in $\tau$ affects the distribution of income through different, partially counteracting, mechanisms. They result due to the distortion in foreign capital investments, which in turn leads to a reallocation of active firms. According to (5) and (6), the aggregate income of domestic producers is given by

\[
Y^P(\tau) = \beta Y^G(\tau) + \frac{\alpha(1-\tau)\delta_i^\theta}{\theta} \int_{A_i^*(\tau)} A g(A) dA
\]

\[
= \beta Y^G(\tau) + \frac{\alpha(1-\tau)\delta_i^\theta kb}{\theta(k-1)} (A_j^*(\tau)^{1-k} - A_i^*(\tau)^{1-k}) .
\]

(14)

\[^{12}\]Since the work by Helpman et al. (2004), the Pareto distribution has been frequently employed in the literature on trade with heterogeneous firms. The assumption $k > 2$ ensures a finite variance of $A$. 

11
In addition to its influence on the income from specific skills $\beta Y^G(\tau)$, an increase in the expropriation risk affects $Y^P(\tau)$ also through its effects on the expected asset income from a joint venture and on the mass of joint ventures.\footnote{When interpreting equation (14), note that it does not contain possible upfront payments between international investors and asset owners in the South.} Whereas the first two effects are negative, the third effect is positive.

We now turn to the first stage of the game and analyze the choice of the institutional environment by the ruling elite. That is, we determine the level of $\tau$ that maximizes the elite’s expected income from expropriating the asset owners. The expected income of the elite can be written as

$$Y^E(\tau) = \tau \alpha Y^G(\tau). \quad (15)$$

The following first order condition determines the optimal institutional quality $\tau$ from the view of the elite:

$$\alpha Y^G(\tau) + \alpha \tau \frac{\partial Y^G(\tau)}{\partial \tau} = 0, \quad (16)$$

where $\frac{\partial Y^G(\tau)}{\partial \tau}$ is given by equation (13). Determining the optimal institutional quality, the elite faces a trade-off: On the one hand, a higher $\tau$ delivers a higher expected share of aggregate output for the elite. On the other hand, it lowers output because of the distortions (i) with respect to the capital transfer within integrated firms and (ii) with respect to the decision between a joint venture and an integrated firm.

Inserting (13) into (16) and rearranging yields

$$\frac{\alpha(1 - \alpha \tau k)}{1 - \alpha \tau} Y^G(\tau) - \frac{k^2 b^k \alpha^2 \tau^\theta A^*_i(\tau)^{1-k}}{(k - 1) [\gamma + \alpha(1 - \tau)](1 - \theta)} = 0. \quad (17)$$

The equilibrium probability of expropriation $\tau^*$ solves (17). We assume that the second order condition $\frac{\partial^2 Y^E(\tau^*)}{\partial \tau^2} < 0$ is satisfied. Inspecting (17) reveals that $\tau^*$ has to satisfy the following necessary condition: $1 - \alpha k \tau^* > 0$. This implies $\tau^* < 1$ for $\alpha k \geq 1$, which is satisfied for sufficiently large values of $\alpha$. Under this condition, we can rule out a confiscatory risk of expropriation. Note further that assuming $\tau = 0$ yields $\frac{\partial Y^E(\tau)}{\partial \tau} > 0$, such that a zero probability of expropriation can also be ruled out.

4 Globalization and Institutional Quality

Given the equilibrium probability of expropriation, we now analyze the elite’s reaction to changes in exogenous parameters. In particular, we focus on the
influence of a better integration of the small country into the world economy. In this respect, we begin with the effects of a decline in the fixed costs of foreign production on $\tau^*$. Taking total derivatives of (27), yields the following results (see Appendix):

$$\frac{d\tau^*}{df_i} > 0 \quad \text{and} \quad \frac{d\tau^*}{df_j} < 0.$$  

Whereas a decline in $f_i$ results in a lower probability of expropriation, a decline in $f_j$ raises $\tau^*$. We can intuitively explain these different effects as follows: A decline in $f_j$ lowers the critical productivity for joint ventures $A^*_j$ and raises the critical productivity for an integrated firm $A^*_i$. This results in a higher mass of joint ventures. Since expropriating joint ventures does not distort foreign capital supply, the elite raises the risk of expropriation such that the institutional environment changes for the worse. On contrary, with a decline in $f_i$ and therewith a drop in $A^*_i$, the mass of integrated firms increases, such that $\tau^*$ declines. In this case, economic integration improves the institutional quality of the host country. Moreover, we know from the previous section that a change in $\tau$ has a stronger effect on $A^*_i$ than on $A^*_j$. Hence, the decline in the risk of expropriation results in more integrated firms (i.e. a higher volume of FDI) and fewer joint ventures. The total mass of active firms increases.

With regard to a simultaneous decline in $f_i$ and $f_j$, we can show the following (see Appendix):

$$d\tau^* \begin{cases} < & \text{if} \frac{df_i}{f_i} \left\{ \begin{array}{c} < \\ > \end{array} \right\} 0 \\ = & \frac{df_j}{f_j} \left\{ \begin{array}{c} < \\ > \end{array} \right\} \end{cases}.$$

A better integration of the country into the world economy therefore improves the institutional quality in the South only if the fixed costs of setting up an integrated firm decline more strongly (in percentage terms) than the fixed costs of a joint venture. In the opposite case, the countries’ institutions change for the worse and the risk of expropriation increases. According to (7) and (8), a simultaneous change in $f_i$ and $f_j$ yields for a given $\tau^*$

$$\frac{dA^*_i}{A^*_i} = \frac{df_i}{f_i} + \left( \frac{df_i}{f_i} - \frac{df_j}{f_j} \right) \frac{f_j}{f_i - f_j} \quad \text{and} \quad \frac{dA^*_j}{A^*_j} = \frac{df_j}{f_j}.$$

Hence, for $df_i/f_i = df_j/f_j$, the relative decline in both cut-offs $A^*_i$ and $A^*_j$ is the same. In this case, the elite does not change institutional quality. If the relative decline in $f_i$ is higher than in $f_j$, however, the influence on the
cut-off for integrated firms is relatively stronger. As in the case of a separate change in fixed costs, this results in a lower expropriation risk.

The impact of globalization can also be reflected in a decline in the cost of capital $R$. As shown in the appendix, a change in $R$ does not influence the equilibrium expropriation risk, i.e. $d\tau^*/dR = 0$. Both threshold productivity levels $A^*_j$ and $A^*_i$ decrease by the same relative amount:

$$\frac{dA^*_j}{A^*_j} = \frac{dA^*_i}{A^*_i} = \frac{\theta}{1-\theta}dR .$$

Similar to the previous case of a symmetric change in fixed costs, the elite does not adjust the expropriation risk to the new constellation. Its motivation to extract more rents on the one hand and the larger distortion caused by the expropriation risk on the other hand balance out such that $\tau^*$ remains unchanged.

5 Extension: Incorporating Expropriation of Capital

In our baseline model, we have assumed that expropriation targets only the asset owner. Therefore, the international investor does not bear the risk of being expropriated under a joint venture while ownership of the asset with integration provides her with a higher but riskier revenue share. However, insecure property rights might also affect capital owners. In this section, we analyze as to how the possibility of capital expropriation changes our results with regard to the organizational choice of foreign production. For this, we assume that the measure of institutional quality $\tau$ describes the expropriation risk for the asset as well as for capital.

Following the structure of our basic model, we first determine the optimal investment levels under both organizational forms. With a joint venture, the international investor expects a revenue share $\gamma$ with the probability $1-\tau$. In case of expropriation, she is left with a revenue share of zero. The optimal capital stock invested in a joint venture is then given by:

$$K^*_j = \left( \frac{(1-\tau)\gamma}{R} \right)^{\frac{1}{1-\theta}} A \equiv \delta_j(\tau)A .$$

Accordingly, the expected revenue share of the investor with integration is $(1-\tau)(\alpha + \gamma)$. Hence,

$$K^*_i = \left( \frac{(1-\tau)(\alpha + \gamma)}{R} \right)^{\frac{1}{1-\theta}} A \equiv \delta_i(\tau)A$$

14
determines the capital input in an integrated firm. As before, the optimal level of investment under integration is higher than in a joint venture. Yet a deterioration in institutional quality now also affects investments in a joint venture, i.e. \( \frac{\partial \delta_j}{\partial \tau} < 0 \). However, since \( \frac{\partial \delta_j}{\partial \tau} > \frac{\partial \delta_i}{\partial \tau} \) the distortion in \( K_i^* \) is larger than in \( K_j^* \), similarly to the baseline model. Figure 3 illustrates as to how investment incentives are influenced by the new institutional environment. As in Figure 1, \( \delta_i \) exceeds \( \delta_j \) for all \( \tau < 1 \). The distortion caused by the risk of expropriation is now higher as in the baseline model as the expected revenue share of the international investor decreases. Whereas in the baseline model, the investor still supplies some capital in the limit case in which property rights are completely insecure (\( \tau = 1 \)), she does not so if capital can be expropriated as well. Production volumes, which are given by

\[
y_i = \frac{\delta_i(\tau)^\theta}{\theta} A \quad \text{and} \quad y_j = \frac{\delta_j(\tau)^\theta}{\theta} A, \tag{20}
\]

are also lower than in the baseline specification.

To determine the organizational structure of firms, we again formulate the respective expected aggregate profits. Naturally, incorporating the risk of capital expropriation does not influence the expected output share of the domestic producer in each mode of organization. Taking into account the change in output shares of the international investor, the expected aggregate
payoffs are now given by:

\[ E[\pi_j] = [1 - \tau(\alpha + \gamma)]y_j - f_j \quad \text{and} \quad (21) \]

\[ E[\pi_i] = [1 - \tau(\alpha + \gamma)]y_i - f_i . \quad (22) \]

As before, the respective threshold productivity levels are obtained by the following two equations:

\[ E[\pi_j] = 0 \quad \text{and} \quad E[\pi_j] = E[\pi_i]. \]

Inserting (21) and (22) yields:

\[ A^*_j = \frac{\theta f_j}{\delta_j(\tau)^{\theta}[1 - \tau(\alpha + \gamma)]} \quad \text{and} \quad (23) \]

\[ A^*_i = \frac{\theta(f_i - f_j)}{[1 - \tau(\alpha + \gamma)](\delta_i(\tau)^{\theta} - \delta_j(\tau)^{\theta})} . \quad (24) \]

Given Assumption 1, \( A^*_i > A^*_j \) still holds for all \( \tau < 1 \). Comparing (7) and (23), it can be easily shown that the minimum productivity level for taking up the investment project is now higher than in the case without expropriation of capital. Due to the additional negative impact on the capital invested into joint ventures, the expected aggregate profit from this organizational mode is lower than before. Thus, a decline in the institutional quality of the host country lowers the total mass of active firms. Whether the cut-off for integrated production \( A^*_i \) is also higher than its counterpart in (8) in (24) is not as clear-cut. A sufficient condition for this to be the case is \( \theta \leq 1/2 \).\(^{14}\)

Analyzing the effects of the risk of expropriation on the critical productivity levels, we obtain similar results as in our baseline model. Taking partial derivatives of (23) and (24) with respect to \( \tau \) yields:

\[ \frac{\partial A^*_j}{\partial \tau} = \left[ \frac{\alpha + \gamma}{1 - \tau(\alpha + \gamma)} + \frac{\theta[1 - \tau(\alpha + \gamma)]}{(1 - \theta)(1 - \tau)[1 - \tau(\alpha + \gamma)]} \right] A^*_j > 0 \quad \text{and} \quad (25) \]

\[ \frac{\partial A^*_i}{\partial \tau} = \left[ \frac{\alpha + \gamma}{1 - \tau(\alpha + \gamma)} + \frac{\theta[1 - \tau(\alpha + \gamma)]}{(1 - \theta)(1 - \tau)[1 - \tau(\alpha + \gamma)]} \right] A^*_i > 0 . \quad (26) \]

Again, we obtain \( \partial A^*_j/\partial \tau > \partial A^*_i/\partial \tau \) implying a decline in the mass of integrated firms due to an increase in expropriation risk.

Summarizing, we can draw the following two insights from this extension: First, the basic mechanisms of our model are not affected by incorporating an additional risk of capital expropriation. Investments into integrated firms are higher than into joint ventures and they react more sensitive to a change in institutional quality. Consequently, an increase in \( \tau \) results in a lower mass

\(^{14}\)For \( \theta \leq 1/2 \) the difference \( \delta_i(\tau)^{\theta} - \delta_j(\tau)^{\theta} \) in (24) is not lower than the respective term in (8).
of integrated firms. Second, introducing capital expropriation also affects investments into joint ventures and amplifies the distortion in investments incentives. Hence, the level of investments and aggregate returns are lower than in our basic specification.

6 Conclusion

According to the property rights approach, ownership provides better incentives to undertake specific investments in a relationship that is characterized by incomplete contracts and holdup. This paper has taken this view as a starting point to analyze the mode of international investment in countries with a weak institutional environment. We have considered a small open economy in which local producers own specific assets and foreign investors provide capital for the production of a final good. Our model distinguishes between two organizational forms of international production: integrated firms, in which foreign investors acquire local assets and transfer capital within the resulting multinational firm, and joint ventures, in which asset ownership rests with local producers. The economy under consideration is ruled by a non-democratic elite that shapes national institutions to maximize its own expected income. In this setting, the equilibrium institutional quality results from a trade-off from the view of the elite: On the one hand, weak institutions provide the elite with better opportunities to seize productive assets from the private sector and thereby raise the expected output share that the elite can capture. On the other hand, an increase in the risk of expropriation hampers the property rights mechanism to work adequately and lowers the incentives for foreign investors to set up integrated firms. Globalization, reflected in a decline in investment costs, may influence institutional quality if it affects the costs of integrated firms compared to the costs of joint ventures asymmetrically. If fixed costs for setting up an integrated firms decline more strongly than fixed costs of a joint venture, then the institutional quality in the host country improves.
Appendix

In this appendix, we prove the comparative static results presented in section 4. The first order condition, given by (17), can also be written as:

\[(1 - \theta) (1 - \alpha k \tau^*) \delta^0_j A_i^*(\tau^*)^{1-k} + \Psi(\tau^*) A^*_i(\tau^*)^{1-k} = 0, \quad (27)\]

where

\[
\Psi(\tau^*) \equiv (1 - \theta - \alpha \tau^*(k - \theta)) (\delta_i(\tau^*)^0 - \delta_j^0) - \frac{\alpha \theta \tau^*(\beta(k - 1) + 1 - \alpha \tau^*)}{\gamma + \alpha - \alpha \tau^*} \delta_i(\tau^*)^0 - \alpha \theta \tau^*(k - 1) \delta_j^0 < 0.
\]

Taking total total derivatives of (27) and provided that the second order condition \((SOC < 0)\) is satisfied, we obtain the following results:

(i) The effect of a change in \(f_i\) on \(\tau^*\):

\[
\frac{d\tau^*}{df_i} = \frac{(k - 1) \Psi(\tau^*) A_i^*(\tau^*)^{1-k}}{(f_i - f_j) SOC} > 0.
\]

(ii) The effect of a change in \(f_j\) on \(\tau^*\):

\[
\frac{d\tau^*}{df_j} = \frac{k - 1}{SOC} \left[ \frac{(1 - \theta)(1 - \alpha \tau^* k) \delta^0_j A_i^*(\tau^*)^{1-k}}{f_j} - \frac{\Psi(\tau^*) A_i^*(\tau^*)^{1-k}}{f_i - f_j} \right] < 0.
\]

(iii) The effect of a simultaneous change in \(f_i\) and \(f_j\) on \(\tau^*\):

\[
\frac{d\tau^*}{df_j} = \frac{k - 1}{SOC} \left[ \frac{\Psi(\tau^*) A_i^*(\tau^*)^{1-k}}{f_i - f_j} (df_i - df_j) \right. \\
\left. + \frac{(1 - \theta)(1 - \alpha \tau^* k) \delta^0_j A_i^*(\tau^*)^{1-k}}{f_j} df_j \right].
\]

Inserting the first order condition (27), we can write

\[
\frac{d\tau^*}{df_j} = \frac{(k - 1) \Psi(\tau^*) A_i^*(\tau^*)^{1-k} f_i}{SOC (f_i - f_j)} \left( \frac{df_i}{f_i} - \frac{df_j}{f_j} \right).
\]

The expropriation risk \(\tau^*\) therefore decreases if and only if \(df_i/f_i < df_j/f_j\).
(iv) The effect of a change in $R$ on $\tau^*$:

\[
\theta \left[ (1 - \theta) (1 - \alpha k \tau^*) \delta_{A_j^*} \Psi(\tau^*) A_j^* (\tau^*)^{1-k} \right]
\]

\[
\frac{(\theta - 1) SOC}{R(\theta - 1) SOC} = 0 ,
\]

since the term in squared brackets is equivalent to the first order condition (27).

References


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