



Munich Personal RePEc Archive

# **Openness and Foreign Direct Investment: The Role of Free Trade Agreements in Latin America**

Ponce, Aldo Fernando

University of Connecticut

1 October 2006

Online at <https://mpra.ub.uni-muenchen.de/8858/>

MPRA Paper No. 8858, posted 26 May 2008 05:01 UTC

# **Openness and Foreign Direct Investment: The Role of Free Trade Agreements in**

## **Latin America**

**Aldo Fernando Ponce (University of Houston)**  
aldo.ponce@uconn.edu

### **Abstract**

**This paper sheds lights the on the performance of Latin American governments in attracting foreign direct investment (FDI) through trade policies -- specifically by signing free trade agreements with other countries. The relationship between FDI and trade for Latin America has previously been analyzed. According to these studies, the relationship between the degree of “openness” (imports plus exports divided by the domestic product) and FDI has not been conclusive. At the same time, the effect of specific trade policies on the behavior of FDI inflows has not been extensively studied. Some state policies on trade could produce a significant impact in attracting FDI inflows. Specifically, through the implementation of several free trade agreements, several Latin American countries have been able to attract greater inflows of foreign direct investment. The implementation of these free trade agreements was part of a more general plan of economic reforms that Latin American countries launched since the mid-1980s. Those countries that signed more free trade agreements – or signed them with the largest economies in the world –increased their effectiveness in attracting FDI inflows. I test the impact of this policy on the behavior of FDI inflows through a panel data model (with feasible generalized least squares estimators) for seventeen Latin American countries and for the period ranging from 1985 to 2003. <sup>1</sup>**

**Keywords:** free trade agreements, foreign direct investment, Latin America.

---

<sup>1</sup> An earlier draft of this paper was submitted for the Canadian Association of Latin American and Caribbean Studies Conference, Calgary, September 28-30, 2006.

## **I.- OVERVIEW**

Although the literature on the theory and determinants of trade and FDI has remained traditionally independent of each other, some scholars have recently emphasized the linkages between trade and foreign direct investment, and more importantly, how foreign direct investment (FDI) is related to international trade. Several papers -- both theoretical and empirical -- have been written to analyze and understand the linkages between trade and FDI inflows.

This paper sheds lights on the performance of Latin American governments in attracting foreign direct investment (FDI) by signing free trade agreements with other countries. To achieve this goal, I divided this work into two main sections. In the first part, this paper surveys the most relevant theoretical aspects and empirical findings of previous studies on the relationship between FDI inflows and trade. It also discusses previous results found on this relationship for Latin America. In the second section, this study sheds new lights on the importance of trade policies -- specifically free trade agreements -- in attracting FDI inflows to Latin America.

In these previous studies, the relationship between the degree of “openness” (imports plus exports divided by the domestic product) and FDI inflows was not conclusive. However, some state policies on trade might produce a significant impact in attracting FDI inflows. For instance, as this study shows below, through the implementation of free trade agreements, several Latin American countries have been able to attract greater inflows of foreign direct investment. Table 1 shows the free trade agreements signed by Latin American countries.

**Table 1.- Free trade agreements and customs unions**

Free Trade Agreements	Customs Unions	
<ul style="list-style-type: none"> <li>» Bolivia-Mexico (1994)</li> <li>» Canada-Chile (1997)</li> <li>» Canada-Costa Rica (2001)</li> <li>» CARICOM-Costa Rica (2004)</li> <li>» CARICOM-Dominican Republic (1998)</li> <li>» Central America-Chile (1999)</li> <li>» Central America-D.R.-U.S. (CAFTA) (2004)</li> <li>» Central America-Dominican Republic (1998)</li> <li>» Central America - Panama (2002)</li> <li>» Chile-China (2005)</li> <li>» Chile-European Union (2002)</li> <li>» Chile- Korea (2003)</li> <li>» Chile-Mexico (1998)</li> <li>» Chile - New Zealand - Singapore - Brunei (2005)</li> <li>» Chile-Panama (2006)</li> <li>» Chile-Peru (2006)</li> <li>» Chile-United States (2003)</li> <li>» Costa Rica-Mexico (1994)</li> <li>» Group of Three (Colombia - Mexico - Venezuela)- (1994)</li> <li>» Guatemala-Taiwan (2005)</li> <li>» Mexico-EFTA (2000)</li> <li>» Mexico-European Community (2000)</li> <li>» Mexico-Israel (2000)</li> <li>» Mexico-Japan (2004)</li> <li>» Mexico-Nicaragua (1997)</li> <li>» Mexico - Northern Triangle (El Salvador - Guatemala - Honduras)- (2000)</li> <li>» Mexico-Uruguay (2003)</li> <li>» Panama-Singapore (2006)</li> <li>» Chile-Mercosur (1996)</li> </ul>	<ul style="list-style-type: none"> <li>» <b>Andean Community</b></li> <li>» <b>MERCOSUR</b></li> </ul>	<ul style="list-style-type: none"> <li>» <b>CACM</b></li> <li>» <b>CARICOM</b></li> </ul>
	<ul style="list-style-type: none"> <li>» Panama-Taiwan (2003)</li> <li>» Peru - Thailand (2005)</li> <li>» Peru - United States (2006)</li> <li>» United States-Australia</li> <li>» United States - Bahrain</li> <li>» United States-Israel</li> <li>» United States-Jordan</li> <li>» United States-Morocco</li> <li>» United States-Singapore</li> </ul>	

Source: SICE. Foreign Trade Information System

The implementation of these free trade agreements was part of a more general plan of economic reforms that Latin American countries launched since the mid-1980s. The goals of these reforms were to adjust their economies and improve their competitiveness by liberalizing trade, privatizing state-owned companies, and

deregulating their markets. This paper concludes that those countries that signed more free trade agreements increased their chances of attracting FDI inflows. I test the impact of this policy on FDI through a panel data model -- for seventeen Latin American countries and for the period ranging from 1985 to 2003.<sup>2</sup>

According to the literature, both variables -- FDI and trade inflows -- are linked in a variety of ways. Likewise, these linkages could be classified in several ways. In this paper, I organize the linkages into two categories: direct and indirect linkages. The first category implies a direct causality between these two variables, which does not take into account the possible impact of a third variable in the causality relationship between trade and FDI inflows. By contrast, an indirect linkage supposes a causality relationship, in which there are other variables that interact with trade and foreign direct investment and might influence their relationship.

## **II.- LINKAGES BETWEEN FDI AND TRADE**

### **Direct linkages: macro-level evidence**

Concerning the direct linkages, several scholars argue that foreign direct investment fosters exports, import substitution, or greater trade in intermediary inputs, especially affiliate producers (Goldberg & Klein, 1997). Likewise, more trade - through trade liberalization - encourages foreign direct investment when more markets are available for exporters. To test this statement, several scholars have turned their attention

---

<sup>2</sup> The countries included in my econometric analysis were Argentina, Brazil, Chile, Uruguay, Bolivia, Peru, Ecuador, Colombia, Venezuela, Mexico, Dominican Republic, Panama, Costa Rica, Guatemala, Honduras, El Salvador, and Paraguay.

to test this linkage via pooled, time-series multivariate regression models. The goal with the implementation of these models has been to measure the impact of trade on foreign direct investment inflows (or vice versa) by controlling for other economic indicators such as the capital account liberalization index, inflation, real exchange rate, gross domestic product (size of the market), etc. Some institutional variables are also considered such as political stability, number of veto players, and judiciary independence. This section surveys some representative attempts to measure this relationship.

By testing these multivariate models, Glen Biglaiser and Karl deRouen (2006) find a positive relationship between the degree of “openness” and the amount of FDI. However, the values of the estimated coefficients are very low and statistically non-significant in all their estimated models. Their dependent variable is FDI in Latin America and the other independent variables are growth, government consumption, real GDP per capita, expropriation risk, corruption, societal conflict, financial reform, privatizations, capital account liberalization, and tax reform.

There are several reasons that could explain why these scholars cannot capture a conclusive relationship between trade and foreign direct investment. First, the relationship between these two variables presents a complexity that was not analyzed by Biglaiser and Karl deRouen. Thus, as I note in the next section of this paper, trade and foreign direct investment can be related through specific mechanisms or policies such as preferential free trade agreements and unilateral reductions in tariffs. In their model, trade is treated as a single variable, without discriminating the effect of trade policies that could matter in order to explain the amount of FDI inflows. Hence, under Biglaiser and

Karl deRouen's methodology, it becomes difficult to test the performance of the Latin American governments in creating effective policies and attractive environments that can facilitate the increase of FDI inflows.

Additionally, the scope of this type of study is limited for other two reasons. First, a positive (or negative) sign for the estimators of trade ("openness") or foreign direct investment does not imply causality necessarily. Second, these studies cannot account for the microeconomic reasons that produce such a positive (or negative) relationship. In other words, with just macro-level evidence, these multivariate models cannot justify causality between trade and foreign direct investment. In the next section, I introduce the main arguments of new research studies that have offered new venues for the analysis of the relationship between trade and foreign direct investment.

### **Indirect linkages: introducing microeconomic foundations**

In order to determine the indirect linkages between FDI and trade, I focus my attention on the common determinants that these economic variables share. Through these common determinants (and with double causality), a change in either trade or FDI could influence the other variable. Moreover, these common determinants could exert their own effect on trade and foreign direct investment. Based on these common determinants, I highlight the emergence of three new approaches, which are based on the potential effects of a changing real exchange rate<sup>3</sup>, differences in competitiveness due to

---

<sup>3</sup> The first common determinant for FDI and trade is the real exchange rate. The basic argument is that the real exchange rate can affect both trade and FDI. Thus, movements in the real exchange rate can make exports more or less profitable compared to the exports of other countries. Likewise, the real exchange rate can impose additional incentives (or disincentives) for more (or less) investment. When facing depreciation, export firms become willing to invest more in order

variations in technology and infrastructure<sup>4</sup>, and the increasing importance of free trade agreements around the world.

---

to increase their total (and average) profits. Thus, this indirect linkage between FDI and trade becomes relevant when incoming investment, product of the depreciation, is employed to increase exports with a clear goal: to get the benefits of the depreciation. Regarding the quantification of the real exchange rate's impact on trade and FDI, the empirical evidence is not conclusive either. For example, Linda Goldberg and Michael Klein (1997) find that FDI from Japan into Southeast Asia has been very sensitive to changes in the yen-dollar exchange rate. Thus, a real depreciation of the currencies of the Southeast Asian countries with respect to the yen both increases FDI inflows to these countries from Japan and decreases FDI inflows to these countries from the United States. Moreover, holding constant the effect of the real exchange rate, direct investment from Japan has promoted trade between Southeast Asian countries and both Japan and the United States.

By contrast, Goldberg & Klein state, "FDI into Latin America from the United States and Japan are not responsive to real exchange rates. Moreover, the trade-promoting effects of this FDI appear to be weak or insignificant with regard to Latin American trade with the United States and Japan." In addition, L. Leiderman and A. E. Thorne (1996) find that FDI inflows into Mexico changed very little after the Mexican currency crisis of 1994.

<sup>4</sup> A second determinant is related to technological capabilities of countries involved in trade and inflows of direct investment. The idea is that these technological capabilities strongly influence the degree of competitiveness of any country with respect to the rest of the world. For some scholars such as Narula Rajneesh and Katherine Wakelin (1998), these competitive advantages -- based on technological capabilities -- determine the ability of a country to compete in international markets. Thus, under this neo-Schumpeterian approach to trade focused on technological capabilities, differences in technology can explain export performance. Under this approach, the relationship between competitiveness and trade performance is positive (positive correlation).

According to Narula & Wakelin, understanding the role of multinational enterprises becomes critical in order to understand how foreign direct investment can affect export performance through technological improvements. Since 1981, FDI inflows have grown faster than GDP or even exports on a worldwide basis. Moreover, in 1991, the global sales of multinational enterprises exceeded \$4.8 trillion, compared with world exports and non-factor services in the same year of \$4.5 trillion (UNCTAD, 1994). These two facts highlight the increasing relative importance of FDI inflows and multinational enterprises in trade.

In order to find out the importance of the role of multinationals in trade, Narula & Wakelin assume that firms are heterogeneous. This heterogeneity across multinational firms is then determined by technological differences, country specific characteristics, and absolute advantages. Then, firm's heterogeneity and differences in competitiveness determine intra-firm trade's behavior, which are a relevant component to explain the relationship between trade and FDI inflows.

Technological differences exist because of the presence of different strategies (knowledge) for organizing intra-firm transactions efficiently. Thus, firms could eventually create specific competitive advantages through innovation when considering the cumulative nature of innovative capabilities (Dosi, 1988).



After surveying previous empirical studies focused on the possible linkages between trade and FDI inflows - under micro (excluding the argument based on free trade agreements) and macro foundations – I can unfortunately notice that according to previous empirical evidence, the relationship between these two important economic aggregates has not been conclusive for the Latin American region.

In addition to the presence of discouraging results, these studies cannot provide us with an evaluation on the performance of Latin American governments in attracting more FDI inflows into their economies by using specific trade policies. Although Latin

---

In addition, competitiveness of the firms can also be influenced by the general economic structure of the country in which the firm is located. The “structural competitiveness” of the country affects the competitiveness of the firms operating in the country. The determinants of this “structural competitiveness” are “the strength and efficiency of a national economy’s productive structure, its technical infra-structure and other factors determining the externalities on which firms can build.” (Chesnais, 1992). All these externalities could be treated as factor endowments in order to make more intensive the use of the relatively more abundant factors of production (according to the traditional Heckscher-Ohlin approach to trade). Therefore, both factor endowments and firm specific advantages can be determinants of a country’s competitiveness.

Competitiveness influences the patterns of trade specialization of a country, export performance, and FDI inflows. Likewise, FDI inflows could exert a positive impact on the country’s competitiveness, and consequently on trade -- creating a virtuous circle. Thus, several scholars (Dunning, 1993; Cantwell, 1989; Dunning & Narula, 1994) have stated that the impact of inward FDI on competitiveness varies according to the motivation of the FDI, the level of development of the host country, and the existing level of technological development of the recipient industry. Given that this second theoretical approach emphasizes that differences and different endowments define the heterogeneity of firms, this approach enjoys relatively more microeconomic foundations than those of the first determinant based on the real exchange rate. This approach was also evaluated across 40 countries with the data pooled across four years, 1975, 1979, 1984, and 1988. By testing it, Narula & Wakelin find that countries, which are more open to trade, are more likely to attract inward investment. Moreover, inward investment is found to increase exports because firms may use the host country as an export base. However, this second general explanation leads me to wonder how foreign direct investment could be related to trade? The relevant assumption to answer this inquiry is based on the idea that foreign investment can enhance technological capabilities. Then it becomes possible to argue that more foreign direct investment, through this technological mechanism, contributes to improve export performance. Nevertheless, following this theoretical argument, the causality relationship between trade and FDI only holds in one direction: technological changes have a positive effect on the trade balance due to increases in exports (due to greater inflows of FDI).

American countries can potentially be more active in promoting technological advancements, the impact of these changes is theoretically associated more with trade balance alterations than with changes in FDI inflows.

The third common determinant is the effect that free trade agreements can produce on trade, foreign direct investment, and the relationship between these two variables. Furthermore, this determinant can effectively offer evidence in order to evaluate the performance of Latin American governments in attracting higher levels of FDI inflows. Horst Raff (2002) derives the theoretical conditions -- based on production costs -- under which a free trade agreement leads to changes in the pattern of foreign direct investment. These conditions are clearly defined by Raff in the following citation:

“FDI creation represents a Pareto improvement irrespective of the degree of tax competition, if the production cost in the low-cost country in the free trade area is sufficiently lower than that in the rest of the world, so that the high-cost country is not hurt if it has to import the good from its partner country rather than from the rest of the world. However, even if this is not the case and trade deflection hurts the high-cost country, a free-trade agreement may still raise the aggregate welfare of its members. This happens if the cost differential within the free-trade area is sufficiently large (and hence the degree of tax competition small) and the production cost in the low-cost location in the free-trade area is sufficiently low compared to that in the rest of the world.”

Thus, for Raff, if the cost advantage of the potential free-trade agreement relative to the rest of the world is not big enough, free trade may fail in attracting FDI inflows, even if FDI is welfare improving. Thus, under this argument, Raff concluded that free trade

agreements might lead to FDI creation or consolidation, but typically not to FDI destruction.<sup>5</sup>

However, this explanation in favor of free trade agreements does not account for greater scale economies and the expectations<sup>6</sup> in terms of exports and future profits that free trade agreements could create for foreign investors. The effect of scale economies given by the size of the market has been empirically analyzed in a few studies -- none of them addressed the entire Latin American region.

Magnus Blomstrom and Ari Kokko (1996) pioneer the study of the effect of free trade agreements on FDI inflows for the Americas, specifically for NAFTA (USA, Mexico and Canada) and MERCOSUR (*Mercado Común del Sur* which includes Brazil, Argentina, Uruguay, and Paraguay). On the one hand, Blomstrom and Kokko find that Mexico experienced substantial FDI inflows following NAFTA. These inflows were invested in Mexico from outsiders seeking to gain access to the North American market. For MERCOSUR, on the other hand, Blomstrom and Kokko conclude that there was no a substantial impact on inward FDI.

---

<sup>5</sup> Related to this idea, Raff states, “Under certain conditions a FTA does not lead to FDI, even though FDI would be welfare improving. This may happen, because equilibrium external tariffs are too low in equilibrium to induce FDI, or because there are multiple equilibria and countries are stuck in one that does not support FDI.”

<sup>6</sup> Certainty or low risks for investment returns is a desirable feature that every foreign investor seeks in other countries when making decisions on investment. Because these free trade agreements are designed to last indefinitely, these agreements can reduce the risks associated with increases in the rate of tariffs, and expropriation of enterprises. In addition to explicit investment provisions, free trade agreements frequently include other provision that can influence FDI inflows such as harmonization of standards, customs cooperation, competition policy, and dispute settlement. These agreements also provide legal protection of properties under international law. Thus, through these agreements, investors gain access to this market in order to export their products and import inputs in better conditions with respect to the rest of the world.

Blomstrom and Kokko's conclusions on the beneficial effects of NAFTA on FDI inflows, in general, are also confirmed by Sanchez and Karp (1996) and then by Raymond MacDermott (2006). In addition, MacDermott employs a fixed effects model to determine the impact of free trade agreements on FDI inflows using 55 countries and spanning 1982-1997. MacDermott concludes that free trade agreements impacted positively on FDI inflows for this group of countries. The problems with MacDermott's results that make them incongruent are addressed below.

Finally, in another study, Florence Jaumotte (2004) investigates whether the market size (scale economies) of regional free trade agreements can influence foreign direct investment (FDI). Jaumotte tests his hypothesis on a sample of 71 developing countries during the period 1980-99. Jaumotte finds that the regional trade agreement size has exerted a positive impact on the FDI received by member countries. Because this study does not include in its estimations bilateral free trade agreements signed by members of regional free trade agreements with other non-members countries, Jaumotte's paper cannot provide us with a more complete and accurate evaluation on the effectiveness of an "average" free agreement (including bilateral agreements). My paper contributes to the literature with an evaluation that includes all the free trade agreements signed by Latin American countries.

### **III.- THE ECONOMETRIC MODEL**

To determine the role and relevance of free trade agreements in attracting FDI inflows in Latin America, I control for other variables already employed as determinants

of FDI in the literature. To account for the impact of free trade agreements on FDI inflows (the dependent variable), I quantify the relative importance of these free trade agreements signed by every Latin American country by aggregating the gross domestic products (GDP) of the rest of the countries participating in these free trade agreements (for every year). For example, if Chile signed eleven free trade agreements with twenty countries in 2000 (including free trade agreements signed with single countries and trade blocs), I proceed to sum the gross domestic products of these twenty countries plus the gross domestic products of the countries that previously signed free trade agreements with Chile (prior to 2000). Thus, this exercise can offer an approximation of the relative importance (dimension) of the free trade agreements signed by every Latin American country for each year.

Likewise, this exercise intends to capture the effect of the scale economies that these free trade agreements create for the participating countries. These free trade agreements can enhance the size of the economy of any host country of FDI inflows by reducing tariffs. Foreign investors will face new incentives to penetrate these markets and take advantage of their expanded markets by exporting to the participating countries of the free trade agreement with lower or zero tariffs (Motta & Norman, 1996; Neary, 2002; Donnefeld, 2003).

Sadly, these agreements cannot provide these economies with the same advantages that a total economic and political integration might produce. This total economic integration can frequently be observed in single domestic economies (totally integrated) -- and measured by the gross domestic product. Hence, free trade agreements

become imperfect substitutes of single domestic economies because participating countries in the free trade agreement can potentially trade among them with zero tariffs but subject to differences in the design of other key policies associated with labor markets, monetary policy, tax regulations, fiscal policies, etc.

The value of the elasticity of substitution between free trade agreements and domestic economies (GDP) will depend on how well the markets of the participating countries are integrated, and how well regulations are coordinated under these free trade agreements in these key policies. Fortunately, for our regression analysis, free trade agreements do not statistically overlap “market size” (domestic economy). Both variables will be treated as “complements” in the sense that free trade agreements can expand the scope of the domestic economy through trade integration.

Unfortunately, this procedure cannot capture the effect of different key features of these free trade agreements such as differences in periodicity (number of years required to eliminate tariffs), products (the sequence employed to lower tariffs - sorted by products), and complementarities among economies (based on the theory of comparative advantages). Nevertheless, in my panel data regression, I employ a considerable amount of data: nineteen years together with several free trade agreement cases for seventeen Latin American countries. Thus, given this amount of data, it is reasonable to expect a reduction in the distorting effects of these key features, which are not easily quantifiable. Given this advantage, this study can only determine the effectiveness of free trade agreements for the region as a whole (the totality of the free trade agreements), regardless of variations in these features across countries. In other words, I will not be able to

distinguish which countries signed the optimal free trade agreements or which types or features of the free trade agreements were the most effective in attracting FDI inflows.

Despite these limitations, the degree of variability in terms of time and products does not change dramatically across the most important free trade agreements signed by Latin American countries. The degrees of freedom that Latin American countries possess to negotiate agreements with the United States or the European Union are practically nonexistent. Usually, most of these free trade agreements are already structured even before the negotiations start. Moreover, due to the relatively sizeable dimensions of the economies of the United States and the European Union, the free trade agreements signed with these economies might be explaining most of the positive effect of free trade agreements on the incoming FDI inflows in Latin America.

Moreover, I assume that any free trade agreement can be seen as the result of the decision making process. The decision making process of free trade agreements can be influenced by business groups<sup>7</sup>, lobbies through politicians, and initiatives from a bureaucracy inspired in liberal principles.<sup>8</sup> If the economy is reasonably free of

---

<sup>7</sup> Business groups expect to increase their future profits through the implementation of free trade agreements (through exports or imports).

<sup>8</sup> A careful analysis of domestic politics, which should include the quality of the bureaucracy and the relative power of business groups related to trade with the rest of the world (their relative level of influence on the decision making process), can offer an explanation on how and why free trade agreements are pursued and approved ultimately by politicians. These political determinants (decision making process), future expectations in terms of profits (for business groups), and higher rates of employment (for politicians and the bureaucracy) can, in general, determine the interest of certain Latin American countries in signing free trade agreements with other nations. At the same time, it is highly unlikely that current FDI inflows can influence this decision making process in the short term (within the period of 1 year). Moreover, FDI decisions, which could be influenced or altered because of the sign of free trade agreements, are typically made once these free trade agreements have been signed or are about to be signed. Hence, these decisions cannot influence simultaneously the decision making process. All these facts eliminate

distortions, these lobbies and pressure should reveal the areas with more potential to grow under free trade with other countries.

The specification of my model is presented as follows:

**The dependent variable:** Foreign direct investment flows. Source: USAID (2005)

Investment Statistics for Latin American and the Caribbean.

**The other independent variables:**

**1) Economic size of the host country:** In the previous literature, Lionel Fontagne (1999) suggests to evaluate the role of country size in the bilateral relationship between trade and investment. Policy makers should expect that investment is more likely to migrate to markets large enough to support the scale economies required for production. In larger markets, the investors will also attempt to charge higher producer prices (Haufler & Wooton, 1999).

Source of the data: World Telecommunication Indicators 2005.

**2) Inflation:** A high rate of inflation is a sign of economic instability for foreign investors and a host government's inability to keep healthy monetary policies. Foreign companies may avoid making investment in countries where their governments are weak institutionally or their technical capabilities are low. In addition, high inflation or recurrent changes in prices make short-term pricing decisions more costly. Thus, for example, Schneider and Frey (1985) find that transnational companies invest less in developing countries with higher levels of inflation.

---

any chances of the presence of a double causality between the variables "FDI inflows" and "free trade agreements". Consequently, the potential problem of endogeneity is not addressed in the model through instrumental variables.



Source of the data: USAID (2005)

**3) Effect of Exchange rate changes:** I noted above the micro foundations that make this variable potentially relevant in order to explain FDI behavior. Based on these foundations, I should expect an increase in FDI inflows due to an increment in the real exchange rate.

Source of the data: World Telecommunication Indicators 2005.

**4) Current account balance:** Countries can finance balance of payments deficits - possibly caused by deficits in the current account - either by spending their official reserves or by attracting more foreign capital. If governments are more willing to follow the second alternative, they might modify some of their policies in order to make foreign investment more attractive in their countries. Hence, the relationship between current account deficits and FDI inflows should be negative --- the larger a host country's current account deficit (negative values for the current account balance), the greater the host country's FDI inflows. Schneider and Frey (1985) confirm the empirical validity of this relationship in a previous study.

Source of the data: USAID (2005) Investment Statistics for Latin American and the Caribbean.

**5) Privatization of telecommunications:** Privatizations in Latin America were very intense during the second part of the 1980s and most of the 1990s. Because of considerable national fiscal deficits; the cost of adjustment programs; and inefficiencies and financial limitations of the state companies, most of the Latin American countries started a massive program of privatizations (Nellis, Menezes & Lucas, 2004). Important

amounts of foreign direct investment were allocated in the region in several economic sectors, some of them associated with international trade. Decisions made to invest in these sectors clearly follow the same type of incentives that free trade agreements create in terms of rational expectations and scale economies.

However, investment in other sectors -- such as the telecommunications sector -- was not associated with the increase of scale economies, a product of the implementation of free trade agreements. Among these sectors, the greatest investments went to the telecommunications sector. The processes of privatization allowed private investors to increase the amount of money allocated in this sector. For this reason, my model controls for private investment made in this sector as a proxy of the FDI inflows associated purely with the conditions of the domestic economies but not with international trade.

Source of the data: World Telecommunication Indicators 2005.

6) **Global FDI:** This variable measures the total amount of FDI inflows in the world economy. Given that a relevant portion of this global FDI is captured by Latin America, this global FDI might exert a relevant influence on the amount that Latin American countries receive from abroad. My model also controls for this exogenous determinant.

Source of the data: UNCTAD. 2005. United Nations Conference on Trade and Development.

Since the analysis of this study is explanatory rather than predictive, I chose not to lag the independent variables in order to capture contemporary effects on the dependent variable.

### **Statistical results**

Table 2 shows the results of my estimations for two different specifications. In both cases, the coefficient for the free trade agreements is statistically significant and positive, consistent with the hypothesis of this paper. Thus, this empirical outcome confirms the theoretical arguments of the previous section on the relationship between FDI inflows and free trade agreements.

This coefficient also indicates that for each additional million dollars of “GDP of partners” obtained through signing free trade agreements, the host country, on average, should expect an increase in FDI inflows of 88 dollars (under specification 2). Following this reasoning, and based on the marginal impact of the coefficient on FDI inflows, a free trade agreement signed with the United States of America should *on average* produce an increase of approximately 919 millions of dollars in FDI inflows of any Latin American country (considering the U.S. GDP of 2003). Thus, the marginal effect of a free trade agreement with the United States would be particularly important for small or medium size Latin American countries. This fact helps us explain why several small countries (such as Dominican Republic and the Central American countries) signed free trade agreements with the U.S and the interest of countries with medium size economies such as Peru and Colombia to sign free trade agreements with the North American giant.

Table 2. Statistical results

<b>Dependent variable: FDI</b>	<b>Specification 1</b>	<b>Specification 2</b>
<b>GDP of the host country</b>	.0021457*** (.0005521)	.0021502*** (.0005324)
<b>Exchange rate</b>	-.0172436* (.0086144)	
<b>Privatization of telecommunications</b>	1.098447*** (.2094489)	1.136685*** (.2099122)
<b>Inflation</b>	-.0012031 (.0136434)	
<b>Current account balance</b>	-.0290537* (.0211769)	-.0364106* (.0207337)
<b>FTA (free trade agreements) – GDP of partners</b>	.0000985*** (.0000266)	.000088*** (.0000259)
<b>Global FDI</b>	.0001137*** (.0000268)	.0001154*** (.0000262)
<b>Constant</b>	28.64583* (16.57008)	24.16811 (15.70833)
<b>Wald Test</b>	147.55***	157.19***
Number of observations : 323 Number of groups: 17 * significant at 10% ** significant at 5% *** significant at 1% <b>Coefficients: three-step feasible generalized least squares (FGLS).<sup>9</sup></b>		

<sup>9</sup> Since one of my variables – Global FDI – does not vary across countries, it is not appropriate to include year fixed effects in the model. Autocorrelation and heteroskedasticity are found to be considerable problems when this panel data model is estimated with country fixed effects. A Breusch-Pagan / Cook-Weisberg test reveals the presence of cross-panel heteroscedasticity (chi2= 145.72, p = 0.0000, Ho: Constant variance) – HETTEST in STATA. Likewise, a Wooldridge test for autocorrelation in panel data rejects the null of no first order serial correlation (F(1,16)= 7.419, p= 0.0150, Ho: no first-order autocorrelation) -- XTSERIAL in STATA. If both heteroscedasticity and autocorrelation are present in the data, a three-step feasible generalized least squares (FGLS) approach is required. In order account for heteroscedasticity across panels and autocorrelation, I rely on an iterated FGLS estimator (XTGLS IGLS in STATA).

Another interesting result is associated with the coefficient obtained for GDP. It confirms that each one million of dollars of GDP of the host country is more effective in attracting FDI inflows than the size of the market “expanded” (GDP of partners) through free trade agreements. As I noted earlier, the difference between these two coefficients might be explained by the different tax rates, transportation costs, transaction costs, and other dissimilar types of regulations across countries.<sup>10</sup> Likewise, the coefficient for current account balance is negative and statistically significant, which also supports the hypothesis of this paper related to the theoretical relationship of this variable and FDI inflows. Thus, for example, a decline in the current account of 1 million of dollars on average increases the FDI inflows by 36,410. After eliminating the non-statistically significant variables, I can also note that the sign for the rest of the coefficients (excluding real exchange rate) confirm the hypothesis of this study and previous empirical findings cited in this paper.

Moreover, the coefficients found for the non-statistically significant variables also confirm the hypothesis or previous findings specified above. Thus, although in the first specification, the coefficient for the variable “inflation” was not statistically significant, the sign was negative, which indicates that higher levels of inflation would cause less amounts of FDI inflows. Finally, the incongruent estimations on the coefficient of the

---

<sup>10</sup> This result (the coefficient of the variable GDP of the host country is greater than the coefficient of the variable “FTA- GDP of partners”) differs from what was found by Raymond MacDermott (2006). According to MacDermott’s estimations, the relationship between these two coefficients is inverse, which cannot be theoretically sustained. Because of the presence of distortions, differences in regulations, transaction costs, transportation costs, and uncertainty associated to exporting (or importing) to a third country, it is reasonable to expect that the relationship between these two coefficients follows the pattern found in my study.

variable “exchange rate” seem to confirm the previous findings of Goldberg and Klein (1997), and Leiderman and Thorne (1996). In general, FDI into Latin America has remained irresponsive to variations in real exchange rates.

#### **IV.- CONCLUSIONS**

Several lessons can be obtained from this study. First, considering all these arguments, I can conclude that the relationship between trade and direct investment is complex and cannot be inferred without proper empirical tests in order to explore all its features and determinants. This complexity is characterized by indirect linkages such as the real exchange rate, technological differences, and specific trade policies (free trade agreements), which have become increasingly relevant in order to explain the relationship between trade and FDI. Second, for Latin America, previous empirical and theoretical studies focused on the possible linkages between trade and FDI - considering micro (technological disparities, real exchange rate, and infrastructure) and macro foundations – show that a positive impact of trade on foreign direct investment is not conclusive.

Although I do not to make conclusions on the impact of volumes of trade on FDI inflows, this study can offer a much better evaluation on the performance of Latin American governments in encouraging incoming flows of FDI since the mid-1980's given the fact that any free trade agreement is a specific policy managed at the national level. Another reason that I took into consideration when choosing this strategy was that the degree of “openness” has not dramatically changed in relative terms across Latin American countries. Particularly, this ratio has not significantly varied since the 1980's.

This lack of variability might explain why Biglaiser and Karl deRouen do not find any relevant impact of trade behavior on the inflows of FDI. These two scholars used panel data from 1980 to 1996.

Hence, in order to evaluate the performance of the governments in this area, I focused my attention on the third theoretical linkage between FDI and trade: the role of free trade agreements. As noted above, this policy was implemented by several Latin American governments as part of the “neoliberal reforms” established in the Washington Consensus. The results of this study reveal that those countries that signed more free trade agreements – or the most relevant free trade agreements (with the largest economies in the world) – increased their effectiveness in attracting FDI. Through the implementation of these free trade agreements, these governments could enhance scale economies and increase the level of certainty for foreign investors (favorable rational expectations), which are vital in order to attract FDI inflows. As a result, it is possible to anticipate that several Latin American countries will continue signing free trade agreements in case stimulating more FDI inflows continues to be a priority for them.

Ideologically driven, or perhaps, due to some empirical findings, several scholars have tended to dismiss and criticize the totality of economic reforms launched by Latin American countries since 1980s under the well-known label “neo-liberal” reforms. This study clearly shows that the implementation of these agreements was at least beneficial in attracting FDI inflows into the region. This finding should encourage scholars to evaluate more carefully the convenience in the implementation of these reforms and their impact on the quality of life of all Latin Americans. Moreover, this constant reevaluation

should be made at the policy level (policy by policy) in order to evaluate, and then, to improve the performance of the governments of Latin America.



## **Bibliography**

- Biglaiser, G. and K. DeRouen (2006). Economic reforms and inflows of foreign direct investment in Latin America. *Latin American Research Review* 41 (1): 51-75.
- Blomstrom, M. and A. Kokko (1996). Regional integration and foreign direct investment: a conceptual framework and three cases. *World Bank International Trade Division Working Paper* No. 1750.
- Calvo G.A., M. Goldstein and E. Hochreiter, eds.(1996). *Private capital flows to emerging markets after the Mexican crisis*. Washington, D.C: Institute for International Economics.
- Cantwell, J. (1989). *Technological innovation and multinational corporations*, Oxford: Basil Blackwell.
- Chesnais, F. (1992). National systems of innovation, foreign direct investment and the operations of multinational enterprises. In Lundvall, B. A. (Ed.) *National Systems of Innovation*, Pinter Publishers: London.
- Donnenfeld, S. (2003). Regional blocs and foreign direct investment. *Review of International Economics*, 11, 770-788.
- Dosi, G. (1988). Sources, procedures, and microeconomic effects of innovation, *Journal of Economic Literature*, Vol. XXVI, pp. 1120-1171.
- Dunning, J.H. (1980). Toward an eclectic theory of international production: some empirical tests, *Journal of International Business Studies*, 11(1) Spring/Summer, 9--31.

- Dunning, J.H. and R. Narula. (1994). Transpacific direct investment and the investment development path: the record assessed, *Essays in International Business*, No 10, May.
- Fontagne, L. (1999). Foreign direct investment and international trade. Complements or substitutes?, *OECD Science, Technology and Industry Working Papers*, 1999/3, OECD Publishing.
- Freedom House, Freedom in the World
- Goldberg, L. and M. Klein. (1997). *Foreign direct investment, trade and real exchange rates linkages in Southeast Asia and Latin America*. Working paper 6344. National Bureau of Economic Research.
- Haufler, A. and I. Wooton (1999). Country size and tax competition for foreign direct investment. *Journal of Public Economics*, 71, 121-139.
- International Telecommunication Union (2005). *World Telecommunication Indicators 2005 (1975-2003.)*
- Jaumotte, F. (2004). Foreign direct investment and regional trade agreements: the market size effect revisited. *IMF Working Papers*, 04/206.
- Leiderman, L. and A. E. Thorne (1996). The 1994 Mexican crisis and its aftermath: what are the main lessons? In G.A. Calvo, M. Goldstein and E. Hochreiter (eds.), *Private capital flows to emerging markets after the Mexican crisis*. Washington, D.C: Institute for International Economics.
- Lundvall, B. A. (Ed.) (1992). *National Systems of Innovation*, Pinter Publishers: London.
- Motta, M. and G. Norman (1996). Does economic integration cause foreign direct

- investment? *International Economic Review*, vol. 37, 4, 757-783.
- MacDermott, R. (2006). Regional trade agreements and foreign direct investment. *The North American Journal of Economics and Finance*, 18, 107-116.
- Narula, R. and K. Wakelin. (1998). *Technological competitiveness, trade, and foreign direct investment*. MERIT. University of Limburg.
- Neary, J.P. (2002). Foreign direct investment and the single market. *CEPR Discussion Papers* from C.E.P.R., 3419.
- Nellis, J., R. Menezes, and S. Lucas (2004). Privatization in Latin America. The rapid rise, recent fall, and continuing puzzle of a contentious economic policy. *Center for Global Development*, Volume 3, Issue 1.
- Raff, H (2002). Preferential trade agreements and tax compensation for foreign direct investment. *CESifo Working paper* No. 763, August.
- Sanchez, M., and N. Karp (1999). NAFTA's economic effects on Mexico. In *NBER 12<sup>th</sup> annual Inter-American seminar on economics* in Buenos Aires
- Schneider, F. and B.S. Frey (1985). Economic and political determinants of foreign direct investment. *World Development*, 13, pp. 161-75.
- SICE. Foreign Trade Information System
- UNCTAD (1994). *World Investment Report 1994*. New York: United Nations.
- UNCTAD. (2005). *World Investment Report. 2005*. New York: United Nations.
- USAID (2005). *Investment Statistics for Latin American and the Caribbean*.