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FDI ATTRACTIVENESS IN LATIN AMERICA

Abstract:

This paper focuses on the identification of the variables determining the attractiveness of foreign direct investment in Latin America, represented by 17 countries over a period of time from 1996 to 2011. It considers variables traditionally not taken into account, such as the tax rate and institutional factors, which have revealed important explanatory variables also traditionally considered as GDP, inflation, population, the share of GDP by sector, the income level, etc. According to the analysis in this paper and the results obtained, it is very clear that institutional factors such as the size of the economy and the population have an influence in attracting FDI flows. The institutional quality is determinative for the attraction of foreign direct investment to these countries. Property rights, monetary freedom and investment freedom, are institutional indicators of great relevance as explanatory factors for attracting foreign direct investment, while government expenditures follows to a lesser degree.

Keywords:

Foreign Direct Investment, FDI attractiveness, FDI determinants, theories of FDI, Latin America

JEL Classification: N46, F21, P45

1. Introduction

Latin America represents a huge region with over 500 million people with positive population growth, a growing middle class, and growing international strategic importance. It is a region of diverse opportunities and challenges. Most of the countries in the region now have trustworthy political and economic frameworks, including democracy and responsible management of macroeconomic policies. There has been sustained economic growth over the last decade, with an average of more than 6 percent. Its economic stability and recovery capacity were proven by the region's resistance to the effects the recent global economic crisis. Latin America has 15 percent of the world oil reserves, large mineral reserves, and a quarter of the world's arable land and a third of its drinking water. All these vital, strategically important resources provide opportunities for this region to develop their potential.

According to the latest report by ECLAC (2012), Latin America and the Caribbean countries had attracted, for the third consecutive year, increasing flows of foreign direct investment. These results are quite significant when taking into account the international context of reduced general FDI flows around the world. Foreign Direct Investment received by Latin America and the Caribbean, stands out with a growth of 6.7 % relative to the previous year, reaching $173.361 million and has experienced sustained growth since 2010. According to this report, the United States and European Union countries are still the main investors in Latin America. The biggest growth of FDI flows was observed in Peru (49 %) Chile (32 %), Colombia (18%), and Argentina (27 %) while Mexico suffered a decrease (-35 %). Brazil maintained its position as the main recipient in the region (38%) with Chile in second place. It is necessary to emphasize that the composition of FDI in Latin America and Caribbean in general grew in the services sector and all the activities related with natural resources and the financial sector grew at the cost expense of a lower share for the manufacturing industry[1].

For Latin American economies, a significant increase in FDI flows is very important because it works as a propellant of development that could have immediate effect on these economies; for example, in the creation of jobs, the increase of productivity, the growth of salaries and the improvement of working conditions in general as well as encouraging the knowledge transfer process and human capital formation.

According to the latest report by ECLAC on the flows of foreign direct investment, in 2012 the region received $ 173.365 million in foreign investment. This record shows that Latin America itself is attractive to investors, although one of the main causes is the raw materials plus a surprising growth and macroeconomic stability despite a global financial crisis have surprised the world, emerging markets targeted by the investment decision makers.

[1] Foreign Direct Investment in Latin America and the Caribbean 2012. ECLAC. United Nations.

In this context, this research tried to evaluate the attractiveness of Foreign Direct Investment in 17 Latin American countries through the behavior of the main economic variables, institutional and environmental factors that are relevant in investment, looking for the average and median location of investments to determine the most attractive countries in the last 15 years. The main objective of this research identified the most and the least attractive countries for FDI location and the main determinants of the attractive of FDI in these countries.

2. Theoretical Background

In order to explain the behavior of Foreign Direct Investment and the analysis of attractiveness, a brief definition is required, along with a description of some theoretical studies regarding the determinants of FDI.

The theory of Foreign Direct Investment, as Krugman and Obstfeld (2000), suggests that this phenomenon occurs when there are reasons for location of production in different countries and international firms have incentives, i.e. incentives to maintain control over production processes. Krugman and Obstfeld define FDI as international capital flows by means of which an enterprise of a country creates a subsidiary in another country.

According to the International Monetary Fund (IMF) Foreign Direct Investment (FDI) is "a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy"[2].

According to UNCTAD (United Nations Division for Trade and Development) is "Foreign direct investment reflects the long-term interest of an entity resident in one economy (direct investor) in an entity resident in another economy (direct investment). It covers all transactions between investors direct and direct investment, which means it, covers not only the transaction initial but subsequent transactions between the two entities and the other affiliates "[3].

As defined by the World Trade Organization, WTO "Foreign direct investment (FDI) occurs when an investor based in one country (the home country) acquires an asset in another country (the host country) with the intent to manage that asset. The management dimension is what distinguishes FDI from portfolio investment in foreign stocks, bonds and other financial instruments. In most instances, both the investor and the asset it manages abroad are business firms. In such cases, the investor is typically referred to as the "parent firm" and the asset as the "affiliate „or "subsidiary"[4].

The definition used in this analysis is the definition of the World Bank, where "Foreign Direct Investment are the net inflows of investment to acquire a lasting management

[2] Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual, pg.319-320
[3] UNCTAD (United Nations Division for Trade and Development
[4] Report by the WTO (World Trade Organization). Trade and Foreign Direct Investment

interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments"[5]. In other words, it is the value of direct investment inflows by nonresident investors in the reporting economy.

Net outflows of foreign direct investment are the value of direct investment made by residents of the reporting economy in foreign economies. A negative value in the net inflow of FDI in a specific year indicates that the divestment of foreign investors in this period was higher than the value of the capital invested recently in the reporting economy. Meanwhile, a negative value in the net outflow of FDI shows that the amount of direct investment made by local investors in foreign economies was less than the direct capital repatriated (divested) from external economies.

The theoretical analysis of the determinants of FDI should be started with the question of why firms would have to become multinational companies in order to enter a foreign market. The answer to this question is found in the obstacles that involve FDI, transportation costs, tariff rates, exchange rate volatility, etc.

There are many different reasons why a company might decide to make an investment abroad, in general they can be placed into three groups: searching for new markets, the pursuit of the increase of the production efficiency (for example by reducing costs), and the exploitation of natural resources (Diaz Vasquez, 2002, Figlio and Blonigen, 2000; Low and Sosvilla , 1994). According to the classification of Dunning there are four types of FDI: Search for Natural Resources (both physical and human), market research (internal market, adjacent markets), search efficiency (rationalization of production to take advantage of economies specialization) and strategic asset seeking (Dunning, 1997). According to Levy, Stein and Daude (2001) and Markusen and Maskus (2001), FDI can be classified into three major groups: vertical, horizontal with horizontal homogeneous products and horizontal with differentiated products.
Some of the empirical studies that have been devoted to analyzing the main determinants of FDI mention Ewe- Ghee, who reported his arguments / findings on two aspects of foreign direct investment (FDI): its correlation with economic growth and its determinants. While he finds substantial businesses which support the existence of positive spillovers from FDI, there is no consensus on the causalities. On determinants, the paper finds that market size, infrastructure quality, political / economic stability, and free trade zones are important for FDI, while results are mixed regarding the importance of tax incentives, the business/investment climate, labor costs, and openness.

Navaretti, Barba and Venables (2004) note that determinants such as institutional quality may play a role in the decision of multinational companies. One of the authors

[5] World Bank

that identifies economic institutions needed to promote economic growth is Dani Rodrik, who mentions five types of institutions: 1) the rights of property, such as security for the performance of contracts, and the creative flame market, which, according to the author, in their absence, markets do not exist or perform very poorly, 2) regulatory institutions that deal with externalities, economies of scale and imperfect information, 3) institutions for macroeconomic stabilization, referring to the fiscal and monetary policies, 4) the institutions for social insurance, referring to insurance systems and social protection, and 5) institutions for conflict management.

These authors focus on institutions, especially in the role of property rights and the rule of law, where, as they say, what matters are the rules of a society, defined by explicit and implied rules of conduct which prevail and their power to create appropriate incentives for desirable economic behavior. This concept is also associated with the Nobel Prize winning work of Douglass North, who defined institutions as the rules that determine the constraints and incentives in economic interaction and social policy. These rules can be informal (traditions, codes of conduct, culture) and formal (laws and civil legal status).

3. Potential Determinants of FDI inflows

Is immense the empirical literature about the determinants of FDI and its location. In this study, we are going to try to integrate the most significant determinants of FDI and according to the variables that we consider relevant, we calculated the ranking of attractiveness of FDI in 17 Latin American countries.

3.1. Macroeconomic Stability

A stable situation, growth and economic transformation could both be determining factors for FDI flows. Several World Bank studies have found a relationship between macroeconomic stability and FDI. However, there is a lack of consensus on the effect of the macroeconomic determinants of FDI except in market size. For example, the measurement of GDP by GDP per capita variable is apparently more solid as a determinant of FDI in the horizontal (Wheeler and Mody 1992, Billington 1999, Kravis and Lipsey 1982). It is expected that greater economic stability and less uncertainty about the future economic situation will increase FDI flows.

3.2. Inflation

In their model, authors Schnelder and Frey (1985) used the variable inflation rate as one of the determinants of FDI (Schnelder, Fledrich and Frey, Bruno, 1985) and their analysis demonstrates how multinational companies invest less in emerging economies with high inflation. Apergis and Katrakilios (1998) found a negative relationship between the rate of inflation and FDI flows. One might expect that lower inflation encourages a greater flow of FDI.

3.3. Institutional Factors

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that identifies economic institutions needed to promote economic growth is Dani Rodrik, who mentions five types of institutions: 1) the rights of property, such as security for the performance of contracts, and the creative flame market, which, according to the author, in their absence, markets do not exist or perform very poorly, 2) regulatory institutions that deal with externalities, economies of scale and imperfect information, 3) institutions for macroeconomic stabilization, referring to the fiscal and monetary policies, 4) the institutions for social insurance, referring to insurance systems and social protection, and 5) institutions for conflict management. Dani Rodrik, Professor of International Political Economy at Harvard University and Arvind Subramanian, Advisor to the IMF's Research Department, in their article "Institutions Rule: Primacy of Institutions over Geography and Integration in Economic Development" try to explain why there is a huge difference between the average income of the poorest and the richest. Their analysis states that "the best institutions and greater protection of property rights increase investment and promote technological progress, thus increasing the level of income.

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As the World Bank itself clearly pointed out in its report on global trade 2004, "It has long been recognized that the quality of institutions is an important element of a well-functioning market." This interest, for the evident fellow academics (Dollar and Kraay, 2003; Levchenko, 2004), has also reached international trade literature. In fact, the cited World Bank report is subtitled Analysis of the Link between Domestic Policy Environment and International Trade and there are already a number of papers on the relationship between trade and institutional factors that could shift the analysis.

3.4. Property Rights

The index of property rights is an assessment of the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state. This index measures the degree to which a country's laws protect private property rights and the degree to which its government enforces those laws. Ronald Coase (1991) is one author who explained the significance of transaction costs and property rights for the institutional structure and functioning of the economy. Found in Mongrovejo's analysis, within the determinants for country risk as a determinant essential is respect for private property rights (Jesus A. Mongrovejo). According to Dunning (Dunning, John H.,1997), an important element in attracting FDI can become legal and regulatory framework stable, transparent and well defined. At a macroeconomic level one would expect that the protection of property rights could

offer potential investors a safe environment, with less risk, such as expropriation. A clear regulatory framework, stable, transparent and well defined can be very conducive to attracting FDI flows and can become a decisive factor in attracting FDI flows to Latin America especially, where together with the different political systems; it can play an important role as a determinant of FDI. It is expected that in countries where there is greater legal certainty there will exist more Foreign Direct Investment.
Jian Kang (2012) found that institutional factors are even more influential than traditional economic factors (labor costs) as determinants of the location of FDI, which was demonstrated in his analysis in eight Asian countries.

3.5. Corruption

Corruption undermines economic freedom by introducing insecurity and uncertainty in economic relations. This study analyzes the level of corruption as a determinant of FDI. The score for this component is mainly derived from the Perceptions Index of Transparency International Corruption. One of the authors that explore corruption is Rafael Espinosa. She analyzes the optimal institutional level of the state, depending on what legal structures exist, the level of corruption and market size. It is expected that higher levels of corruption may lower FDI flows. There is empirical evidence which shows that corruption can have a negative impact on attracting FDI flows (Wei, Shang Jin, 1997).

3.6. Fiscal Freedom

The fiscal freedom index is a measure of the tax burden imposed by the government. It includes direct taxes, in terms of top marginal tax rates of an individual's income and organizations, and general taxes, including all forms of direct and indirect taxes at all levels of government, as a percentage of GDP. This variable might be expected to impinge FDI flows.

3.7. Government Spending

As for government spending as a determinant of FDI, according to Montagna (2007), an increase in government spending may indicate increased spending on productive social sectors such as education, health of human capital, as well as more efficient infrastructure growth, all of which are crucial for attracting FDI. However, as this author points out, both theory and empirical evidence suggest that the relationship between public spending and FDI may be negative. Goodsped (2006) notes that in some cases larger public spending may represent a high bureaucracy linked to administrative inefficiencies and bribes that could significantly increase the costs of investing in a particular country. This variable includes government spending, consumption and transfers. The relationship is expected to be both positive and negative.

3.8. Commercial Freedom

The opening of trade, as debated by Kravis and Lipsey (1982), has an inverse relationship to FDI while other authors as Wheeker and Mody (1992) have found this determinant insignificant. In the present analysis, using commercial freedom as a

general indicator of the effectiveness of government business regulation, the quantitative score is derived from a series of measures based on difficulty of starting, operating and closing a business. Mongrovejo is one of the authors who described the market size, trade openness and country risk as main determinants of FDI in Latin America. In an economically free system, there will be no restrictions on the flow of investment capital. Of course, the greater investment freedom and greater commercial freedom, the greater the flow of FDI (Wei, Shang Jin, 1997).

3.9. Monetary Freedom

Monetary freedom combines a measure of price stability with an assessment of price controls. Both inflation and price controls distort market activity. Price stability without microeconomic intervention is the ideal state for the free market. One hopes that with more monetary freedom, there will be a greater flow of FDI. One country where it might be difficult to analyze this aspect, as well as the inflation rate, is Argentina, with the manipulation of data in regards to inflation rates and, especially, by large monetary controls that have had counterproductive effects and reduced the clarity of investments in this country.

3.10. Financial Freedom

Financial freedom is a measure of the efficiency of the banking as well as a measure of independence from government control and intervention in the financial sector. State ownership of banks and other financial institutions such as insurance companies and capital markets reduces competition and usually decreases the level of services available. It is expected that the relationship of FDI with this variable is also positive.

3.11. Real Exchange Rate

As for the real exchange rate, according Elbadawi and Mwega (1998), depreciation could attract greater FDI flows, however according to Gorg and Wakelin (2002), a real depreciation increases the cost of imported inputs and foreign currencies lose their value, so it has adverse effects on the profitability of FDI projects.

4. Methodology

To evaluate the FDI attractiveness, we estimated a random effects Logit model (Equation 1). All countries are divided into two groups according to their amount of FDI. The attractiveness, is reflected in our latent variable FDI attractiveness which takes the value of 1 if the country is above a certain threshold (mean or median version of the FDI attractiveness indicator) and zero otherwise.

$$FDI\_attractiveness_{it}^{*} \begin{cases} 1 \; if \; FDI\_attractiveness_{it} = \left(\upsilon_i + \pi W'_{it} + \beta X'_{it} + \varepsilon_{it}\right) > 0 \\ 0 \; otherwise \;\; (FDI\_attractiveness_{it} \leq 0) \end{cases} \quad (1)$$

The default approximation of the panel random effect component ui of the log likelihood is by the adaptive Gauss–Hermite quadrature (Skrondal and Rabe-Hesketh, 2004). To verify the quadrature approximation we test it using a sensitivity comparison method. The models are refitted for different numbers of quadrature points and then they are compared.

We followed a rule of thumb, if the relative changes in coefficients do not change by more than a relative difference of 10-4 (0.01%) then the choice of our model is correct. The economic variables are reflected in the vector of W'it (labour force, import, fixed capital formation) and institutional variables are denoted by X'it (World Bank and Heritage foundation indicators), π and β are coefficients to be estimated and εit is the error term.

Fixed effects (Maximum likelihood - ML) estimations is used as a baseline and consistent estimator for the Hausman test. Since a nonlinear relationship is expected the fixed capital formation is included in a square form and both variables are thus tested by a joint F test.

5. Data

The FDI attractiveness variables (FDI as % GDP) were constructed on annual basis. For a country, it equals 1 if its FDI inflow is above each year's average, alternatively median, of all the Latin-American countries in our sample. This median alternative was considered because average values might be skewed and influenced by outliers and very different from than median values.

All the economic indicators were obtained from the World Bank (WB) database. Data about patent applications are from World Intellectual Property Organization (WIPO). The Latin-American region is represented by 17 countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paragua y Peru between the years 1995 and 2011.

The table No. 1 shows the summary statistics of the variables used in this analysis for 17 Latin American countries:

Table No. 1: Summary statistics, LA countries 1996-2011

Variable	Number of observations	Mean value	Standard deviation	Minimum	Maximum
Mean FDIGDPATTR	272.00	0.41	0.49	0.00	1.00
Median FDIGDPATTR	272.00	0.53	0.50	0.00	1.00
Foreign direct investment, net inflows (% of GDP)	272.00	3.67	2.72	-2.50	17.13
GDP per capita (constant	267.00	3746.73	2082.67	925.74	9030.74

2005 US$)					
Gross fixed capital formation (% of GDP)	272.00	19.69	4.00	11.69	33.67
Imports of goods and services (constant 2005 US$)	267.00	98.98	392.90	0.10	1877.25
Exports of goods and services (constant 2005 US$)	267.00	147.39	583.84	0.08	2676.04
Value added of Agriculture per GDP	265.00	10.27	5.02	3.40	23.55
Value added of Industry sector per GDP	265.00	30.96	7.11	14.28	57.80
Value added of Service sector per GDP	265.00	58.77	7.65	38.18	82.28
World Bank: Control of Corruption index	271.00	43.23	22.83	2.44	92.20
World Bank: Government Effectiveness Index	271.00	45.82	19.81	9.76	87.80
World Bank: Political Stability Index	271.00	36.29	19.49	0.96	82.21
World Bank: Regulatory Quality Index	271.00	36.64	20.57	1.41	89.47
World Bank: Rule of Law Index	271.00	51.57	20.19	4.31	96.57
World Bank: Voice and Accountability Index	271.00	52.10	15.49	24.17	89.42
HF Business Freedom	271.00	63.98	9.78	47.80	87.30
HF Trade Freedom	271.00	70.28	8.18	51.00	88.00
HF Fiscal Freedom	271.00	80.77	6.48	64.80	97.60
HF Public Expenditure	271.00	81.82	10.47	45.80	99.30
HF Monetary Freedom	271.00	72.04	12.91	0.00	95.40
HF Investment Freedom	271.00	59.96	16.32	5.00	90.00
HF Financial Freedom	271.00	57.93	14.17	20.00	90.00
HF Property Rights	271.00	44.98	17.76	0.00	90.00
HF Freedom from corruption	271.00	35.48	14.44	10.00	79.00

Source: Data from the World Bank, Heritage Foundation (HF), own calculations

Results

FDI attractiveness ranking

The table No. 2 shows the results of Logit random effects model to assess the attractiveness of FDI. The attractiveness is reflected in the attractiveness latent

variable that has the value 1 if the country is above the average of the median and zero otherwise. According to our results have identified the TOP-6 most attractive countries in the time period from 1996-2011.

Table No. 2: FDI attractiveness latent variable, Median versus Mean specification, LA countries 1996-2011

FDI Attractiveness	Mean version		Median version	
Country	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**
CHILE	1	0	1	0
PANAMA	0.94	0.25	0.94	0.25
NICARAGUA	0.88	0.34	1	0
COSTA RICA	0.69	0.48	0.94	0.25
HONDURAS	0.69	0.48	0.81	0.40
PERU	0.50	0.52	0.69	0.48
URUGUAY	0.50	0.52	0.50	0.52
BOLIVIA	0.44	0.51	0.69	0.48
COLOMBIA	0.31	0.48	0.56	0.51
BRAZIL	0.25	0.45	0.44	0.51
VENEZUELA	0.25	0.45	0.31	0.48
EL SALVADOR	0.19	0.40	0.31	0.48
MEXICO	0.19	0.40	0.31	0.48
ARGENTINA	0.13	0.34	0.38	0.50
ECUADOR	0.00	0.00	0.06	0.25
PARAGUAY	0	0	0.06	0.25
GUATEMALA	0	0	0	0

Source: own calculations

We can see that only Argentina differs a lot, but both latent variables seem to be almost the same in the rest of the other countries. Median is however, a bit broader, i.e. more countries are considered attractive then in the mean case. As expected Chile and Panama are attractive countries for FDI in Latin America. Is followed by Nicaragua, Costa Rica and Honduras, which are in the top 6 countries of FDI attractiveness.

Chile and Panama are distinguished by their constant economic growth and attractiveness for investment, as well as his extensive access to external markets and stable macroeconomic environment. We cannot forget to mention the great dynamism and entrepreneurial culture governing in these countries.

Nicaragua in the recent years has worked hard to attract foreign investment to this country and make it an attractive country for investment thanks to the large amount of investment incentives, tax benefits from export, the producers, the forestry sector, textile industry, manufacturing, agribusiness and in general investors wanting to work in intermediate goods and raw capital goods directly related to the production processes materials. Moreover, this country has created strong incentives for projects

of electricity generation from renewable sources as well as for the exploitation of mineral resources, which can easily attract foreign investment accompanied a legal system that protects them. Even in tourism, Nicaragua offers various tax incentives to prospective investors in this sector.

According to the report Doing Business 2013, Nicaragua is located ranked number 1 in the fulfillment of contracts in all the region Latin America and Caribbean, and ranked 12th in the Order of Insolvency of the 32 countries in the region and the first in Central America. As regards the protection of investments occupies in the regionally ranked in the position 22nd, and it is third in Central America after Panama and Belize.

Costa Rica occupies the first place in innovation in Latin America according to the World Economic Forum, thanks to its capacity for innovation, quality of scientific research institutions, investment in research and development as well as procurement of advanced technology products by the government in contrast to other countries in the region. Furthermore, Costa Rica ranks the 3rd place in Central America in the index Trade Facilitation which makes it in a very attractive country as a recipient of FDI after Panama and Guatemala. Of course, Chile occupies the first position in this ranking.

Honduras has tremendous advantages that could be exploited to represent the upturn in the national economy. Perhaps the biggest advantage is the geographical location, as the country is located in the heart of America´s trip allowing just two hours by plane and 48 to 72 hours by sea to the main market (the United States).

In infrastructure, Honduras has the port “Cortés”, which is the only one deep-water port in Central America and the largest port in Latin America to qualify in both port security programs of the U.S. government, the Container Security Initiative (CSI) and the mega-port initiative with more than 200 companies specializing in the lightest manufacturing operating in private industrial parks industrial model that has operated successfully for more than 20 years in Honduras.

We can also mention the benefits of signing trade agreements with several countries. Honduras has free trade agreements with the United States (DR-CAFTA, for its acronym in English), Mexico, Japan, Chile, Colombia, Taiwan, Canada, Australia, Dominican Republic and the Central American Integration System (SICA). Also, Honduras is a beneficiary of preferential tariffs under the Generalized System of Preferences (GSP) with Japan, Canada, Australia and Europe.

After this information, it is not a surprise that Nicaragua, Costa Rica and Honduras are in the top 6 as the most attractive country for investment in the analyzed period. Our expectations about Chile, as the most attractive country in the region has been scientifically proven. Chile has become one of the most attractive emerging market for investment in Latin America due to its economic stability and low risk country have ranked among the most desirable destinations in South America, followed by Panama and the great possibilities of investment in a country in Central America. Both

countries rank first in their region index of Ease of Doing Business and the Investor Protection index as well as the index of Starting Business.

Finally, Peru has its foreign direct investment as a percentage of GDP above the regional average of the countries analyzed, which is 3.67% of GDP and Peru reached to 3.79%. Peru is one of the most attractive geographic areas of the world for mining investment as well as for other sectors, although less strongly. All this, thanks to its stability and continued growth

with one of the highest rates of economic growth in the region and one of the lowest inflation rates.

In the middle, we have Uruguay, Bolivia, Colombia, and Brazil. Perhaps we will be surprised that some of these countries are not on the list of the top six, but we need to remember that it is the analysis of the attractiveness of countries in a specific period of time from 1996 to 2011 and also treated of absolute numbers of foreign direct investment as% of GDP in the last 15 years. Precisely, those countries are below but pretty close to the regional average of FDI as % of GDP, except for Bolivia with 5.20% as a percentage of GDP in foreign investment, one of the most high, but the deficiencies in institutional factors are one of the reasons why this country hasn´t not positioned in the top 6.

According to the report of the World Economic Forum, Peru and Colombia are headed in the index of Ease of Doing Business in South America after Chile as well as in the results for the index of Investor Protection. In the index of Starting Business Uruguay is between the top after Chile and Panama.

Brazil could be among the first by the size of their market, sustained economic growth and large presence of multinational as well as Mexico. However, we cannot forget the standardization of data and analysis of foreign direct investment as% of GDP.

Colombia merits special attention, according to our calculations based on the period 1996-2011 ended in the middle group. However this country is known for its new policy to attract investments from late 2011 and nevertheless, is between the top 10 thanks to a significant advance in the reputation of this country as well as the increase of multinational therein.

The Least attractive countries are Venezuela, El Salvador, Argentina. Ecuador, Paraguay and Guatemala. Most of these countries have large deficiencies, especially in its institutional factors.

The variables determining the attractiveness of FDI

As expected the level of capital endowment increases the probability of the country to be more likely to be attractive, but with decreasing marginal returns. These decreasing returns indicate that investors find less-developed countries with more investment opportunities more attractive than more developed countries. This is in-

line with neoclassical economic growth theory, which says that investors are going to invest where higher capital returns (interest rate) are.

The Table 3 shows bootstrapped estimation results, which are more restrictive. Without it more indicators were statistically significant, but the estimation was not consistent. The results indicate, that country with better regulatory quality infrastructure is more attractive to investors (about 10 % higher Logit probability with the 1 % increase in WB RQ index). An interesting result is the negative relationship between industrial sector and our latent FDI variable. It seems that less-developed industrial sector countries attract investors with higher probability.

Table No. 3: Results from random effects logit regression, LA countries 1996-2011

	(1) Average WB RE	(2) Median WB RE	(3) Average HF RE	(4) Median HF RE
wbcc	-0.031	0.006		
	(0.04)	(0.07)		
wbge	-0.081	-0.034		
	(0.07)	(0.09)		
wbps	0.035	0.062		
	(0.07)	(0.07)		
wbrq	0.104*	0.004		
	(0.05)	(0.08)		
wbrl	0.051	0.067		
	(0.05)	(0.06)		
wbva	-0.035	-0.000		
	(0.09)	(0.11)		
improcgdp	-0.006	-0.002		
	(3.01)	(4.57)		
CAPfixed	0.746	1.433	1.362	1.603
	(0.61)	(0.94)	(1.31)	(1.18)
capfixedSQ	-0.011	-0.024	-0.019	-0.026
	(0.01)	(0.02)	(0.03)	(0.03)
agr	-0.094	-0.036	-0.310	-0.244
	(0.21)	(0.33)	(0.22)	(0.16)
ind	-0.104	-0.082	-0.258	-0.212*
	(0.10)	(0.24)	(0.26)	(0.12)
year	0.052			
	(0.09)			
i.year 1996-2009	NO	YES	YES	YES
HF Fiscal freedom			0.119	0.111
			(0.17)	(0.12)
HF Govermnet			-0.013	-0.031
			(0.08)	(0.04)
monf			0.077	0.021
			(0.11)	(0.04)
Constant	-112.373	-20.130*	-24.309	-20.601
	(177.25)	(12.18)	(28.83)	(16.06)
Observations	259	259	265	265

Hausman test χ^2 (p-value)	0.7890	0.9324	0.9997	0.3131
Quadrature Check	> e-06	> e-09	> e-05	> e-04
Joint Capital Significance $\chi^2(2)$	8.88**	3.83	5.75*	11.21***

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, Bootstrapped robust standard errors in parentheses

Source: own calculations by STATA

Table No. 4: Results from random effects logit regression – lead variables, LA countries 1996-2011

	(1) Average WB RE	(2) Median WB RE	(3) Average HF RE	(4) Median HF RE
f1wbcc	-0.042	0.013		
	(0.05)	(0.04)		
f1wbge	-0.051	-0.036		
	(0.06)	(0.06)		
f1wbps	-0.003	0.027		
	(0.03)	(0.04)		
f1wbrq	0.120*	0.062		
	(0.07)	(0.05)		
f1wbrl	0.037	0.046		
	(0.04)	(0.04)		
f1wbva	-0.017	-0.044		
	(0.07)	(0.05)		
improcgdp	-0.006			
	(0.61)			
CAPfixed	0.386	0.635	1.300	1.483**
	(0.65)	(0.40)	(0.83)	(0.64)
capfixedSQ	-0.003	-0.009	-0.021	-0.025*
	(0.02)	(0.01)	(0.02)	(0.01)
agr	-0.031	-0.043	-0.198	-0.156
	(0.15)	(0.15)	(0.24)	(0.16)
ind	-0.098	-0.060	-0.190	-0.143
	(0.09)	(0.10)	(0.19)	(0.14)
year	0.045	0.040	-0.059	-0.108
	(0.09)	(0.08)	(0.13)	(0.11)
f1fiscal			0.081	0.099
			(0.12)	(0.12)
f1govsp			-0.019	-0.050
			(0.04)	(0.04)
f1monf			0.074	0.053*
			(0.09)	(0.03)
Constant	-95.366	-87.975	97.117	195.298
	(187.95)	(171.93)	(266.87)	(216.03)
lnsig2u				
Constant	-4.173	0.317	1.481	0.916
	(22.70)	(1.86)	(1.60)	(1.42)

Observations	244	248	249	249
Hausman test χ^2 (p-value)	0.4892	0.6914	0.1447	0.6208
Quadrature Check	> e-05	> e-06	> e-05	> e-06
Joint Capital Significance $\chi^2(2)$	4.51**	3.01*	7.03***	8.17***

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, Jackknife standard errors in parentheses

Source: own calculations by STATA

The model with lead variables introduces the expectation approach. We believe that some institutional factors, for example, monetary policy and anti-corruption policies, are based on communication strategy (inflation targeting) and political cycle, i.e. proclamations about future development, which might attract investors. However, the results indicates, that again the regulatory quality and only sound monetary policy and good financial markets attract investors more (about 5 % higher Logit probability with a 1 % increase in the HF monetary freedom index).

Conclusions

This paper sought to deepen the analysis of the determinants of attractiveness of Foreign Direct Investment in Latin America from another approach, proposing a multilateral approach through explanatory models carried out with a sample of 17 Latin American countries through a Logit Model. It evaluated potential determinants of FDI flows registered in Latin America during the period 1996 - 2011, in an attempt to bring together the many theories about the determinants of FDI.

According to the analysis in this paper and the results obtained, it is very clear that institutional factors such as the size of the economy and the population have an influence in attracting FDI flows. According to the empirical evidence showed in this research, the institutional quality is determinative for the attraction of foreign direct investment to these countries. Property rights, monetary freedom and investment freedom, are institutional indicators of great relevance as explanatory factors for attracting foreign direct investment, while government expenditures follows to a lesser degree.

In this scenario it was particularly important to discover and understand what the determinants of attractiveness of Foreign Direct Investment in Latin America are and thus identify the key areas to focus on. The results of the analysis identified the most important variables to explain the FDI flows as: economic growth- GDP, inflation and fixed capital formation. Institutional and political factors such as property rights, public expenditure, monetary freedom and investment freedom also play an important role in FDI flows.

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Appendix

(1) Full Random-effects logistic regression – median FDI per GDP Attractiveness 1996-2011, HF

Median FDI attractiveness	Observed Coefficient	Bootstrap Std. Error	z	P>z
Labor force	-3.47E-08	5.70E-08	-0.61	0.543
Fixed capital	**1.212016**	**0.7107031**	**1.71**	**0.088**
Fixed capital squared	-0.020149	0.0159175	-1.27	0.206
VA - agar	-0.1985987	0.17334	-1.15	0.252
VA - industrial	-0.124752	0.1225076	-1.02	0.309
Linear time trend	-0.0920896	0.1573558	-0.59	0.558
HF Property	-0.0044518	0.0239488	-0.19	0.853
HF Corruption	0.0263965	0.0338449	0.78	0.435
HF Fiscal	0.0823738	0.108482	0.76	0.448
HF Government	-0.0459158	0.0482199	-0.95	0.341
HF Business	-0.0030252	0.0550806	-0.05	0.956
HF Monetary	0.0263534	0.0370007	0.71	0.476
HF Trade	0.0205785	0.0780258	0.26	0.792
HF Investment	0.0233965	0.0249181	0.94	0.348
HF Financial	-0.008314	0.0355288	-0.23	0.815
Constant	167.7735	320.4944	0.52	0.601

Note: HF – Heritage foundation index, VA – Value added

(2) Random-effects logistic regression – average FDI per GDP Attractiveness 1996-2011, HF

Median FDI attractiveness	Observed Coefficient	Bootstrap Std. Error	z	P>z
Labor force	-3.46E-08	1.36E-07	-0.25	0.799
Fixed capital	0.973004	0.912852	1.07	0.286
Fixed capital squared	-0.01307	0.018849	-0.69	0.488
VA - agar	-0.00504	4.503155	0	0.999
VA - industrial	-0.22882	0.171859	-1.33	0.183
Linear time trend	-0.11409	0.132122	-0.86	0.388
Labor force	-0.14784	0.217286	-0.68	0.496
HF Property	0.029379	0.050636	0.58	0.562
HF Corruption	-0.00555	0.050346	-0.11	0.912
HF Fiscal	0.122357	0.117765	1.04	0.299
HF Government	-0.04901	0.039569	-1.24	0.215
HF Business	-0.05707	0.070239	-0.81	0.416
HF Monetary	0.096487	0.105987	0.91	0.363
HF Trade	0.067	0.07366	0.91	0.363
HF Investment	0.007489	0.043883	0.17	0.864
HF Financial	-0.01703	0.038282	-0.44	0.656
Constant	273.7353	441.9911	0.62	0.536

Note: HF – Heritage foundation index, VA – Value added