

Financial Integration in Autocracies: Greasing the Wheel or More to Steal?

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Abstract

This paper analyzes the influence of financial integration on institutional quality. We construct a dynamic politico-economic model in which the ruling elite uses its political power to expropriate the general population. Although financial integration reduces capital costs for entrepreneurs and therefore raises individual gross incomes, the elite may counteract this effect by raising the level of expropriation. Consequently, net incomes may rise or decline depending on the respective magnitude of the countervailing effects. Since political power is linked to economic resources, financial integration also has long-run consequences for the concentration of *de facto* power in the hands of the elite and for the rise of an entrepreneurial class.

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1 Introduction

For more than three decades now, we have been observing substantial increases in cross-border capital flows. For example, between 1970 and 2004 the ratio of total foreign assets and liabilities to GDP has increased in the industrial countries by a factor of 6, and in the emerging and developing nations by a factor of 3 (Lane and Milesi-Ferretti, 2006).¹ Against this background, it is not surprising that a broad literature has emerged which deals with the impact of financial integration on economic performance. In this respect, several authors point out that capital mobility may not only have direct economic effects – due to an improved international allocation of capital – but also may bring further indirect, “collateral” benefits. These indirect channels may work via an improvement of the institutional quality and governance in the host countries, the development of domestic financial markets, or the maintenance of macroeconomic discipline (see Kose et al. 2006; IMF 2007; Obstfeld 2008).

Whereas the role of institutions in attracting international capital and determining its composition is well investigated (Alfaro et al., 2008; Ju and Wei, 2007), the reverse effect of financial integration on the quality of institutions has attracted less attention. Casual inspection of the evidence suggest that the view of financial integration always having a positive influence may be too optimistic: In many countries, the deregulation and liberalization of financial markets has failed to result in a desirable improvement of the quality of institutions. Table 1 presents a list of developing and emerging countries in which institutional quality, as reflected by the World Bank’s measures of corruption and the rule of law (Kaufmann et al., 2008), has deteriorated despite of increasing capital inflows. According to Lane and Milesi-Ferretti (2006), 69 out of 122 emerging and developing countries experienced net capital inflows between 1996 and 2004. In almost three of four of these countries, at least one indicator for institutional quality and in one of three cases both indicators have changed for the worse in the same period. Notably, half of the countries listed in Table 1 are characterized as non-democratic according to the Polity IV index.²

The aim of this paper is to contribute a better understanding of these observations by developing a theoretical framework which can be used to analyze the impact of financial integration on institutional quality in developing countries. Considering countries which are ruled by non-democratic regimes,

¹See also Chinn and Ito (2007) for similar findings.

²The Polity IV project assigns country scores on a scale from -10 to +10 according to their authority characteristics and adopts the following categorization of political regimes: “autocracies” (-10 to -6), “anocracies” (-5 to +5), and “democracies” (+6 to +10).

we argue that financial integration gives the ruling elite additional incentives to implement inefficient expropriatory policies and therefore may result in worse institutions and more expropriation. This result holds even though financial integration may have a positive impact on the *de facto* political power of general population.

Formally our framework builds on Acemoglu (2006). We consider a capital importing developing country whose political system can be described as a dictatorship by the elite. The ruling elite decides on the “rate of expropriation” which determines the share of the general population’s that is transferred to the elite. We further assume that expropriation is connected with political costs for the elite and we interpret these costs as the general population’s ability to oppose expropriation. We start our analysis with a static model that treats these costs as exogenous. We then extend our framework to a dynamic setting, assuming that the future costs of expropriation depend on the non-elite’s current net income.

Using this framework, we analyze the consequences of financial integration for both the quality of economic institutions (the “rate of expropriation”) and the distribution of power in the economy under consideration. In our model, financial integration - interpreted as improved access to foreign capital - acts like a positive technology shock, raising the general population’s income. These increased incomes create an incentive for the elite to raise the rate of expropriation. In our dynamic analysis we first assume that the elite behaves *myopically* - i.e. it does not take into account that its decision on the expropriation rate influences the future costs of expropriation. Though the expropriation rate still increases as a result of financial integration, but the long-run effect of financial integration is now weaker, as financial integration raises the income of the general population and thereby also its *de facto* political power. By contrast, the dynamic setting with a *forward looking* elite results in more expropriation after financial integration compared to the static environment. Since the elite additionally takes into account a potential increase in the political power of the general population, it raises the rate of expropriation more aggressively. As a result, the expropriation effect may now dominate the reduced capital costs such that both the non-elite’s net income and its political influence may decrease permanently after financial integration.

These findings contradict some common predictions according to which globalization leads to a more powerful middle class. Rajan and Zingales (2003) e.g. argue that in a closed autocratic economy the incumbent impedes financial development at arm’s length. Trade and financial integration reduce the power of the establishment and thereby allow entry to the market. Acemoglu and Robinson (2006) show that globalization may make a rise of

a democratic society more likely, albeit the relationship between democracy and globalization may be nonlinear in their setting. In an alternative model structure, globalization might lead to an income rise of the ruling class.³

The spirit of our paper is also related to Bourguignon and Verdier (2005), who analyze the consequences of financial globalization on the evolution of human capital. In their model, capitalists have incentives to subsidize education of the poor because physical and human capital are complements. With international financial integration, the capitalist have additional investment and financing opportunities abroad. From this it follows that the incentives to subsidize education might not be given anymore, which results in a reinforcement of their political power.

Aidt and Albornoz (2009) analyze the role of foreign political interventions in explaining the rise of different forms of government. According to their argument, foreign interventions are motivated by economic interests, such as securing one's own direct investments. Thus, a foreign government may support the consolidation of an autocratic regime with a friendly agenda toward foreign investors. Our work is furthermore related to Gourinchas and Jeanne (2005), who investigate as to how capital mobility shapes incentives to implement policies which improve social infrastructure. In their framework the decision to open up the domestic capital account is associated with a trade-off: on the one hand, international capital increases the domestic investment base, whereas, on the other hand there is a danger of capital flowing out, which would reduce the incentives for good policies. As a result capital mobility is good for countries which are endowed with a certain level of initial capital. Finally, some contributions deal with the impact of trade on institutions. Segura-Cayuela (2006) shows that in an autocracy international trade does not necessarily improve welfare for the whole economy. Do and Levchenko (2009) analyse the impact of trade on an economy which is politically dominated by a small group of large firms. Trade shifts the political power toward this group, who prefer to maintain bad institutions, as these constitute barriers to entry for smaller firms.

Our understanding of what institutions are and which factors determine their evolution is based on ideas by Acemoglu and Robinson (2000, 2006) and Acemoglu et al. (2005), who argue that there is an explicit interplay between political and economical institutions. Whoever has more political power (*de jure* and *de facto*) is likely to secure the set of economic institutions that she prefers. The distribution of political power is in turn the outcome

³Acemoglu and Robinson (2006) analyze the impact of globalization as an extension to their baseline two-class model in a standard Heckscher-Ohlin setup. In a labor abundant economy, globalization raises the factor price of labor, thereby reducing inequality. Consequently, democracy becomes "less dangerous" for the elite.

of political institutions and of the available resources. However, we take political institutions as given and we are concerned about the evolution of the economic institutions.

The remainder of our paper is structured as follows: Section 2 presents the economic framework and derives comparative static results concerning the effects of financial liberalization in a static environment. In section 3, we introduce dynamics with a myopic elite and in section 4 with a forward-looking elite. Section 5 extends the dynamic setup to the case in which de facto political power is determined only by the income of a subgroup of the society, the entrepreneurial middle class. Finally, in section 6, we conclude.

2 The Model

2.1 Setup

We consider a small open economy populated by two groups of individuals, a ruling elite and the general population. Without loss of generality, we normalize the size of both groups to one. The elite earns rents from partially expropriating the general population. Individuals from the general population may work in a traditional sector (T) or become “entrepreneurs” who operate their own firms in a “modern sector” (M). Output of the two sectors, denoted by Y^T and Y^P , respectively, can be sold on the world market for a given price of one. The traditional sector produces according to

$$Y^T(t) = L(t)^\beta, \quad (1)$$

where $0 < \beta < 1$ and $L(t)$ represents the number of workers at time t . We assume that revenues in the traditional sector are equally shared among all employees. Hence, the net income of a representative worker is given by

$$w(t) = [1 - \tau(t)]L(t)^{\beta-1}, \quad (2)$$

where $\tau(t)$ denotes the “rate of expropriation”. This variable captures all channels through which the ruling elite infringes on the general population’s property rights.

In each period, members of the general population choose between working in the traditional sector and becoming entrepreneurs. To start a firm, an entrepreneur needs one unit of capital. We assume that this initial investment has to be financed by borrowing abroad at an exogenous interest rate R . Financial integration, interpreted as the removal of frictions that impede

capital inflows, is reflected by a reduction of the costs of capital, i.e. as an exogenous decline of R .⁴

The production function in the modern sector is assumed to be linear. The net income of a representative entrepreneur is given by

$$\pi(t) = [1 - \tau(t)](\alpha - R) , \quad (3)$$

where α is an exogenous productivity parameter. Note that a reduction of the interest rate R has the same effect on profits as an increase in the productivity term α . Thus, for a given value of τ , financial integration entails efficiency gains for the entire economy. In what follows, we will use the short-hand notation $A \equiv \alpha - R$ and assume $A > 1 + R$.

We consider the following two-stage sequence of events: in the first stage, the elite decides on the rate of expropriation τ , and in the second stage, members of the general population choose between alternative occupations (employment in the traditional sector vs. entrepreneurship) and production takes place. We assume that τ cannot be changed *ex post*, i.e. the elite can credibly commit to the value of τ set at the beginning of period t . Given this assumption, we can characterize the general population's occupational choice. In equilibrium, both activities have to yield identical net incomes, i.e. the following condition has to be satisfied:

$$w(t) = \pi(t) . \quad (4)$$

Labor supply in sector T is thus given by

$$L(t) = A^{\frac{1}{\beta-1}} . \quad (5)$$

Our assumption $A > 1 + R$ guarantees an interior solution with $L(t) < 1$. The relationship between A and the number of workers is negative since raising A raises entrepreneurs' profits. Hence, regardless of the rate of expropriation τ , financial integration – i.e. a decline of R – raises entrepreneurial activity and enhances capital inflows in our model.

We assume that expropriating the general population is associated with convex deadweight costs which are increasing in τ . Specifically, the income of a member of the ruling elite is given by

$$y^E(t) = A\tau(t) - \frac{c}{2}\tau(t)^2 , \quad (6)$$

⁴This modeling choice is in line with textbook models (see e.g. Obstfeld and Rogoff 1996, Ch. 1.3.) Henry (2007) provides empirical evidence for 18 developing countries, which shows that the cost of capital decline when countries liberalize financial account transactions.

where we have used the fact that incomes of the general population are identical across occupations, and where $c > 0$ reflects the severity of the *economic costs* of expropriation, i.e. the economy’s vulnerability to insecure property rights.

Combining (2), (3) and (6), we can compute gross national income Y as the sum of all agents’ incomes:

$$Y(t) = A - \frac{c}{2}\tau(t)^2 . \tag{7}$$

Obviously, GNI increases as R decreases. Moreover, raising the rate of expropriation τ reduces Y , i.e., a deterioration of “economic institutions” is harmful for the aggregate economy. In what follows, we make the parametric assumption that completely expropriating the general population by setting $\tau = 1$ brings economic activity to a standstill and reduces GNI to zero:

Assumption 1 $A < c/2$.

This assumption rules out the uninteresting and implausible case in which the elite completely expropriates the private sector by setting $\tau = 1$.

2.2 Static Equilibrium

We assume that the ruling elite dominates the political process and chooses the rate of expropriation τ to maximize its utility. An elite member’s utility is a linear function of the appropriated incomes of workers and entrepreneurs – less the *political costs* of expropriation $C(\tau)$, which are given by

$$C(\tau) = \gamma\tau . \tag{8}$$

The parameter $\gamma \geq 0$ reflects the general population’s *de facto* political power. Hence, while de-jure political power rests with the elite, the rate of expropriation is constrained by the extent of popular discontent and the general population’s ability to express this discontent through more or less formal types of rebellion. While we assume, for the time being, that γ is constant we will later focus on the evolution of this parameter over time and its interaction with τ . Given our assumptions, the elite’s optimization problem can be written as

$$\max_{\tau} U^E = A\tau - \frac{c}{2}\tau^2 - \gamma\tau . \tag{9}$$

By maximizing (9), we obtain the rate of expropriation that is optimal for the ruling elite:

$$\tau^* = \begin{cases} \frac{A-\gamma}{c} & \text{if } \gamma < A \\ 0 & \text{if } \gamma \geq A \end{cases} . \quad (10)$$

Note that Assumption 1 implies that τ^* defined by (10) is always smaller than one. For high values of γ , the elite could, however, set $\tau^* = 0$. To exclude this outcome, which would leave members of the elite without any income, and to have sufficient scope for meaningful comparative statics, we make the following assumption:

Assumption 2 $\gamma < A$.

Figure 1 illustrates the intuition behind the result in (10): the horizontal line at A reflects the elite's marginal benefit from increasing τ . The upward-sloping line reflects the elite's marginal costs of expropriation. This line becomes steeper if the parameter c (determining the economic costs) increases, and it has a high intercept if the parameter γ (reflecting the political costs) is high. The intersection of both lines determines the optimal rate of expropriation τ^* .

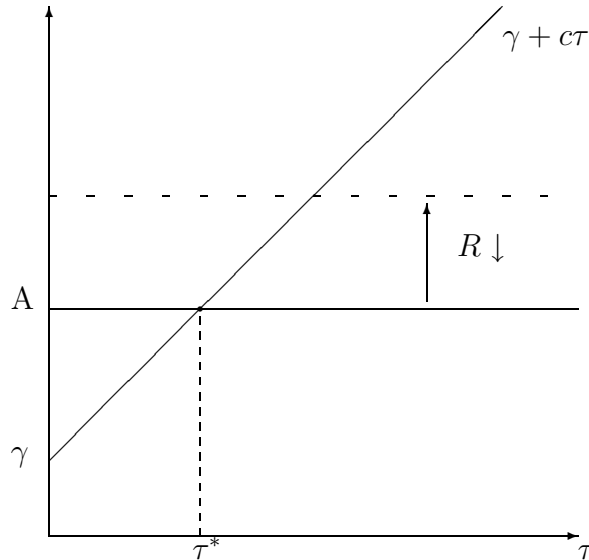


Figure 1: Optimal Expropriation Rate

Limiting our attention to the interior solution in (10), we can easily analyze how the rate of expropriation reacts to changes of the exogenous parameters. Most importantly, τ^* declines in R , i.e.

$$\frac{\partial \tau^*}{\partial R} = -\frac{1}{c} < 0 . \quad (11)$$

As explained above, financial integration works like an exogenous positive productivity shock. Hence, both increasing α and reducing R raise entrepreneurs' profits and thus the marginal benefit of expropriation. As a result, the horizontal line in Figure 1 shifts upward (as illustrated by the dashed line) and τ^* increases.

To compute the impact of financial integration on GNI and entrepreneurs' incomes, we need to take into account both direct and indirect effects: on the one hand lowering R acts like a positive technology shock. On the other hand, the increased rate of expropriation chosen by the elite reduces π and Y . Substituting (10) into (3) and (7) we obtain the following equations for entrepreneurs' profits and GNI

$$\pi^* = \frac{(c + \gamma - A)A}{c} \quad \text{and} \quad Y^* = A - \frac{(A - c)^2}{2c}. \quad (12)$$

Taking now derivatives of (12) with respect to R yields

$$\frac{\partial \pi^*}{\partial R} = \frac{2A - c - \gamma}{c} \quad \text{and} \quad \frac{\partial Y^*}{\partial R} = \frac{A - c - \gamma}{c}.$$

Given Assumption 1, both expressions are strictly negative, i.e. financial integration – interpreted as a decline of R – unambiguously raises GNI and entrepreneurs' profits: while the rate of expropriation also increases, the direct, “efficiency-enhancing” influence of easier access to foreign capital dominates. These insights are summarized by the following proposition:

Proposition 1 *In a static environment, financial integration raises the rate of expropriation τ . Nevertheless, both the income of the elite and the income of the general population increase.*

3 Dynamic Equilibrium with a Myopic Elite

So far we have used a static model to analyze the effect of an exogenous drop in the costs of external borrowing on the “quality of institutions”, i.e. the rate of expropriation chosen by a ruling elite. In that setting, financial integration influenced individuals' absolute and relative incomes, but the *de facto* political power of the non-elite (represented by the parameter γ) was uncontested.

It is likely, however, that a varying distribution of incomes also affects the distribution of power in a society. According to Acemoglu and Robinson (2006) political power is a function of material resources. If financial integration raises the disposable income of the general population, it also raises its

political power. To incorporate this idea into our model we now analyze how a permanent reduction of R affects the non-elite's *de facto* political power γ and the rate of expropriation τ^* in the short and in the long run. Specifically, we assume that the following process describes the evolution of γ over time:

$$\dot{\gamma}(t) = \psi\pi(t) - \delta\gamma(t) , \quad (13)$$

with $\psi \geq 0$ and $0 \leq \delta \leq 1$. According to equation (13), *de facto* political power accumulates comparable to physical capital in a neoclassical growth model. The parameter ψ determines the speed at which a higher net income of entrepreneurs – which equals net wages in equilibrium – transforms into increased political power while δ is the rate of depreciation.⁵

Building on this dynamic equation, we first analyze the equilibrium for the case in which the ruling elite is *myopic* – i.e., its members do not take into account that their decision on τ^* at a given point in time influences the accumulation of political power in the following periods. The case of a myopic elite may be interpreted as representing a setting in which members of the elite live for only one period and maximize their utility in this period.

A myopic elite sets the expropriation rate in each period according to (10) as in the static model, and (12) determines the net profit of the entrepreneurs. Recall that, due to Assumption 1, it is never optimal for the ruling elite to choose $\tau^* = 1$, i.e. the net income of the general population is always strictly positive. In the static analysis of the previous section, Assumption 2 made sure that the elite never sets $\tau^* = 0$ either. However, in the current context, γ is an endogenous variable whose value is determined by the mechanics of the model. As we will see, the following assumption is sufficient for a positive τ at all points in time:

Assumption 3 $\gamma(0) < A$, and $\psi < \delta$.

The following Proposition summarizes the short- and long-run behavior of γ :

Proposition 2 *With a myopic elite, the political power of the non-elite and the rate of expropriation monotonically converge to following steady state values:*

$$\gamma^{SS} = \frac{\psi A(c - A)}{c\delta - \psi A} \quad \text{and} \quad \tau^{SS} = \frac{A(\delta - \psi)}{c\delta - \psi A} . \quad (14)$$

⁵Note that we neglect the collective action problem among the general population and that we concentrate only on material resources as the driving force of its *de facto* political power.

Proof. For $\gamma < A$, the evolution of γ can be determined by substituting (12) into (13). This yields

$$\dot{\gamma} = \frac{\psi A}{c} (c - A) - \left(\delta - \frac{\psi A}{c} \right) \gamma .$$

This differential equation is represented by the phase line in Figure 2. Assumptions 1 and 3 imply that this phase line is downward-sloping, implying convergence to the steady state. The assumptions $\gamma(0) < A$ together with the downward sloping phase-line guarantee that $\gamma < A$ for all $t \geq 0$. Inserting γ^{SS} into (10) yields τ^{SS} . ■

The evolution of the rate of expropriation is inherently linked to the evolution of γ . Whether it increases or decreases over time depends on the initial value of γ : if $\gamma(0) < \gamma^{SS}$, then the *de facto* political power increases over time, and the rate of expropriation decreases. If $\gamma(0) > \gamma^{SS}$, the political power of the general population decreases and the rate of expropriation increases.

Note that abandoning Assumption 3 and allowing for $\psi \geq \delta$ is not compatible with a strictly positive rate of expropriation in the long run: according to the law of motion for γ as given in Proposition 2, $\dot{\gamma} > 0$ for all γ in $[0, A]$ if $\psi > \delta$. For $\gamma \geq A$, the law of motion is given by $\dot{\gamma} = \psi A - \delta\gamma$, which is strictly positive for $\psi > \delta$ and $\gamma < \psi A/\delta$. Hence, regardless of its initial value, γ converges to a steady state that is incompatible with $\tau^* > 0$.

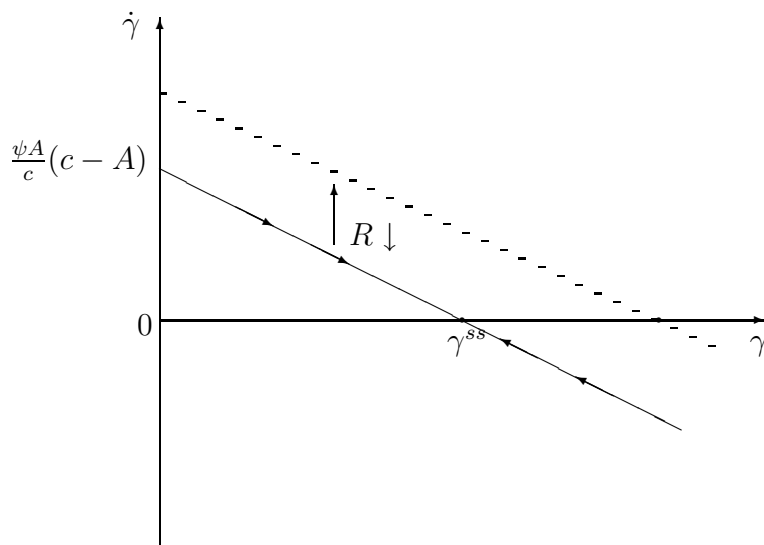


Figure 2: Evolution of γ and Steady State with a Myopic Elite

To determine how financial integration affects the general population's political power and the rate of expropriation in the long-run we take the derivative of the steady-state value from Proposition 2 with respect to R (bearing in mind that $A \equiv \alpha - R$). This yields the following result:

$$\frac{d\gamma^{SS}}{dR} = \frac{\psi [(2A - c)(c\delta - \psi A) - \psi A(c - A)]}{(c\delta - \psi A)^2}. \quad (15)$$

Given Assumptions (1) and (3), this expression is strictly negative. Hence, financial integration improves the *de facto* political power of the general population in the steady state. The dashed line in Figure 2 illustrates this effect. A drop in R shifts the $\dot{\gamma}$ -line to the right reducing also its slope. As a result, the new steady state γ^{SS} exceeds the previous one.

The impact on the steady-state rate of expropriation (τ^{SS}) can be written as

$$\frac{d\tau^{SS}}{dR} = -\frac{1}{c} \left(1 + \frac{d\gamma^{SS}}{dR} \right).$$

Inserting (15) yields

$$\frac{d\tau^{SS}}{dR} = -\frac{c\delta(\delta - \psi)}{(c\delta - \psi A)^2}, \quad (16)$$

which is negative. Thus, the long-run rate of expropriation increases as the interest rate falls, comparable to the static setting of the previous section. However, the influence of financial integration is weakened by the increase in the political power of the general population, which dampens expropriation by the elite.

Interestingly, the adjustment path of τ to the new steady state after financial liberalization is characterized by overshooting. An increase of A induces the elite to raise τ according to (10). In subsequent periods, however, the general population's incomes and *de facto* political power increase, which reduces τ . In the long-run the rate of expropriation converges to a value that is higher than in the old steady state, but lower than in the period immediately after the onset of financial integration.

4 A Forward-Looking Elite

The analysis in the preceding section was based on the assumption that, when setting the rate of expropriation in period t , the ruling elite does not take into account how this decision affects the general population's *de facto* political power and the scope for expropriation in subsequent periods. If we replace this assumption by the notion of a *forward-looking* elite, the elite has

now an additional motivation to expropriate the general population, namely, to avoid a future rise in the endogenous costs of expropriation.

With an infinite time horizon and an individual discount rate of $\rho > 0$, the elite maximizes:

$$\int_0^{\infty} e^{-\rho t} U^E[\tau(t), \gamma(t)] dt \quad (17)$$

s.t.

$$\dot{\gamma}(t) = \psi A[1 - \tau(t)] - \delta \gamma(t) \quad \text{and} \quad \gamma(0) \quad \text{given} .$$

The present value Hamiltonian function takes the following form:

$$H = e^{-\rho t} [A\tau(t) - \gamma(t)\tau(t) - \frac{c}{2}\tau(t)^2] + \lambda(t)[\psi A[1 - \tau(t)] - \delta \gamma(t)] , \quad (18)$$

where the costate variable $\lambda(t)$ denotes the elite's marginal disutility from political resistance.

Combining the first-order conditions for the optimal time-path of τ , we obtain the following differential equation that characterizes the evolution of τ :

$$\dot{\tau} = (\delta + \rho)\tau + \frac{(2\delta + \rho)}{c}\gamma - \frac{A(\delta + \psi + \rho)}{c} . \quad (19)$$

Equations (13) and (19) constitute a system of two linear differential equations which describe the evolution of the expropriation rate and the non-elite's political power in this economy. Before starting to analyze the dynamics of the system, we first determine the steady states levels τ^{SS} and γ^{SS} . Setting $\dot{\tau} = 0$ and $\dot{\gamma} = 0$ we obtain

Proposition 3 *With a forward-looking elite, the steady state values for the political power of the non-elite and the rate of expropriation are given by*

$$\begin{aligned} \tau^{SS} &= \frac{A(\delta - \psi)(\delta + \rho)}{c\delta(\delta + \rho) - \psi A(2\delta + \rho)} \quad \text{and} \\ \gamma^{SS} &= \frac{\psi A [c(\delta + \rho) - A(\delta + \psi + \rho)]}{c\delta(\delta + \rho) - \psi A(2\delta + \rho)} . \end{aligned} \quad (20)$$

Assumptions 1 and 3 are sufficient for $0 < \tau^{SS} < 1$ and $\gamma^{SS} > 0$. For a further interpretation of the steady state we rewrite (19), using (13), as:

$$\tau^{SS} = \frac{A - \gamma^{SS}}{c} + \frac{\tau^{SS}\psi A}{c(\delta + \rho)} .$$

Compared to a myopic elite, the elite now has an additional incentive to expropriate as it thereby reduces the political power of the general population. This effect is given by the second term in the above equation. Consequently, the long-run rate of expropriation is higher and the *de facto* political

power is lower than in the case of a myopic elite. This follows from comparing (14) with (20).

To analyze the dynamic properties of the model, we rewrite (13) and (19) in matrix form as:

$$\begin{pmatrix} \dot{\tau} \\ \dot{\gamma} \end{pmatrix} = \begin{pmatrix} \delta + \rho & \frac{2\delta + \rho}{c} \\ -\psi A & -\delta \end{pmatrix} \begin{pmatrix} \tau \\ \gamma \end{pmatrix} + \begin{pmatrix} -\frac{A(\delta + \psi + \rho)}{c} \\ \psi A \end{pmatrix}$$

Denoting by J the Jacobian matrix, we get:

$$\det |J| = -\delta(\delta + \rho) + \frac{\psi A(2\delta + \rho)}{c} < 0 \quad \text{and}$$

$$\text{tr}(J) = \rho > 0.$$

Thus, the system is saddle-path stable such that a unique adjustment path determines the dynamics of the system. The elite chooses the value of $\tau(0)$ to be on the saddle path, as only this path guarantees convergence to the steady state (τ^{SS}, γ^{SS}) . For any other choice of $\tau(0)$, the system's dynamics would either drive the expropriation rate down to zero or to one, implying a GNI of zero. In both cases, the elite would be without any income. Since the elite has an interest in avoiding this outcome, it rationally chooses a point on the saddle path.

The phase diagram in Figure 3 illustrates these findings and confirms our analytical results. The corresponding zero-motion lines are given by:

$$\dot{\gamma} = 0: \quad \gamma = \frac{\psi A}{\delta} - \frac{\psi A}{\delta} \tau \quad \text{and}$$

$$\dot{\tau} = 0: \quad \gamma = \frac{A(\delta + \psi + \rho)}{2\delta + \rho} - \frac{c(\delta + \rho)}{2\delta + \rho} \tau$$

Note that the line representing $\dot{\gamma} = 0$ is flatter than the line for $\dot{\tau} = 0$.

To analyze the consequences of financial integration in this setting, we start by deriving the impact of a decline of the cost of capital on the expropriation rate and the non-elite's political power in the steady state. Taking the derivatives of (20) yields:

$$\frac{d\tau^{SS}}{dR} = \frac{c\delta(\psi - \delta)(\delta + \rho)^2}{[c\delta(\delta + \rho) - \psi A(2\delta + \rho)]^2} \quad \text{and} \quad (21)$$

$$\frac{d\gamma^{SS}}{dR} = \frac{\psi[A(\delta + \psi + \rho)(c\delta(\delta + \rho) - \psi A(2\delta + \rho))]}{[c\delta(\delta + \rho) - \psi A(2\delta + \rho)]^2} - \frac{\psi[c\delta(\delta + \rho)(c(\delta + \rho) - A(\delta + \psi + \rho))]}{[c\delta(\delta + \rho) - \psi A(2\delta + \rho)]^2}. \quad (22)$$

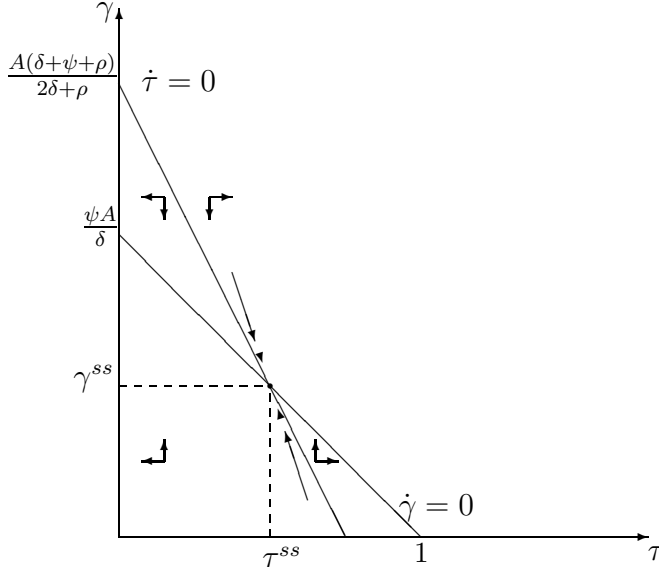


Figure 3: Steady State and Adjustment Path with Forward-Looking Elite

Since $\psi < \delta$, equation (21) implies that $d\tau^{SS}/dR < 0$. Similar to the results in the static model, the elite expropriates additional efficiency gains caused by a reduced interest rate. This mechanism is amplified in the dynamic framework, since the elite now takes also into account the potential increase in the non-elite's political power. Hence, τ^{SS} increases as R declines. By contrast, the sign of $d\gamma^{SS}/dR$ is ambiguous. Depending on the model parameters, the effect of the increased expropriation can dominate the effect of the reduced capital costs such that the entrepreneurs' net profits and thereby γ may decrease after financial liberalization.

In the following we demonstrate the relation between γ^{SS} and R more in-depth. If $\psi \rightarrow \delta$, we can write (22) as $d\gamma^{SS}/dR|_{\psi \rightarrow \delta} = -1$. Note that in this case, τ^{SS} approaches zero, such that we only have a positive effect of a decline of R on γ^{SS} . Conversely, for $\psi \rightarrow 0$, we get: $d\gamma^{SS}/dR|_{\psi \rightarrow 0} = \psi(2A - c)/(\delta c)$. This term approaches zero from below for $\psi \rightarrow 0$. Thus, for very high and very low levels of ψ , a decline in R raises the political power of the general population. If ψ takes intermediate values, however, the outcome depends on the size of the term c relative to $2A$. If c only slightly exceeds $2A$, which is consistent with low values for R , there is an interval $[\underline{\psi}, \bar{\psi}]$ for which the expropriation effect is stronger than the positive direct effect of liberalization on private incomes and consequently, $d\gamma^{SS}/dR > 0$. These different outcomes are illustrated in Figure 4, which depicts the numerator of (22), denoted by $F(\psi)$. For a relative low value of c the function $F(\psi)$ intersects the zero line twice (solid line), generating an interval in which $F(\psi) > 0$ and thereby

$d\gamma^{ss}/dR > 0$. Instead, if c is relative high, the function $F(\psi)$ - and thus $d\gamma^{ss}/dR$ - takes only negative values for all $\psi \in [0, \delta]$, as demonstrated by the dashed line. We can then conclude that the relation between c and A is crucial for the dependence of γ on change of R . If taxation is relatively costly, the direct effect of a liberalization on individual incomes dominates the expropriation effect, and, as a result, γ^{SS} increases as R declines. However, for low marginal costs of taxation, the *de facto* political power of the general population may permanently decline after a financial liberalization.

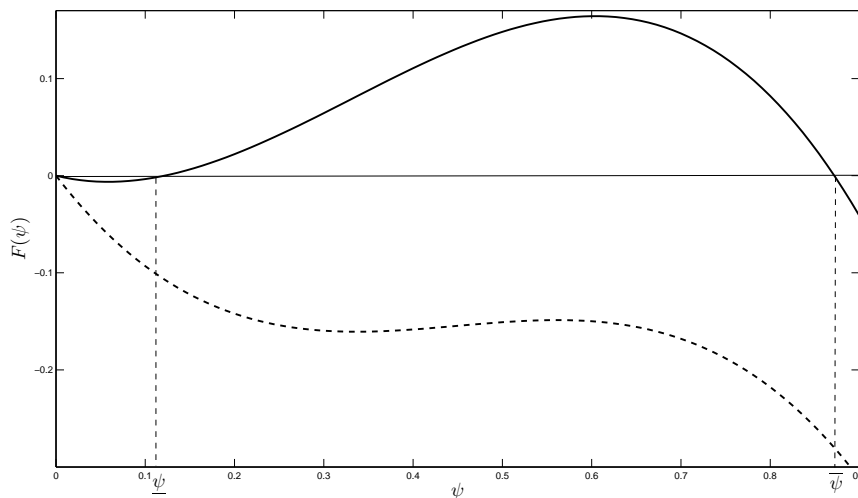


Figure 4: Relation between γ^{ss} and R

The impact of financial integration on the steady state levels of expropriation and the non-elite's political power can also be illustrated graphically. An increase in A shifts the $\dot{\tau} = 0$ and the $\dot{\gamma} = 0$ lines rightwards and also raises the slope of $\dot{\gamma} = 0$. Whereas the new level of τ^{SS} definitely exceeds the old one, the level of γ^{SS} might be lower (Figure 5) or higher (Figure 6) than before.

We summarize the above findings as follows. With a forward-looking elite financial integration leads to a higher rate of expropriation in the steady state. The non-elite's *de facto* political power may rise or decline.

Our results concerning the reaction of the non-elite's political power also yield interesting insights about the impact of financial integration on total income and the distribution of incomes, respectively. The non-elite's income reacts on a decline in R in a similar way as γ does since $\pi^{SS} = \gamma^{SS}\delta/\psi$. However, the impact on the elite's income is also ambiguous. Although the elite increases the expropriation rate, it is possible that the elite is worse

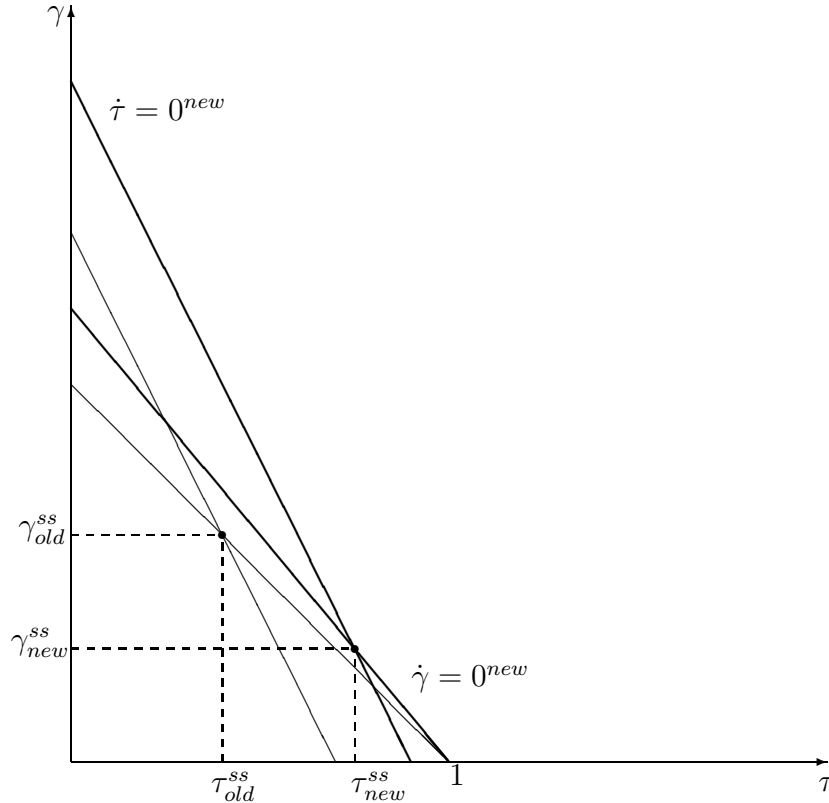


Figure 5: Impact of Financial Integration on Steady State (a)

off after the financial liberalization, because the expropriation may occur at higher costs due to the increased level of γ^{SS} . As a result, GNI may decline.

5 Extension: Political Power as a Function of Entrepreneurs' Income

In the previous sections, the political costs of expropriation were entirely determined by the general population's aggregate income. The composition of the population, consisting of workers and entrepreneurs, did not play any role in this respect. However, there may be reasons to believe that the group of entrepreneurs has stronger political power than the working class. For example, the entrepreneurial group may be smaller and therefore easier to organize politically, or an entrepreneur may acquire the knowledge and skills in her position which are also helpful for executing political pressure. Financial integration may then have an additional influence on the political

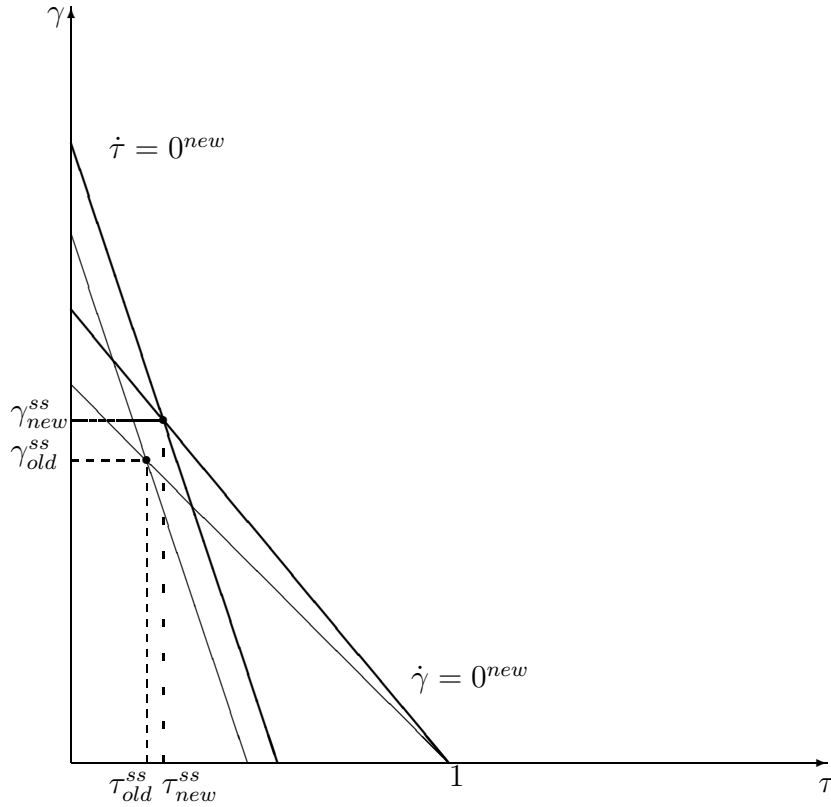


Figure 6: Impact of Financial Integration on Steady State (b)

equilibrium by raising the size of the entrepreneurial class.

To account for this effect, we modify our model in this extending section by considering the most extreme case in which only the income of the entrepreneurs matters for the political costs of expropriation and workers are politically inactive. With this assumption, equation (13) takes the following form:

$$\dot{\gamma}(t) = \psi\pi(t)[1 - L(t)] - \delta\gamma(t), \quad (23)$$

where $L(t)$ is given by (5). In what follows, we limit the dynamic analysis to the case in which the elite is myopic. The results obtained for this case enable us to discuss possible outcomes with a forward-looking elite without explicitly deriving them. Inserting (5) and (12) into (23) and rearranging terms yields

$$\dot{\gamma} = \psi \left(\frac{c - A}{c} \right) A \left(1 - A^{\frac{1}{\beta-1}} \right) - \left[\delta - \frac{\psi A}{c} \left(1 - A^{\frac{1}{\beta-1}} \right) \right] \gamma.$$

Again, assumptions 1 and 3 guarantee convergence to the steady state which

is now given by:

$$\gamma_n^{SS} = \frac{\psi A (c - A) \left(1 - A^{\frac{1}{\beta-1}}\right)}{c\delta - \psi A \left(1 - A^{\frac{1}{\beta-1}}\right)} \quad \text{and} \quad \tau_n^{SS} = \frac{A \left[\delta - \psi \left(1 - A^{\frac{1}{\beta-1}}\right)\right]}{c\delta - \psi A \left(1 - A^{\frac{1}{\beta-1}}\right)}. \quad (24)$$

By taking the derivatives of these values with respect to R , we obtain the long-run impact of financial integration:

$$\frac{d\tau_n^{SS}}{dR} = - \frac{\delta \left[c \left(\delta - \frac{\psi}{\left(1 - A^{\frac{1}{\beta-1}}\right)} \right) + \psi A^{\frac{1}{\beta-1}} (A - c) \right]}{\left[c\delta - \psi A \left(1 - A^{\frac{1}{\beta-1}}\right) \right]^2} \quad (25)$$

and

$$\frac{d\gamma_n^{SS}}{dR} = \frac{\psi \left[(2A - c) \left(\frac{c\delta}{\left(1 - A^{\frac{1}{\beta-1}}\right)} - \psi A \right) - A(c - A) \left(\psi + \frac{c\delta A^{\frac{1}{\beta-1}}}{(1-\beta)\left(1 - A^{\frac{1}{\beta-1}}\right)} \right) \right]}{\left[\frac{c\delta}{\left(1 - A^{\frac{1}{\beta-1}}\right)} - \psi A \right]^2} \quad (26)$$

Expression (26) is strictly negative as in section 3. Moreover, comparing (26) with (15), we can show that the impact of financial integration on γ is now even stronger than in the basic setup.⁶ The intuition behind this result is that a decline in R not only increases entrepreneurs' net profits, but also their number. Since the evolution of entrepreneurs' de facto political power now also depends on their relative size, we have an additional positive effect of reduced capital costs on γ . Furthermore, the additional size effect is responsible for the ambiguous effect of financial integration on the expropriation rate, as shown in (25). The sign of this expression is not clear-cut. Due to the stronger rise in the endogenous costs of expropriation, the elite is not able to tax the population as high as before, and τ_n^{SS} may fall after financial integration.

The expansionary effect of financial integration on the number of entrepreneurs is also valid in a situation with a forward-looking elite. Since

⁶For $L \rightarrow 0$, i.e. if the general population consists mostly of entrepreneurs, we obtain $d\gamma_n^{SS}/dR|_{L \rightarrow 0} = d\gamma^{SS}/dR$ - which is given by equation (15). That is, the size effect does not play any role. On contrast, for $L \rightarrow 1$ $d\gamma_n^{SS}/dR|_{L \rightarrow 1} = \infty$ approaching $d\gamma^{SS}/dR$ from below. Simulation has shown that for all intermiate values $L \in]0, 1[$ $|d\gamma_n^{SS}/dR| > |d\gamma^{SS}/dR|$.

expropriation does not influence the occupational choice of the general population, the elite can not eliminate this effect by raising τ .

6 Conclusion

Our aim in this paper was to present a theoretical framework which enables us to analyze the impact of financial integration on the quality of institutions in a small capital-importing country. We have shown that in an autocratic regime the hazards of liberalization could dominate its potential benefits. The ruling elite makes use of its power and increases the level expropriation. This is not only associated with the worsening of economic institutions in our model, but could also lead to a concentration of power in the hands of elite. However, it is possible that despite of increased taxation the entrepreneurs (and so the workers) get wealthier and their number larger, becoming thereby also more powerful. We have demonstrated this ambiguous relation on its dependence on the parameter constellation, particularly on the critical value of ψ , which stands for the non-elite's ability to translate its economic resources to political power, and the relation between the exogenous costs of expropriation and the gross productivity.

Our results are certainly subject to important caveats. One of these is that we do not distinguish between different forms of capital. Though empirical evidence suggests that composition of foreign capital might play an important role in determining its influence: direct investments are more appropriate than debt financing to set benign impulses, e.g. via affecting the productivity in the recipient economy. In our model the assumption of exogenous productivity is, certainly, a limited one. Thus, allowing for the sensitivity of the productivity to foreign capital is one possible extension of our framework. Furthermore, we have abstracted from capital endowment in our economy. The question who owns capital and introducing capital accumulation will highlight the interaction between the elite and entrepreneurs more intensively, and enable us to analyze the corresponding policy changes.

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Table 1

Change in Capital Inflows and Institutional Quality in Selected Countries 1996-2004¹

Country	Relative Increase in Capital Inflows	Absolute Change in Control on Corruption	Absolute Change in Rule of Law	Average Democracy Index ²
Albania	1,51	-0,77	-0,77	5,11
Angola ^t	0,88	0,18	-0,24	-2,56
Armenia	1,84*	-0,13	0,01	2,56
Azerbaijan ^R	7,41	0,10	-0,10	-6,78
Bangladesh	0,34	-0,17	-0,83	6,00
Belarus ^D	5,14	-0,31	-0,01	-7,00
Bolivia ^t	1,03	-0,29	0,16	8,78
Brazil RD	0,95	-0,12	0,18	8,00
Burkina Faso	0,31	-0,27	0,15	-2,22
Chad ^R	3,18	-0,26	-1,17	-2,00
Chile ^D	0,44	-0,06	0,11	8,56
Colombia	0,37	-0,15	0,28	7,00
Congo	0,25*	0,14	-0,08	-4,00
Costa Rica ^D	1,22	0,03	-0,25	10,00
Czech Republic ^D	13,23	-0,17	-0,22	10,00
Dominican Rep.	0,86	-0,02	-0,16	8,00
Ecuador	0,59	-0,30	-0,79	7,22
Equatorial Guinea RD	3,56*	-0,05	-0,56	-5,00
Fiji ^D	0,79*	-0,27	-0,33	5,33
Guatemala	0,11	-0,09	0,47	8,00
Guinea ^t	0,08	0,28	-1,28	-1,00
Haiti	2,1*	-0,30	-0,39	1,86
Hungary ^D	2,76	-0,02	0,05	10,00
Israel ^D	0,08	-0,47	-0,64	9,67
Jamaica ^D	0,76	-0,24	-0,15	9,00
Kazakhstan RD	1,47	-0,19	-0,22	-4,67
Kyrgyzstan	0,57	-0,19	-0,16	-3,00
Lebanon ^D	4,64	0,00	-0,32	n.a.
Macedonia	0,07	-0,08	0,59	7,00
Madagascar	0,07	0,84	-0,50	7,33
Malawi	0,52*	0,28	-0,30	5,44
Mali	0,21	0,39	-0,14	6,11
Moldovia	1,35	-0,52	-0,74	7,44
Myanmar	0,52	-0,31	-0,45	-7,11
Niger	0,36*	0,13	-0,51	1,44
Papua New Guinea	0,06	-1,07	-0,89	10,00
Paraguay	0,59	-0,57	-0,72	7,11
Peru	0,12	-0,05	-0,16	5,00
Philippines	0,20	-0,61	-0,22	8,00
Poland ^D	3,10	-0,24	-0,19	9,33
Romania ^D	11,61	-0,02	-0,02	8,11
Slovenia ^D	10,45	0,00	-0,05	10,00
Sudan ^R	0,27	0,12	-0,17	-6,67
Swaziland	0,08	-1,68	-0,61	-9,00
Tanzania	0,07	-0,02	0,43	0,11
Trinidad ^D	0,65	-0,61	-0,84	9,89
Turkey ^D	1,58	0,12	-0,18	7,11
Uganda	0,40	-0,09	-0,20	-4,00
Uzbekistan	36,8*	-0,36	-0,09	-9,00
Vietnam	0,49	0,12	-0,25	-7,00
Zimbabwe ^e	0,17*	-0,99	-1,12	-4,44

¹ Capital inflows are measured as a decline in the net external position. Data stem from Lane and Milesi-Ferretti (2006). Data for Corruption and Rule of Law are taken from World Governance Indicators by Kaufmann et al. (2008)

² This average democracy index is adopted from Polity IV Project. The "Polity Score" captures a regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). It also categorizes governments with the index level from -10 to -6 as "autocracies" from -5 to +5 as "anocracies" and from +6 to +10 as "democracies".

³ Data span is only for a shorter period of time available.

⁴ Indicates that the country is rich on nature resources.

⁵ Stands for developed among these countries. Countries were classified with respect to the World Bank Index. Economies are divided among income groups according to 2007 gross national income (GNI) per capita. The groups are: low income, \$935 or less; lower middle income, \$936-3,705; upper middle income, \$3,706-11,455; and high income, \$11,456 or more. Only the countries belonging to upper middle income and high income groups are marked here as developed countries.