



Journal of Globalization, Competitiveness
& Governability / Revista de
Globalización, Competitividad y
Gobernabilidad / Revista de
Globalização, Competitividade e
Governabilidade

E-ISSN: 1988-7116

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Determinants of Foreign Direct Investment in Latin America
Journal of Globalization, Competitiveness & Governability / Revista de Globalización,
Competitividad y Gobernabilidad / Revista de Globalização, Competitividade e
Governabilidade, vol. 4, núm. 3, 2010, pp. 116-133
Portal Universia S.A.
Boadilla del Monte, España

Available in: <http://www.redalyc.org/articulo.oa?id=511851325006>

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Determinants of Foreign Direct Investment in Latin America*

AREA: 2
TYPE: Application

Determinantes de la inversión directa externa en Latinoamérica

Determinantes do investimento estrangeiro directo na América Latina

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Developing markets have recently gained importance not only in international trade, but also as an important host region for world foreign direct investment (FDI) inflows. With the aim to discuss the determinants factors of FDI in Latin America, we estimate a panel data model of economic and institutional determinants of FDI in eight Latin American countries, within the period 1996–2008. The empirical results support the hypothesis that FDI in Latin America is positively correlated to economic stability, growth and trade openness, and also to the improvement in the institutional and political environment. Furthermore, we found evidence that Multinational Companies are developing market and efficiency seeking strategies in the region.

Los mercados en desarrollo han ganado importancia recientemente, no solo en el comercio internacional, sino como importante región de acogida para flujos de inversión directa externa (FDI). Con la intención de abordar los factores determinantes de la FDI en Latinoamérica, hemos calculado un modelo de datos de panel de los determinantes económicos e institucionales de la FDI en ocho países latinoamericanos entre 1996 y 2008. Los resultados empíricos apoyan la hipótesis de que la FDI en Latinoamérica está positivamente relacionada con la estabilidad económica, el crecimiento y la apertura del comercio, así como con la mejora del entorno institucional y político. Además, hemos encontrado pruebas de que las empresas multinacionales están desarrollando estrategias de mercado y de búsqueda de eficacia en la región.

Os mercados em desenvolvimento ganharam recentemente importância não só no comércio internacional, mas também como importante região hospedeira para os afluxos de investimento externo directo (IED) mundial. Com o objectivo de discutir os factores determinantes do IED na América Latina, estimamos um modelo de dados num painel de determinantes económicos e institucionais do IED em oito países da América Latina, no período de 1996–2008. Os resultados empíricos suportam a hipótese de que o IED na América Latina se correlaciona positivamente com a estabilidade económica, crescimento e abertura comercial, e também com as melhorias no ambiente institucional e político. De resto, encontramos indícios de que as Companhias Multinacionais estão a desenvolver estratégias de desenvolvimento de mercado e de busca de eficácia na região.

* The authors would like to acknowledge anonymous reviewers and also Prof. Cuervo-Cazura for the helpful comments and suggestions to improve the paper.

DOI
10.3232/
GCG.2010.V4.N3.07

RECEIVED
01.09.2010

ACCEPTED
30.10.2010

1. Introduction

The flows of Foreign direct investment (FDI) around the world have risen significantly, from an annual average of US\$ 142 billion during the period 1985-1990 to over US\$ 385 billion in 1996, and reaching a record US\$ 1.9 trillion in 2007 (UNCTAD, 2009), with a gradual and growing participation of the developing countries. This group of countries increased its annual share of total world FDI from 15% in 1990 to 30% in 2006 and 37% in 2008 (UNCTAD, 2009). Over the 1990s, the flows of FDI to Latin America have increased significantly thanks to reforms, macroeconomic stability and the potential of growing business. The participation of the region in the world FDI represents around 9% and 37% among developing countries in 2008.

This paper aims at examining the determinants of FDI in Latin America, with special emphasis to the role of economic and institutional variables on the investment decision of Multinational Companies (MNCs) in the region. Previous empirical studies on the determinants of FDI to less developed countries have emphasized the role of economic environment and liberalization policies in the host country to attract foreign investment. Several studies have been developed to examine the determinants of FDI in Latin America, using different econometric methods. Most of them have emphasized the impacts of macroeconomic variables on the FDI inflows in the region. The aim of the paper is to address the economic and institutional determinants of FDI in Latin America (LA). Using a panel data model, covering the period of 1996-2008 and 8 countries, we will test how the macroeconomic stability, trade openness and institutional changes affect the FDI inflows in the region.

The article is organized as follows. The next section presents a review of the literature about the determinants of FDI in developing countries. Section 3 presents the hypotheses. Section 4 introduces the research design. Section 5 provides the results. In section 6 we present the concluding remarks.

KEY WORDS
Foreign direct investment, Latin America

PALABRAS CLAVE
Inversión directa externa, Latinoamérica

PALAVRAS-CHAVE
investimento externo directo, América Latina

2. Determinants of FDI: A General Framework

As acknowledged in the Keynesian analysis, investment decisions at both macro and microeconomic levels are one of the most intricate aspects of economic literature. The early contributions of models based on firms' behavior, as the Jorgenson (1963) model and Tobin (1969) q approach put emphasis on the expected return, interest rate and cost variables as the key determinants of investment.

More recently, conditioned by the globalization phenomenon and the increasing role of multinational corporations not only in the developed but also in the developing countries, scholars of International Business have been trying to take into account the effects of macroeconomic and international trade variables in integrated models, as well as how

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the institutional changes in the developing countries contributed to the distribution of the world outflows of FDI.

The first approach is more oriented to consider variables related to economic stability, like inflation rate, exchange rate, growth and international trade. The institutional approach is more dedicated to point out issues related to transparency, freedom and risks, which should affect considerably the business climate in the host countries of FDI.

MNC investments in less developed countries were previously driven mainly by locational advantages, usually related to the abundant natural resources. For the last twenty years, though, foreign direct investment has been oriented to emerging markets as part of MNC strategy to enlarge demand, to reduce production costs and to develop new technologies (Buckley, 1992).

2.1. Literature Review

For more than two decades (Dunning, 2000), the eclectic (or OLI) paradigm has remained the dominant analytical framework for accommodating a variety of operationally testable economic proposals of the determinants of FDI.

The eclectic paradigm (Dunning, 1988) argues that the extent, geographical and industrial composition of international production is determined by the interaction of three sets of interdependent variables - which themselves comprise the components of three sub-paradigm (Dunning, 2000).

The first sub-paradigm is the ownership advantage- O, which argues that enterprises seeking to engage in FDI activities must possess ownership of some firm-specific tangible or intangible asset that provides a competitive advantage over other firms. Therefore, this sub-paradigm asserts that the greater the competitive advantages of the investing firms- relative to those of other firms, operating in countries in which they are seeking to locate their activities- the more they are likely to be able to engage in, or increase, their foreign production (Dunning, 2000).

On the other hand, the ownership-specific advantages of a firm must compensate for the additional costs of establishing production facilities in a foreign environment and must overcome the firm's disadvantages vis-à-vis local firms (UNCTAD, 1998).

The second sub-paradigm is the locational advantages of countries or regions, for undertaking the value-adding activities of MNCs. In this composition, the ownership-specific advantages of firms should be used in combination with the locational advantages of host countries. Thus this sub-paradigm avers that the more the immobile, natural or created endowments favor a presence in a foreign location, the more firms will choose to augment or exploit their own-specific advantages through international production (Dunning, 2000).

The third sub-paradigm of the Dunning's OLI paradigm offers a framework for evaluating alternative ways in which MNCs may organize the creation and exploitation of their own-specific advantages in combination with locational advantages of host countries. This sub-paradigm treats of the presence of commercial benefits in an intra-firm as against an arm's-

length relationship between the foreign investor and the recipient of the investment. Thus the eclectic paradigm (Dunning, 2000), like its near relative, internalization theory, avows that the greater the net benefits of internalizing cross-border intermediate product markets, the more likely a firm will prefer to engage in foreign production itself, rather than license the right to do so. The framework suggests that there are several reasons in exploiting both ownership-specific and locational advantages by internalization; markets for assets or production inputs may be imperfect, if they exist at all, and may involve significant transaction costs or time-lags. also, it may be in a firm's interest to retain exclusive rights to assets, which gives it a significant competitive advantage (UNCTAD, 1998).

It is important to mention that while the first and third conditions are firm-specific determinants of FDI, the second is location-specific and has a crucial influence on a host country's inflows of FDI (UNCTAD, 1998).

The role of the eclectic paradigm as a leading conceptual framework for the analysis of determinants of FDI can be understood through two important contributions (Rugman and Verbeke, 2001). The first contribution of this framework is that the location-specific characteristics that contribute to competitive advantage are known to vary for different countries, sectors and firms. The second contribution is that the conceptual framework allows the identification of four different types of FDI: natural resource seeking, market seeking, efficiency seeking, and strategic asset seeking: (1) Resource seeking FDI occurs when firms identify specific host country locations as attractive natural resources, e.g. minerals, agricultural products, unskilled labor. (2) Market seeking FDI is more designed to satisfy a particular foreign market. It has an immediate import substitution effect, but often also leads to trade creation. (3) Efficiency seeking FDI is designed to promote a more efficient division of labor or specialization of existing portfolio of foreign and domestic assets by MNCs. This type of FDI reflects a rationalization of MNCs operations and a tendency to specialization of affiliates in its internal network. It is important to notice that this type of FDI is usually sequential to resource and market seeking FDI, and trade creating at the firm level. (4) Strategic asset seeking FDI is designed to protect or augment the existing Ownership specific advantages of the investing firm. This way, new plants and acquisitions or joint ventures secure assets of foreign firms. The objective of this type of strategy is to create synergies with the existing pool of assets through common ownership (Dunning, 2000; Rugman and Verbeke, 2001).

2.2. Empirical Studies

Since the initial survey of Agarwal (1980) about determinants of FDI, researchers have placed great reliance on neo-classical investment models during the 1990s. Using this framework, studies have tested a list of hypotheses, including the four core hypotheses of market size and growth, tariff discrimination, and the impact of market integration (Scott-Green and Clegg, 1999).

Previous empirical studies on the determinants of FDI in less developed countries have emphasized the role of economic environment and liberalization policies in the host countries to attract foreign investment.

Lucas (1993) investigated the determinants of FDI in East and Southeast Asia. Based on a model of derived demand for foreign capital by a multiple product he estimated the sensi-

tivity of direct investment flows to production costs in seven Asian countries. The finding results show that FDI inflows are estimated to be less elastic with respect to the cost of capital than to wages, and to be elastic with respect to aggregate demand in export markets than domestic demand.

Seeking for a more systematic empirical study to understand the determinants of FDI and their policy implications for FDI in developing countries, Wang and Swain (1997) provide an econometric investigation of factors influencing foreign capital inflow into Hungary and China during the period 1978-92. The estimation of the model supports the hypotheses that FDI is determined by the size of the host-country market, cost of capital, and political stability. In the case of China, the model showed that foreign capital seems to be sensitive to exchange rates and labor costs, while averaged real growth rates in OECD countries are found to be an important factor determining investment flows in Hungary.

Based on panel data models, Liu *et al.* (1997) showed that the results from the model estimation support the hypothesis that inward FDI in China have been affected mostly by relative real wage rates, relative exchange rates, and economic integration represented by real exports and imports. The model also showed that, based on pledged FDI in China, relative market size (measured by GDP) and cultural differences are two significant determinants.

Investigating the case of India, Agarwal (1997) found that locational advantages – as wage differential and market growth – are the main factors affecting the flows of FDI.

Several studies have been developed to examine the determinants of FDI in Latin America, using different econometric methods. Most of them have emphasized the impacts of macroeconomic variables on the inflows of FDI in the region.

Recent studies have shown that there is a large consensus on the positive effect of GDP annual growth on private investment, and a negative correlation between FDI and macroeconomic fluctuation since it leads to instability and uncertainty.

On the other hand, the literature is ambiguous about the trade effects on FDI. In the case of market-seeking projects, it is very likely that the FDI will replace the trade flows between two economies, but efficiency and resource-seeking projects may create an intra-firm trade, boosting imports and exports (Swenson, 2004; Seo & Suh, 2006). As for the exchange rate, there is also a similar discussion. Market-seeking projects should occur when the host market's currency is over valued, thus maximizing gains, while efficiency-seeking projects take place in the case of undervalued host market's currency, providing cost reduction opportunities (Chen, Rau & Lin, 2006; Xing & Wan, 2006).

In the beginning of the 2000s, many studies have tested different models, aiming at the verification not only of the effects of the market size and macroeconomic variables, but also the inclusion of non-traditional variables, also called institutional variables.

Nunnekeamp and Spatz (2002), using a panel data model with 28 countries, pointed out that the factors related to the domestic market, like GDP, GDP per capita and education have a higher positive effect on the FDI.

Nonnenberg and Mendonça (2004), using a panel data model of developing countries, have pointed out that FDI flows are sensitive to macroeconomic variables, like inflation and GDP), and to institutional variables, more likely to the level of education and economic openness.

Santana and Viera (2005) have shown that the determinants of FDI are related to the market size as well as institutional variables, like education, economic stability and the openness of the economy.

However, recent studies (Fuentes, 2009) have found that the effect of the domestic market tested by the GDP per capita is a determinant variable of the FDI inflows in Latin America.

Several empirical studies have been developed to test the impacts of the institutional changes on the inflows of FDI in LDCs. However, the role of the institutional indicators is still ambiguous. The empirical studies have shown different correlations between FDI and Institutions, and also the effects are different according to regions and to FDI home countries, which suggest that is still a need to continue working on new indicators and to test them in order to capture their real effect on international business.

On the other hand, according to Blonigen (2005), changes in the institutions are more likely to happen in the long run, which may limit to capture their effects on the variation of the FDI flows.

A review of empirical studies of FDI determinants in LDCs shows that several authors have pointed out that economic variables (more related to macroeconomic stability) are not the only determinants of the international performance of host countries in term of attracting new foreign investments, since most of the LDCs have adopted similar macroeconomic policies and have been very successful on their aim to stabilize their economies. Thus, several scholars in International Business and Economics have highlighted the importance of non-traditional (mainly institutional) factors in determining FDI patterns in developing countries.

Hausmann and Fernández-Arias (2000) were the first who attempted to systematize the role of institutions in shifting FDI in the host countries. After them, successively authors have tested different indicators, with the aim of contributing to formalizing their effects on the FDI in LDCs (Biswas, 2002; Wezel, 2003, Nonnenberg & Mendonça, 2004, Trevino, Thomas & Cullen, 2008).

The aim of this paper is to contribute with the discussion of the role of institutions in international business and, more specifically, to test how economic, trade and governance indicators affect the pattern and investment strategies of MNCs in the Latin American Countries.

3. Evolution of FDI in Latin American Countries

Globalization is a trend that has been gaining strength over the last three decades. From 1985 to 2008, the world's total FDI flows grew 3,440% while the FDI stock grew around 1,446%. By 2008, the world's total FDI flows registered US\$ 1.7 trillion, a little less than the historical record of almost US\$ 2 trillion in the previous year, whereas its FDI stocks amounted to US\$ 14.9 trillion. Approximately 68.5% of the FDI stocks are placed on developed economies, but developing economies are becoming also a FDI destination of major importance.

Asia is the main destination of FDI among developing and transition economies, with FDI inward stocks of US\$ 2.6 trillion by 2008. Latin America currently holds about US\$ 1.2 trillion of FDI inward stocks, which represents a quarter of both developing and transition economies total. The main hosts markets in Latin America are Mexico, Brazil, Chile, Argentina, Colombia and other offshore financial centers, namely the British Virgin Islands and the Cayman Islands. All together, these countries represent 82.2% of the overall Latin American inward FDI stocks, as shown in Table 1.

Table 1 - FDI Inward Stocks from Latin American Countries – 2008

| Country | US\$ Million | % Share of Latin America's Total |
|------------------------|--------------|----------------------------------|
| Mexico | 294,680 | 24.9 |
| Brasil | 287,697 | 24.3 |
| Chile | 100,989 | 8.5 |
| Cayman Islands | 79,973 | 6.7 |
| Argentina | 76,091 | 6.4 |
| Colombia | 67,229 | 5.6 |
| British Virgin Islands | 64,578 | 5.4 |

Source: Based on the on-line database of the United Nations Conference of Trade and Development (UNCTAD): www.unctad.org

With the aim of evaluating the importance of economic, trade and institutional variables for FDI in Latin America, we will test three main hypotheses.

Foreign firms evaluate not only criteria for market growth, but for stability as well, in such a way that not only some profit opportunities are addressed when selecting the target country to perform FDI, but also the capacity of this country to conduct a long-term macroeconomic policy to maintain such scenario.

Hypothesis 1. The higher a country's conditions for economic stability and growth are, the higher its propensity to receive FDI.

Economic determinants deal on how growth and stability affects the FDI inflows, and trade openness also have a positive impact toward the market's attractiveness for foreign firms, since it is a feature that represents a country's acquaintance to foreign products, as well as its experience on conducting international business, which may likely result on high levels of FDI. On the other hand, trade and FDI are more likely to be complementary, rather than substitutes.

Hypothesis 2. Countries with higher degree of trade openness are more prone to receive FDI.

The business climate in a given market is not only a result of its economic scenario, but the institutional scenario also plays a central role on turning the environment more friendly to foreign firms. Countries with improved institutions and positive governance indicators represent efficient market structures, which may reduce significantly transaction costs and uncertainty.

Hypothesis 3. Improved institutions provide location advantages that are likely to enhance a country's propensity to receive FDI.

4. Research Design

A formal model of investment decisions which take into account the production internationalization and the role of MNC has been developed, for example, by Barell and Pain (1996), Ray (1977) and Amal and Seabra (2007). Based on the brief literature review above, the stock of foreign capital in a host country depends on economic, trade openness and institutional variables (equation 1).

Therefore, the determinants of FDI in Latin America can be assumed to be given by the following function (equation 1):

$$FDI_i^t = \beta_0 + \alpha DUMMY_i + \beta_1 RER_i^t + \beta_2 INF_i^t + \beta_3 INTER_i^t + \beta_4 GDPPC_i^t + \beta_5 GDPGR_i^t + \beta_6 TRADE_i^t + \beta_7 VaA_i^t + \beta_8 PSNVT_i^t + \beta_9 GE_i^t + \beta_{10} RQ_i^t + \beta_{11} RoL_i^t + \beta_{12} CoC_i^t + ER_i^t \quad (1)$$

Where, the dependent variable is represented by the stock of foreign capital in the host country (FDI). All variables, except the constant and the binary variable (DUMMY), are expressed with an i for host country and t for time.

The binary variable used in the model aims at focusing the results on Latin American countries. It gives one (1) for these countries, and zero (0) for other countries. Thus, the regression plots only the results for the Latin American countries.

The macroeconomic factors that affect the FDI are represented by the following variables: Real exchange rate (RER), Inflation (INF), Interest rate (INTER), GDP Growth (GDPGR), and GDP per capita (GDPPC).

RER: the real exchange rate for the host country. The effect of the exchange rate is controversial. On one hand, a real depreciation of the host country currency favors the foreign country purchasers of host country assets, which leads to an increase of FDI inflow to the host country. On the other hand, an increase of the real value of the domestic currency may suggest an increase in the purchasing power of the population, which can have a positive effect on the FDI, as suggested in the case of market seeking strategy.

INF: a higher inflation rate and its persistence over several years indicate a macroeconomic instability. Thus, a negative correlation is expected between inflation and FDI.

INTER: the interest rate of the host country. If we take real interest rate as a measure of economic policy credibility – and that tends to be the case in most emerging markets – the

higher the real interest rate in the host country, the greater the probability of policy changes. Then, in the latter case, a negative relationship between this variable and foreign capital stock can also be reasoned.

The real GDP Growth and GDP per capita represent the size and the potential economic growth of the host country of FDI. The foreign capital stock can be argued to be positively related to the size of the market, which suggests that in the case of a positive correlation between the two variables and FDI stock, MNCs are more oriented to develop market-seeking strategy in the region.

TRADE: Trade flows (sum of exports and imports of the host country) are expected to have a positive effect on the FDI, which suggests that trade and FDI of MNCs in Latin America are based on complementary strategies. In terms of trade and trade openness impacts on the FDI inflows, several studies have pointed out, that there is a negative correlation between trade and FDI, which characterize a tariff-jumping strategy of MNCs in LDCs (Belderbos, 1997; Blonigen, 2002). However, there is also evidence that FDI and trade are not substitutes, but tend to be complementary. Thus, the hypothetical sign is controversial.

The institutional variables are represented by worldwide governance indicators (WGI), published by the World Bank (Kaufmann *et al.*, 2009): voice and accountability, political stability & absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption. We assume that the improvement of the WGI will affect positively the institutional and business climate of the host country, and therefore, the investment strategies of MNCs in the region.

Several authors have tested the effects of WGI on the FDI. Globerman and Shapiro (2002) have shown that such indicators are relevant for inward and outward FDI. Gani (2007), and Ali *et al.* (2008), using different econometric estimations for different regions, concluded that the governance indicators have a strong positive correlation with FDI inflows. Other authors have shown different results according to the strategies of MNCs and the size of the investment companies (Bénassy-Quéré *et al.*, 2007; Lskavyan & Spatareanu, 2008).

ER represents the residual error of the function.

Table 2 presents the variables used, with the hypothesized signs and the sources of the collected data.

Table 2 - Model variables, expected signs, and data sources

| Variable | Hypothetical sign | Source |
|---|--------------------|------------|
| Inward stock of Foreign Direct Investment (FDI) | Dependent variable | UNCTAD |
| Real Exchange Rate (RER) | +/- | IMF |
| Inflation (INF) | - | IMF |
| Interest Rate (INTER) | - | IMF |
| GDP per capita (GDPPC) | + | World Bank |
| GDP Growth (GDPGR) | + | World Bank |
| Trade (TRADE) | +/- | IMF |
| Voice and Accountability (VaA) | + | World Bank |
| Political Stability & Absence of Violence/Terrorism (PSNVT) | + | World Bank |
| Government effectiveness (GE) | + | World Bank |
| Regulatory Quality(RQ) | + | World Bank |
| Rule of Law (RoL) | + | World Bank |
| Control of Corruption (CoC) | + | World Bank |

5. Results

There are two main issues concerning the estimation of [equation 1](#). First, data on foreign direct investment in Latin America is not available for all countries over a long period. Also, economic, institutional and trade data are also not available for a large number of countries over a long period. Thus, we restricted our analysis to the period between 1996 and 2008, which restricts the application of a time-series model. A cross-section analysis is also limited, since data are not published by firms, but according to the host countries of FDI. Then, the most efficient alternative was to estimate a panel data model, where the data was pooled for ten years (1996, 1998, 2000, 2002-2008) and in twenty seven large developing countries, including eight Latin American Countries (Argentina, Bolivia, Brazil, Colombia, Mexico, Paraguay, Peru, and Uruguay). According to Raj and Baltagi (1992) the panel data method technique is used when observations in cross sections (developing countries) and time series are taking simultaneously. The advantage of the method is that it allows a level of specification that helps by the identification of economic model and which may offer a tighter control over individual heterogeneity. On the other hand, in reducing the effects of colinearity among the independent variables, the technique of panel enhances the estimator's efficiency.

Before discussing the results of the model's estimation, some preliminary issues have to be addressed. The panel was estimated through random-effect model based on the outcomes of the Hausman test. This indicates that the null hypothesis of consistent estimators for the

random-effects model cannot be rejected. Meanwhile, the alternative hypothesis of this test is rejected, so the estimation of the panel model with fixed-effects is inconsistent.

The Hausman test was the first test developed to compare these two mechanisms of estimating panel data models. It says that the unobserved effects (a_i) are not correlated with the explanatory variables (x_{it}), which implies its no-correlation with the idiosyncratic terms of error in each time of period too (assuming that $ER_i = a_i + v_i$). The unobserved effect is also called the fixed effect (Wooldridge, 2006).

The estimation of the relationship for FDI (equation 1) according to the determinants discussed in the literature review is reported in Tables 3 and 4. A random effect panel data model is estimated with $n = 27$ and $T = 10$ ($N = 270$, balanced panel), including a sample of 27 developing countries. In Table 3 are reported the results of the model estimation including all the countries of the sample, and in Table 4, we reported the model with a dummy, taking 1 for Latin American Countries.

Table 3 – Estimated models: The case of Developing Countries. Dependent variable: Stock of FDI

| <i>Models</i> | <i>(I)</i> | | | <i>(II)</i> | | |
|---|-------------------------------|----------------|----------------|--------------------------------|----------------|----------------|
| Variables | Coefficient | Ratio-t | P-value | Coefficient | Ratio-t | P-value |
| Constant | -441.00 | -0.06 | 0.95 | -2723.05 | -0.39 | 0.70 |
| Real Exchange Rate (RER) | -2.90 | -1.40 | 0.16 | -3.08 | -1.49 | 0.14 |
| Inflation (INF) | -183.61 | -0.73 | 0.46 | -296.42 | -1.83 | 0.07* |
| Interest Rate (INTER) | -166.54 | -0.70 | 0.48 | - | - | - |
| GDP per capita (GDPPC) | 4.07 | 3.72 | 0.00*** | 4.02 | 3.76 | 0.00*** |
| GDP Growth (GDPGR) | -526.52 | -1.31 | 0.19 | - | - | - |
| Trade (TRADE) | 0.30 | 9.89 | 0.00*** | 0.30 | 10.01 | 0.00*** |
| Voice and Accountability (VaA) | 3966.80 | 0.68 | 0.50 | - | - | - |
| Political Stability & Absence of Violence/Terrorism (PSNVT) | 8167.57 | 1.84 | 0.07* | 9621.20 | 2.27 | 0.02** |
| Government effectiveness (GE) | -20793.10 | -2.50 | 0.01** | -17152.50 | -2.42 | 0.02** |
| Regulatory Quality (RQ) | 4833.29 | 0.89 | 0.38 | - | - | - |
| Rule of Law (RoL) | -21234.40 | -2.22 | 0.03** | -15706.70 | -1.76 | 0.08* |
| Control of Corruption (CoC) | 7011.83 | 0.93 | 0.35 | - | - | - |
| R ² | 0,69 | | | 0,69 | | |
| R ² adjusted | 0,68 | | | 0,67 | | |
| F-statistic | F(12,257) = 47.828 [0.00] | | | F(7,262) = 81.7196 [0.00] | | |
| Wald test | - | | | Chi-square(5) = 4.09 [0.54] | | |
| Hausman test | Chi-square(12) = 16.26 [0.18] | | | Chi-square(7) = 7.98892 [0.33] | | |
| Schwarz Criterion | 6478.65 | | | 6459.34 | | |

Notes: * Significant at 10%. ** Significant at 5%. *** Significant at 1%. P-value between brackets

Table 4 – Estimated models, the case of Latin American countries. Dependent variable: Stock of FDI

| <i>Models</i> | <i>(I)</i> | | | <i>(II)</i> | | |
|--|-------------------------------|----------------|----------------|-----------------------------|----------------|----------------|
| Variables | Coefficient | Ratio-t | P-value | Coefficient | Ratio-t | P-value |
| Constant | -5686.24 | -0.70 | 0.49 | -8937.43 | -1.13 | 0.26 |
| DUMMY | 21650.50 | 1.62 | 0.11 | 23288.50 | 1.76 | 0.08* |
| Real Exchange Rate (RER) | -2.80 | -1.33 | 0.18 | -3.04 | -1.47 | 0.14 |
| Inflation (INF) | -170.42 | -0.68 | 0.49 | -303.80 | -1.89 | 0.06* |
| Interest Rate (INTER) | -197.85 | -0.84 | 0.40 | - | - | - |
| GDP per capita (GDPPC) | 3.82 | 3.44 | 0.00*** | 3.84 | 3.59 | 0.00*** |
| GDP Growth (GDPGR) | -524.79 | -1.32 | 0.19 | - | - | - |
| Trade (TRADE) | 0.30 | 9.99 | 0.00*** | 0.30 | 10.16 | 0.00*** |
| Voice and Accountability (VaA) | 1864.26 | 0.31 | 0.76 | - | - | - |
| Political Stability & Absence of Violence/ Terrorism (PSNVT) | 7944.74 | 1.79 | 0.07* | 8950.69 | 2.11 | 0.04** |
| Government effectiveness (GE) | -20904.10 | -2.52 | 0.01** | -17683.50 | -2.50 | 0.01** |
| Regulatory Quality (RQ) | 4097.65 | 0.75 | 0.45 | - | - | - |
| Rule of Law (RoL) | -17219.50 | -1.75 | 0.08* | -12598.70 | -1.39 | 0.17 |
| Control of Corruption (CoC) | 7073.52 | 0.94 | 0.35 | - | - | - |
| R ² | 0,69 | | | 0,69 | | |
| R ² adjusted | 0,68 | | | 0,68 | | |
| F-statistic | F(13,256) = 44.63 [0.00] | | | F(8,261) = 72.4625 [0.00] | | |
| Wald test | - | | | Chi-square(5) = 3.48 [0.63] | | |
| Hausman test | Chi-square(12) = 12.39 [0.42] | | | Chi-square(7) = 5.60 [0.59] | | |
| Schwarz Criterion | 6465.19 | | | 6440.38 | | |

Notes: * Significant at 10%. ** Significant at 5%. *** Significant at 1%. P-value between brackets

Before discussing the estimation results, some preliminary comments regarding the robustness and the efficiency of the chosen estimation method and technique. The R^2 adjusted for both models I and II almost in the end of Table 3 and 4 shows that 67% and 70% of the observations are explained by the results. The Wald test has as null hypothesis that the parameter of the excluded explanatory variables is zero. Therefore the exclusion of the explanatory variables (INTER, GDPGR, VaA, RQ and CoC) are confirmed to have their parameter equals to zero by the Wald test. To choose between models I and II, the lowest value of the Schwarz criterion implies the best model. Thus, all tests confirm model II as the best estimated model.

5.1. Discussion of results

Results reveal that there were five independent variables which achieved statistical significance and with the expected signs, being three traditional (or economic) variables and two non-traditional (or institutional) variables. The three significant economic variables were the trade flows (at 10%), inflation (at 1%) and the GDP *per capita* (at 1%). Such results lead to relevant conclusions regarding the strategy for the MNCs subsidiaries in Latin America, since the positive relation found for the trade flows and the GDP *per capita* to the inward FDI stocks reflects that these markets are targeted by foreign firms for both efficiency-seeking and market-seeking projects, which means that MNCs settle productive subsidiaries in Latin America not only willing to gain advantage with cost reduction or access to local resources, but also the profitability prospected by opportunities in the host markets are relevant for their FDI. A positive relation between FDI and trade flows suggests that the FDI creates intra-firm trade, which is a feature of efficiency-seeking projects, because firms settle a plant abroad to diminish production costs to later export back to their home market and other countries as well, creating commerce (Swenson, 2004; Seo & Suh, 2006). This finding is aligned to other studies like Wang and Swain (1997) which already mentioned that developing countries are appealing to MNCs willing to reduce costs, but the positive sign registered for the GDP per capita variable means that developing countries also have some revenue-generating attractiveness other than providing cost competitiveness for foreign firms. Traditionally it is the large market size that attracts some MNCs into a developing market (Liu *et al.*, 2007), but the individual average income, which can be a proxy for the demand standards of a given market, is a sign that foreign firms are taking the new opportunities provided in such markets by investing more in a country with growing income and larger domestic market. Another implication can be drawn from the results for the trade flows which is the complementary relation among this variable and the inward FDI stocks, which means foreign firms will opt to invest on markets where they have already a higher level of trade openness, indicating a pattern of evolutionary behavior by MNCs operating in Latin America. The real exchange rate was not significant at 10%; moreover, the coefficient was very close to be significant (14%) in the model, and its negative sign supports the existence of market-seeking projects; this means that foreign firms invest in Latin America when the local currency is overvalued, seeking higher profits, which is a characteristic from FDI-market seeking oriented (Chen, Rau & Lin, 2006; Xing & Wan, 2006). The inflation also achieved statistical (at 1%) significance and a negative sign, just as expected, which means that MNCs invest in Latin American countries when such markets present a positive scenario for macroeconomic stability. The results corroborate the hypotheses H1 and H2, in a way

that both conditions of macroeconomic growth and stability, as well as market's economic openness enhances a host market's attractiveness towards foreign investors, turning Latin American countries more prone to receive FDI.

Regarding the institutional variables, the political stability was significant (at 5%) and registered its expected sign, which is positive. Milman (1996) and Santana and Vieira (2005) had already drawn attention to how higher levels of political stability on developing markets are contributing to turn such markets more attractive to foreign investors. Apparently, a country's political stability has a large influence over its business climate, and the improvement of such feature on Latin America over the last two decades has increased the local presence of foreign MNCs, since the political stability is a very relevant feature for long-term projects like the FDI. Nevertheless, the government effectiveness did not have its hypothetical sign confirmed attaining statistical significance at 5%, presenting a negative relation to the inward FDI stocks. Such findings partially confirms H3, in a way institutions do matter for the Latin America's FDI inward, but positive economic conditions and trade perspectives have a higher and determinant effect on the strategies of foreign investor despite the institutional lack and effectiveness deficit in the region.

Summing up, these findings point out the growing number of opportunities prospected in Latin America for MNCs, not only being restricted to efficiency-seeking and resource-seeking projects, but also to market-seeking project as well. Opportunities of market-seeking on developing markets are commonly related to the size of the domestic market of the host countries, but this study also reveals that an increasing of the income average is contributing to attract FDI in the Latin American case, which means this increment provides new opportunities for foreign firms and also change the inward FDI profile on these markets, making them more appealing to suppliers of high added-value products. The improvement of political stability standards on developing economies has increased the local presence of foreign firms due to its effects over the market structure enhancement, but if these countries succeed on advancing other institutional aspects of their home market, especially their government effectiveness, they can turn out to be even more attractive to foreign firms, raising their inward FDI stocks.

6. Conclusions

By setting up a model to underline the FDI determinants in developing economies, this paper aimed at testing how economic and institutional variables from the host market affects its inward FDI stocks using a sample of 27 countries. A dummy variable was used to evaluate the applicability of the results found in the case of Latin America.

Results demonstrate that conditions for macroeconomic growth and stability and also for economic openness are highly relevant for the Latin American attractiveness towards FDI. These markets are targets for both efficiency-seeking and market-seeking FDI, since the trade flows and the GDP *per capita* were statistically significant and presented a positive

relation to the dependent variable. The political stability was also significant and registered a positive relation to the inward FDI stocks, which highlights how an improved political scenario in such economies enhances its attractiveness for foreign firms. Still, another significant variable did not match its expected sign, and this was the government effectiveness which had a negative relation with dependent variable; this may imply on considerations such as if the macroeconomic features from these countries are more relevant than the institutional scenario for the inward FDI Latin America or if there are conditions for such countries to advance even more on these features to possibly generate even more gains when it comes to attractiveness for foreign firms.

The implications of such findings disclose how developing economies can provide a broad range of opportunities for MNCs, in a way that such markets offer conditions for these firms to reduce their production costs or gain access to abundant resources, as well as the domestic market of developing countries may also create chances for foreign firms to generate revenues, not only when it comes to the size of this market, but also in terms of increasing personal income.

However, this study has some limitations that needed to be mentioned. First, only host market-specific determinants were approached, not taking into account how elements from the FDI's country of origin may have affected the process. Second, it is believed that institutional variables influence FDI in the long-run, and the data shortage did not allow a long historic series to be drawn, which may be negative for more consistent findings regarding this topic, thus the majority of developing economies have already achieved significant institutional improvement on the years analyzed in this paper. And third, a sample consisting of other countries other than only Latin American countries was used in order to find a consistent model.

For further researches we suggest enlarging the sample of the FDI host countries, and using different institutional indicators to discuss which ones affect FDI performance, and how they affect the investment climate. Another perspective for future researchers is to test the model based on firm data.

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