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DIRECT INVESTMENTS IN DEVELOPING COUNTRIES?

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**POILITICAL INSTITUTIONS AND ECONOMIC GROWTH:
WHY DOES POLITICAL COMPETITION AFFECT FOREIGN
DIRECT INVESTMENTS IN DEVELOPING COUNTRIES?**

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1. Introduction

After a continuous rise over the 1990s, foreign direct investments (FDI) by multinational corporations (MNC) in emerging economies reached \$205 billion in 2001. The share of developing countries in the worldwide capital inflows in 2001 amounted to 26%, compared to an average 18% in the preceding two years (UNCTAD, 2002). Furthermore, FDI currently accounts for over 60% of private capital flows. As pointed out by Caves (1996), this increase in FDIs reflects both economic events and theoretical advances in the economic growth literature. Following the 1980s debt crisis many emerging economies were left with very limited access to bank lending. In this context, investments by MNCs became an important alternative form of foreign capital. Most developing countries eased restrictions on FDIs and offered tax incentives and subsidies to attract foreign capital (Young, Hood and Peters, 1994; Mudambi, 1998; Aitken and Harrison, 1999). The economic rationale behind the implementation of these policies was given by the emergence of endogenous growth theories which stressed the importance of human capital accumulation and technological externalities for economic growth in developing economies (Romer, 1993; Borensztein, De Gregorio and Lee, 1998; Martin and Ottaviano, 1999; Saggi, 2002, Xu, 2000).

These facts have inspired a stream of economic literature mainly focused on two research questions: do FDIs affect economic growth in emerging economies? and what does determine the location decision of MNCs in developing countries?

The literature analysing the impact of foreign capital on the economic growth in developing countries provides contrasting results not only about the existence of a significant relationship between FDI and growth rates of the recipient economy, but also about the sign of such a relationship. Firm-level studies of particular countries suggest that FDIs do not boost economic growth. Further, they do not find positive spillovers running from foreign-owned to domestic-owned firms (Wheeler and Mody, 1992; Harrison, 1996; Aitken, Hanson and Harrison, 1997; De Mello, 1997). Unlike the microeconomic evidence, however, macroeconomic studies generally indicate a positive role for FDIs in generating economic growth in emerging economies (De Gregorio, 1992; Blomstrom, Lipsey and Zejan, 1994; Alfaro, Chadra, Kalemli-Ozcan and Sayek, 2000).

As far as the determinants of MNCs location decisions is concerned, different hypotheses have been formulated to explain the choice of the host country by multinational firms. Traditional trade theory rests on what is known as the ‘factor-proportion hypothesis’ which suggests that firms integrate production vertically across borders to take advantage of factor price differences associated with different relative factor supplies (Helpman, 1984; Markusen, 1984 and Helpman and Krugman, 1985). On the other hand, the ‘proximity-concentration hypothesis’ predicts that firms expand production horizontally across borders considering a trade-off between maximizing proximity to customers and concentrating production to achieve scale economies (Krugman, 1983; Brainard, 1993 and 1997). Although conceptually distinct, these two explanations for MNCs location decisions are compatible and have been combined in the so called OLI paradigm whereby multinational activities arise due to the presence of three types of advantage: ownership, location and internationalisation (Dunning, 1977 and 1988).

In this paper our aim is to deal with both the determinants of MNCs location decisions and the effects of FDI on economic growth in developing countries emphasizing the importance of political factors for economic development in emerging market economies (Acemoglu and Robinson, 2000; Bourguignon and Verdier, 2000; Chaudhry and Garner, 2001a, and 2001b). With this in mind we focus on the following research question: can economic growth in developing countries be explained by the willingness of the political system to attract FDI by MNCs?

Following Acemoglu and Robinson (2000), we construct a simple game-theoretic model in which foreign investments by MNCs, although beneficial for the economy as a whole, may be seen as a destabilizing factor by the existing political system which ultimately may decide to block them. Therefore, we develop a theory of inefficient government policies and institutions. In our model we argue that incumbent political elites may oppose foreign investment flows whenever they fear the possibility of losing power. Our rationale goes as follows. Everything else equal, political elites are less likely to be replaced when they implement policy choices that promote economic development. Further, high growth will also benefit elites by increasing future output and their revenues. However, opening the home market to foreign investments, although promoting growth, may erode the political advantages of incumbent elites relative to other groups that are benefiting from the economic change or weaken their ability to control political challenges. As a result, incumbent elites will face a trade-off between the likelihood of maintaining political power and rents conditional on maintaining power. This in turn may induce them to block foreign investment inflows and growth.

The paper is organized as follows. In Section 2 we develop our theory. In Section 3 we describe the data, discuss the estimation methodology and present our findings. In Section 4 we comment on the empirical results and draw some concluding remarks.

2. The theory

We develop a reduced form static model which represents an extension of Acemoglu and Robinson (2000). We construct a game in which four players interact with each other: an incumbent government, a consumer, a domestic monopolist and a potential entrant MNC. The potential entrant MNC and the domestic monopolist differ in technology. Using p to refer to the generic technology, we assume that the MNC has a superior technology (p_1) with respect to the monopolist (p_0), i.e., $p_1 > p_0$.

The economy is characterized by two goods: x and y . The former is an input good which cannot be consumed as it is only used for the production of the consumption good y . The consumer owns an initial endowment m of input good x whose price is normalized to 1. The price of the consumption good y is determined exogenously. In this framework, the consumer faces the following maximization problem:

$$\begin{aligned}
& \max_{y,z} U_C = f(y,z) \\
(1) \quad & s.t. \\
& py + Tz \leq m
\end{aligned}$$

where p is the price of good y , T are the lump sum taxes imposed on citizens by the government to provide the public goods and services z . The maximization problem in (1) yields the demand value y^* .

If we consider the behaviour of the domestic monopolist, we note that it is willing to maximize the following production function:

$$(2) \quad \max_x \left[p - \frac{1}{p_0} \right] p_0 x$$

which is linear in the state of technology and in its input, i.e., $y = p_0 x$. Therefore, the monopolist chooses the level of input which allows him to maximize his profit function. The maximization problem in (2) yields the equilibrium level of input x^* .

Let us now move on analysing the behaviour of the incumbent government. We assume that the incumbent government is keen to retain its power and therefore seeks re-election. The probability that this happens depends on its ability to satisfy the collective demand of public goods and services. Therefore, we hypothesize that the incumbent government maximizes the following utility function:

$$(3) \quad \max_z U_G = f(z)$$

where z is the amount of public goods and services supplied by the incumbent government.

The critical point now is to set correctly the budget constraint for the government. To accomplish this task we have to make one important consideration: attracting the investment of the potential entrant MNC implies both a beneficial and a damaging effect on the possibility that the incumbent elite has to retain his power. The beneficial effect stems from the higher revenue that can be collected by taxing MNC's sales and therefore from the greater resources to be used in order to satisfy the collective demand for public goods and services. On the other hand, however, innovation and technological change associated to the MNC's investment might affect the distribution of the political power in the host country and erode the leading role of the incumbent elite relative to the other competing political groups (Olson, 1993; Mokyr, 1990). Therefore, the government is confronted with the decision of blocking or not-blocking the entrant MNC according to the relative magnitude of the beneficial and the damaging effects on the probability of its re-election.

With this in mind, we can now derive the budget constrain evaluating the conditions under which the government takes a decision of whether blocking or not-blocking the investment of the entrant MNC. It should be noted that z in (3) depends on the amount of taxes that the government is able to collect. As argued above, we hypothesize that the incumbent government can levy two taxes: a lump sum tax on the citizens $T \in [0, \bar{T}]$ and a proportional sales tax t on the consumption good. Further, we also consider the fact that if the incumbent government blocks the entrant MNC, it incurs some costs C .

To calculate whether the incumbent government will decide to block or not to block the entrant MNC, we can calculate its payoffs under all possible different scenarios. In this attempt we combine the tax revenues that the government expect to collect on the basis of its choice of whether to block or not-to-block the entrant MNC. Four different cases arise:

1. if the incumbent government blocks the entrant MNC (B) and still retains its political power (P), its revenue depends on the lump tax rate \hat{T} imposed on the citizens whose value is between 0 and \bar{T} , i.e., $\bar{T} \geq \hat{T} \geq 0$, and on the proportional sales tax levied on the monopolist only. Therefore, we can write the following revenue function: $V(B, P) = \hat{T} + (1-t)\Pi(\mathbf{p}_0)$
2. if the incumbent government blocks the entrant MNC (B), but loses its power (NP), it cannot levy any tax at all and its payoff is $V(B, NP) = 0$
3. if the government does not block (NB) the entrant MNC and it still retains its power (P), the revenue is a function of the lump sum tax \hat{T} imposed on the citizens and of the proportional sales tax levied on both the monopolist and the entrant MNC. The revenue function can now be written as: $V(NB, P) = \hat{T} + (1-t)[\Pi(\mathbf{p}_0) + \Pi(\mathbf{p}_1)]$
4. if the government does not block (NB) and loses its power (NP), its payoff becomes $V(NB, NP) = 0$

The above four cases can be used for deriving the expected revenues from the two possible behaviours to be implemented by the incumbent government (blocking or not-blocking). Let us consider that q and s are the probabilities that the incumbent government keeps control of the political system if it blocks and if it does not block the entrance of the MNC, respectively. Any variation in their respective values impacts on the decision of whether to block or not to block the entrance of the MNC in the home market. Therefore, we can derive the expected returns for the incumbent government (i.e., the net revenue functions) in the two cases of blocking and not blocking the entrant MNC:

$$(4) \quad \begin{aligned} V(B) &= qV(B, P) + (1-q)V(B, NP) - C \\ V(NB) &= sV(NB, P) + (1-s)V(NB, NP) \end{aligned}$$

Simplification yields:

$$(5) \quad \begin{aligned} V(B) &= q[\hat{T}(1-t)\Pi(\mathbf{p}_0)] - C \\ V(NB) &= s\{\hat{T} + (1-t)[\Pi(\mathbf{p}_0) + \Pi(\mathbf{p}_1)]\} \end{aligned}$$

from which it is clear that the government decision of whether to block or not to block the entrant MNC depends on the following inequality:

$$(6) \quad (q-s) \left[\hat{T} + (1-t)\Pi(\mathbf{p}_0) \right] \begin{matrix} > \\ = \\ < \end{matrix} C + s(1-t)\Pi(\mathbf{p}_1)$$

where the left hand side indicates the expected revenue from blocking, while the right hand side the expected loss. The sign of (6) depends on the values of the two probabilities q and s . The following three cases can now be derived:

- a. if the probability of retaining power is high, regardless whether the incumbent government blocks or does not block (i.e., both q and s are high), the loss from blocking is higher than its returns. In the limit when $s = q$, $0 < C + (1-t)\Pi(\mathbf{p}_1)$
- b. if the probability of retaining power is higher when the incumbent government blocks the entrant MNC rather than when it does not block (i.e., $q > s$), the incumbent government prefers the first alternative

- c. if the probability of retaining power is lower when the incumbent government chooses to block the entrant MNC rather than not to block it (i.e., $q < s$), the incumbent government would prefer the second alternative

The incumbent government therefore is confronted with the following maximization problem:

$$(7) \quad \begin{aligned} \max_z U_G &= f(z) \\ \text{s.t.} & \\ & (q - s) \left[\hat{T} + (1 - t) \Pi(\mathbf{p}_0) \right] > C + s(1 - t) \Pi(\mathbf{p}_1) < \end{aligned}$$

from which we can calculate the optimal level of public goods and services.

We can now sum up the results of our simple theoretical model. The incumbent government is more likely to block the entrant MNC when $q > s$ since in this case it is more likely that the incumbent elite retains its power.

This result allows us to formulate some testable hypotheses if the probability of retaining power in the two cases of blocking and not blocking is operationalized through the degree of political competition. In other words, given the existence of a potential entrant MNC, the probability of retaining power for the incumbent government if it blocks (q) and/or if it does not block (s) is affected by the degree of political competition. Therefore, the degree of political competition can be used as a proxy for the probability of re-election of the incumbent government. With this in mind, we can state the following theoretical hypothesis to be empirically tested in the next section: the incumbent government blocks the entrant MNC if the electoral competition is high and therefore it is less likely to be re-elected (i.e., when $q > s$) and does not block the entrant MNC if the electoral competition is low and therefore it is more likely to be re-elected (i.e., when $q < s$).

In the empirical investigation we are also interested in analysing whether the amount of FDI that is politically determined by the re-election calculus of the incumbent government affects economic growth in emerging market economies.

3. The Empirical Analysis

In this section we estimate the explanatory potential of our theory. The objective of the empirical analysis is twofold. First, we want to estimate whether political competition affects the decision of incumbent governments to attract FDIs by MNCs in developing countries. This issue is important since political competition in emerging market economies presents high variation as we assembled countries with a wide variety of political regimes, ranging from autocracies to developed democracies and therefore moving from low competitive to high competitive political markets. Second, we wish to evaluate whether FDI inflows determined by the political calculations of incumbent governments affect economic growth in emerging economies. Stated more simply, we want to assess political competition affects the decision of incumbent governments in emerging economies to attract FDIs inflows and whether this incoming capital in turn influences economic growth in these countries. In this attempt, we estimate a two equation model as follows

$$(8a) \quad FDI = f(\text{Political Competition}, \mathbf{X})$$

$$(8b) \quad \text{Economic Growth} = f(FDI, \mathbf{K})$$

where FDI inflows are affected by the degree of political competition and a set of control variables \mathbf{X} and economic growth is affected by FDI inflows and another set of control variables \mathbf{K} . It is

important to note that in both equations FDIs are measured by the *same* variable. It is clear therefore that (8a) and (8b) form a system of equations and that estimating (8b) alone would suffer from simultaneous equations bias. We can re-write explicitly equations (8a) as follows:

$$(9a) \quad \left[\frac{FDI}{Y} \right]_{it} = \mathbf{a}_0 + \mathbf{a}_1 POLCOMP_{it} + \mathbf{a}_2 REGTYPE_{it} + \mathbf{a}_3 LITERACY_{it} \\ + \mathbf{a}_4 INDEP_{it} + \mathbf{a}_5 COLONY_{it} + \mathbf{a}_6 \left[\frac{Y}{L} \right]_{it} + \mathbf{e}_{it}$$

where *FDI* is the inflow of foreign capital from MNCs, *Y* the GDP, *REGTYPE* is a binary dummy variable that takes the value of 1 if the country is a democracy and 0 if it is an autocracy, *LITERACY* indicates the literacy rate, *INDEP* measures the years of independence, *COLONY* is a binary dummy variable whose value is 1 if the country was a former British colony and 0 if it was not, *Y/L* is the per-worker GDP, being *L* the total labor force and *e* is the error term. As far as equation (8b) is concerned, we can re-write it following Mankiw, Romer and Weil (1992) as follows:

$$(9b) \quad \ln \left[\frac{Y}{L} \right] = \ln[A(0)] + gt + \frac{\mathbf{a}}{1-\mathbf{a}} \ln(r) + \frac{\mathbf{a}}{1-\mathbf{a}} \ln(n + g + \mathbf{d})$$

where *r* is the constant fraction of output that is saved, *n* indicates the population growth, *g* is the advancement of knowledge which is not country-specific and *d* the capital constant depreciation rate.¹ It is worth noticing that the term $\ln[A(0)]$ is not simply the technological rate, but it embodies also resource endowments, climate institutions and so on; it may therefore differ across countries. For our purposes this term reflects also the impact of the FDIs. Therefore, it can be decomposed in the following way:

$$(10) \quad \ln[A(0)] = \mathbf{a}_0 + \mathbf{j} + FDI$$

where \mathbf{a}_0 is a constant, *f* is a country-specific effect and *FDI* indicates the inflow of foreign direct investments. Given equation (9b) and the fact that *gt* can be treated as a constant term, since *t* is a fixed number and *g* is assumed identical for all countries, equation (9b) can be re-written as follows:

$$(11) \quad \ln \left[\frac{Y}{L} \right] = \mathbf{a}_0 + \mathbf{j} + FDI + \frac{\mathbf{a}}{1-\mathbf{a}} \ln(r) + \frac{\mathbf{a}}{1-\mathbf{a}} \ln(n + g + \mathbf{d})$$

or in stochastic form:

$$(12) \quad y_{it} = \mathbf{b}_0 + \mathbf{b}_1 \ln(r)_{it} + \mathbf{b}_2 \ln(n + g + \mathbf{d})_{it} + \mathbf{b}_3 \left[\frac{FDI}{Y} \right]_{it} + \mathbf{h}_{it}$$

where $\beta_0 = \mathbf{a}_0 + \mathbf{j}_{it} + gt$ and $\epsilon_{it} \sim \text{i.i.d.}(0, s^2)$ and $y_{it} = Y/L$. Therefore, our econometric framework consists of the following pair of equations:

¹ Following Mankiw, Romer and Weil (1992), it is assumed that *g + d* is equal to 0.05. Therefore, for our econometric analysis, this variable is constructed adding that value to the population growth rate.

$$(13a) \quad \left[\frac{FDI}{Y} \right]_{it} = \mathbf{a}_0 + \mathbf{a}_1 POLCOMP_{it} + \mathbf{a}_2 REGTYPE_{it} + \mathbf{a}_3 LITERACY_{it} \\ + \mathbf{a}_4 INDEP_{it} + \mathbf{a}_5 COLONY_{it} + \mathbf{a}_6 y_{it} + \mathbf{e}_{it}$$

$$(13b) \quad y_{it} = \mathbf{b}_0 + \mathbf{b}_1 \ln(r)_{it} + \mathbf{b}_2 \ln(n + g + \mathbf{d})_{it} + \mathbf{b}_3 \left[\frac{FDI}{Y} \right]_{it} + \mathbf{h}_{it}$$

A look at equations (13a) and (13b) reveals that there exists a severe problem of endogeneity. In this context, estimating each equation using the OLS technique leads to inconsistent and inefficient results. Since our final concern is to determine the impact of FDI on economic growth, we may observe that in equation (13b) the problem of endogeneity gives rise to a violation of one of the basic assumptions of the classical regression model, namely the error term and one of the regressors, specifically y_{it} , are correlated. In other words, $Cov\left[\left(\frac{FDI}{Y}\right)_{it}, \mathbf{h}_{it}\right] \neq 0$ and hence the estimation is inconsistent. To overcome this problem we need to implement a two-stage least square (2SLS) technique which consists of estimating the equations using only the pre-determined regressors and substituting the result for the endogenous variables in the equations. We proceed as follows. We first estimate equation (13a) and then we substitute the estimated values in equation (13b). In other words, we have:

$$(14a) \quad \left[\frac{FDI}{Y} \right]_{it} = \hat{\mathbf{a}}_0 + \hat{\mathbf{a}}_1 POLCOMP_{it} + \hat{\mathbf{a}}_2 REGTYPE_{it} + \hat{\mathbf{a}}_3 LITERACY_{it} \\ + \hat{\mathbf{a}}_4 INDEP_{it} + \hat{\mathbf{a}}_5 COLONY_{it} + \hat{\mathbf{a}}_6 y_{it} + \hat{\mathbf{e}}_{it}$$

from which we derive the estimated value of the dependent variable as $f\hat{d}i_{it} = f\hat{d}i_{it} + \hat{\mathbf{e}}_{it}$. Substituting this value for the corresponding variable in equation (13b) yields:

$$(14b) \quad y_{it} = \mathbf{b}_0 + \mathbf{b}_1 \ln(r)_{it} + \mathbf{b}_2 \ln(n + g + \mathbf{d})_{it} + \mathbf{b}_3 f\hat{d}i_{it} + \mathbf{J}_{it}$$

where $\mathbf{J}_{it} = \mathbf{e}_{it} + \mathbf{h}_{it}$. In this case the variable $f\hat{d}i_{it}$ is not correlated with the error term asymptotically. This technique allows us to overcome the endogeneity problem highlighted earlier and permit us to test whether political competition affects the decision of incumbent governments in emerging economies to attract FDI inflows and whether this incoming capital in turn influences economic growth in these countries.

We collected data on a sample of 55 developing economies over a time span which goes from 1986 to 2000. FDI data were available from UNCTAD 2002, the index of political competition was drawn from the Polity IV project (Marshall and Jaggers, 2002) and the dummy for the political regime was constructed from the index of civil and political rights (Frazer Institute, various years). The data on the GDP and the other control variables were obtained from World Development Indicators 2002 and Tabellini and Persson (2003). Summary statistics of the variables used in the empirical investigation are presented in Table 1.

We estimate the first-stage regression using the *feasible generalized least square* (FGLS), due to the presence of heteroskedasticity and serially correlated errors (see LM1 and LM2 tests in Table 2)². Therefore, we correct our empirical model for the presence of heteroskedasticity using robust

² One of the usual assumption of linear regression models is that $E(\mathbf{u}\mathbf{u}' | \mathbf{X}) = \mathbf{s}^2 \mathbf{O}$, where $\mathbf{O} = \mathbf{I}_n$ is a $n \times n$ identity matrix. In other words, the errors are homoskedastic and uncorrelated. If this property does not hold, the estimation of

standard errors and we eliminate the autocorrelation using an each panel-specific AR(1) model. The results of the first-stage regression are displayed in Table 2. We note that all coefficients but literacy are statistically significant and display the expected sign. In particular, an increase of political competition as well as democratic regimes favor greater inflows of FDIs. This result seems to give support to our theoretical hypothesis whereby the incumbent governments block potential entrant MNCs if electoral competition is high and therefore they are less likely to be re-elected (i.e., when $q > s$) and do not block potential entrant MNCs if electoral competition is low and therefore they are more likely to be re-elected (i.e., when $q < s$). Of course in autocratic countries the electoral competition is less pronounced than in democratic ones.

The fitted values from the first regression have been used as a regressor in the second-stage equation. The results are displayed in Table 3. Again the presence of a severe problem of heteroskedasticity and serial correlation, as the specific Lagrangian multiplier tests show, lead us to use the FGLS technique. All regressors present the expected sign and are extremely significant. In particular, it is important to note that the FDI has a strong effect on the GDP. Further, if compared with the impact on GDP exercised by domestic investment, we note a striking difference as foreign investment flows are much more effective in affecting economic growth in developing countries. This result can be seen in the light of the technology differential between domestic and foreign investment flows that has been indicated with p in our theoretical model.

The diagnostics tests need a deep explanation. First, the inclusion of time effects in the panel looks statistically significant. The opportunity of using the 2SLS, due to a problem of endogeneity has been tested using the Davidson – MacKinnon (1993) test which is equivalent to the (Durbin - Wu) – Hausman. This test provides a strong evidence that the OLS technique is not consistent³. Another important point consists of checking whether the model is correctly specified and whether the instruments, which we have used in our 2SLS regression, are valid. The Sargan (1958)- test gives us enough evidence that this is the case.

To sum up, the empirical investigation give us two broad results. First, political competition is an important determinant of government policies towards FDIs in developing countries. If the electoral competition is low, and therefore the incumbent government is more likely to be re-elected, the political elite will be open towards capital inflows by MNCs. Second, since FDIs are an important source of economic growth in emerging economies, political calculations aimed at retaining power may be amongst the primary causes of backwardness in developing countries. Both these results support the predictions formulated from our theory.

4. Concluding Remarks

In this paper we focused on the following research question: is economic development in emerging economies affected by the willingness of incumbent political elites to open their home market to FDIs by MNCs? We constructed a simple model in which we describe the possibility that incumbent governments in developing countries may block capital inflows from MNCs because of the fear that innovation and technological change may destabilize the political climate and reduce their chances of retaining power. Fearing replacement, therefore, incumbent political elites may block not only foreign investments, but also the economic development that is associated to the injection of this capital inflows.

the variance is not unbiased anymore. The consequence of this fact is that the estimated standard errors for the coefficients are wrong and this invalidates the inferences and the results of tests hypotheses. The FGLS allows us to overcome this problem. The use of the FGLS instead of the GLS is required by the fact that we do not have any knowledge about the matrix Σ . The FGLS is usually implemented in more steps in order to have an estimation of that matrix and, finally, to run our estimation.

³ More specifically the null hypothesis assumes that the model is exogenous. If this is the case, the OLS technique is consistent.

Our theoretical framework allows us to derive interesting results on the relationship between political competition and the degree of foreign investment attraction. We demonstrate that incumbent political elites are unlikely to block FDIs when political competition and the tax revenue that can be collected by entrant MNCs are both high. This monotonic result provides an interesting interpretation to explain the cross-country differences in attracting foreign investment flows in emerging market economies (Olson, 1993; Oneal, 1994; Li and Resnick, 2002).

We test our theory with a sample of 55 developing countries. Our empirical investigation unfolds over a time span which goes from 1986 to 2000. We use a standard Solow growth model to estimate the theoretical hypotheses stemming from our theory along the lines suggested by Mankiw, Romer and Weil (1992). We construct a simultaneous equation model and carry out the empirical investigation using a two-stage least square statistical technique. The results of the empirical analysis support the theoretical predictions of our model.

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Table 1
Summary Statistics

Variable	Obs.	Mean	St. Dev.	Min	Max
Ln [Y/L]	810	7.919	1.095	5.597	10.148
Ln [Y/INV]	810	2.986	.3850	.5670	3.836
Ln [ngd]	809	.7181	.422	-1.378	2.776
FDI/Y	810	.0166	.0254	-.1395	.1799
Indep	810	94.277	111.456	6	792
Colony	810	.3333	.4716	0	1
Regtype	810	.7604	.4270	0	1
Polcomp	793	3.090	1.210	0	5
Literacy	795	29.801	20.928	1.684	86.583

Table 2
The determinants of FDI

Regressand: FDI/GDP

Regressor	Parameter Estimates [t-test]
Polcomp	.00142 [2.77] *
Literacy	-.00003 [-1.46]
Indep	-.000012 [-1.76]**
Colony	.0049 [2.77] *
Regtype	.0063 [3.87] *
<i>Diagnostics (p – value)</i>	
Wald Test ~ $\chi^2(5)$	771.38 (.0000)
Log-likelihood	2573.51
Breusch-Pagan Test ~ $\chi^2(1)$	204.55 (.0000)
Hausman Test ~ $\chi^2(3)$	197.34 (.0000)
LM1 ~ (53)	31037.17 (.0000)
LM2 ~ (1378)	281.55248 (.0000)

NOTES:

1. Estimation carried out using the FGLS model. Hetero-corrected standard errors used and panel - specific AR(1) assumed.
2. Estimates significant at the 10% and 1% levels are marked with ‘***’ e ‘**’ respectively.
3. LM1: Breusch-Pagan test for heteroskedasticity
4. LM2: Breusch-Pagan test for autocorrelation

Table 3
Estimation of Growth Equation

Regressand: ln[Y/L]

Regressor	Parameter Estimates [t-test]
ln[I/GDP]	.1535 [9.93] *
ln[ngd]	-.0807 [-3.36] *
FDI/GDP	42.6073 [11.41] *
Constant	7.1440 [95.48] *
<i>Diagnostics (p – value)</i>	
Log-likelihood	898.5817
Breush-Pagan Test ~ $\chi^2(1)$	4673.84 (.0000)
Hausman Test ~ $\chi^2(3)$	0.032 (.9958)
Davidson – MacKinnon Test ~ F (1,787)	77.4185 (.0000)
Sargan Test ~ $\chi^2(2)$	1.532 (.2287)
F-test for time effects ~ F (13,743)	5.761 (.0000)
LM1 ~ $\chi^2(53)$	23044.11 (.0000)
LM2 ~ $\chi^2(1)$	44.1578 (.0000)

NOTES:

1. Estimation carried out using the FGLS technique. Hetero-corrected standard errors used and panel - specific AR(1) assumed.
2. Estimates significant at the 1% levels are marked with '*’.
3. Davidson – MacKinnon Test: H_0 : OLS estimation is consistent
4. Sargan Test: H_0 : model is correctly specified and the instruments are valid
5. F-test: H_0 : group effects only; H_1 : group and time effects
6. LM1: Breush-Pagan test for heteroskedasticity
7. LM2: Breush-Pagan test for autocorrelation