A SENSITIVITY ANALYSIS OF FOREIGN DIRECT INVESTMENT DETERMINANTS IN DEVELOPING COUNTRIES DURING THE 1990S

BY

José G. Gijón-Spalla

A dissertation submitted to The Johns Hopkins University in conformity with the requirements for the degree of Doctor of Philosophy

Baltimore, Maryland
September, 2004

ABSTRACT

This research project explains why Foreign Direct Investment (FDI) is the largest source of foreign private capital in developing countries. To provide a comprehensive answer, we divide the project into three separate papers. The first paper consists of analysis of the stylized facts of the evolution of private capital flows to developing countries. We find that capital account liberalization and legal reforms in the early 1990s triggered the growth of foreign capital flows to the developing world. We also find that the dispersion of flows among countries depends on the level of income and institutional quality: poorer and institutionally weaker countries get less foreign investment and usually only receive FDI. Finally, we show that the onset of the financial crises of the 1990s changed the composition of flows toward FDI and made developing countries rely almost exclusively on FDI as a source of foreign capital.

The second paper analyses the sensitivity of FDI determinants in developing countries using the Extreme Bound Analysis technique, the decomposition of the dependent variable and a unique sample of 80 developing countries. We find that trade openness, governance, political risk and agglomeration are robust determinants of FDI. Finally, in the third paper, we carry several sensitivity analyses to of the regional FDI determinants. We find that agglomeration, governance and returns on FDI are important determinants across countries in the same region and across developing regions. Moreover the third paper also shows that the share of FDI in capital flows grows with

negative socio-economic characteristics in the host countries such weak governance or low infrastructure.

In sum, the research project (i) underlines the importance of physical and institutional infrastructure to attract FDI in developing countries, (ii) supports prior findings on the growing importance of vertical FDI strategies in developing countries, (iii) and confirms that FDI is not always and indication of positive economic and institutional development.

Advisers:Riordan Roett

Gordon Bodnar

This dissertation is the result of a combination of factors that awakened my intellectual curiosity and set the stage for my eventual decision to pursue a Ph.D. During the 1980s, I witnessed the arrival of significant foreign direct investment (FDI) flows to Spain and puzzled over the role of FDI in the development of my native country. I later became interested in why many of Spain's leading companies launched aggressive FDI strategies in developing countries as a means to expand into international markets. Owing greatly to my previous professional and academic experience, I embarked on my dissertation research with the firm belief that robust political and economic analysis requires inputs from both the social and economic sciences. This dissertation is thus the culmination of an inter-disciplinary research project combining political science and applied economics.

I would not have been able to complete this dissertation without the support of my two academic advisors, Riordan Roett and Gordon Bodnar. Professor Roett, the director of Western Hemisphere Studies and the Latin American Studies Program (LASP) at SAIS, provided the necessary flexibility and moral support to pursue my academic interests with complete freedom, while at the same time nurturing my passion to teach. Professor Bodnar was instrumental in the dissertation research process and the analysis phase. With ample flexibility and resources at my disposal, I chose an adventurous course in my research topic and methodology that would have been impossible to bring to a successful outcome had it not been for Professor Bodnar's relentless support, scholarly

guidance and academic rigor. I owe a debt of gratitude to Guadalupe Paz, whose friendship, advice, and unconditional support I could always count on. Others at SAIS who provided support in many different ways and to whom I am indebted are Diane Monash from LASP and Mario Catalán and Roger Leeds from the Economics Program.

I am also deeply grateful to Javier Santiso who was my earliest mentor and continued offering his friendship and advice during my graduate studies. Fernando Rodrigo provided important intellectual support as well as opportunities to grow personally and academically. Luis de la Plaza was an early reader of my dissertation and provided insightful comments. Juan José Almagro offered valuable assistance during the late stages of the Ph.D. process. To all my friends I am thankful for their support.

My parents, María Elena and Juan, were a constant in my life and a source of inspiration throughout my years at SAIS. They demonstrated an unyielding commitment to their children's education, through good times and bad times alike. My brother Javier, my sister Verónica, and my friend Fernando Perales were an important source of encouragement. To my parents-in-law, Kyoko and Kohei Suzuki, I am grateful for their steadfast support and generosity.

Most of all, I want to thank my wife Tomoko Suzuki. Tomoko was by far the most important person during my doctoral studies. She was many things at once: the most rigorous critic of my work, the best data provider, and the strongest emotional support. I dedicate this dissertation to her, my companion in life.

TABLE OF CONTENTS

LIST OF TABLES

ix

LIST OF FIGURES

A Sensitivity Analysis of Foreign Direct Investment Determinants in

Developing Countries During the 1990s

By

José G. Gijón-Spalla

School of Advanced international Studies
The Johns Hopkins University

Chapter I: Introduction

During the second part of the 1990s there was a significant change in the structure of foreign private financing to developing countries. During this period, Foreign Direct Investment (FDI) became the dominant source of foreign capital, leaving the two other two traditional sources of capital, debt-related instruments and equity portfolio playing a marginal role. The growth of the proportion of FDI in private capital flows to developing countries has been a recent and dramatic phenomenon that requires thorough investigation.

In our opinion, a better understanding of the current role of FDI in developing countries can be obtained by responding to three interconnected questions. The first question refers to the evolution of the different types of foreign private capital flows into developing countries since 1990. The second question addresses the importance of the domestic factors in developing countries that have attracted growing amounts of FDI. The third question explores the regional differences in the local factors –or determinants– that have attracted to FDI to developing countries since the early 1990s.

1

We will answer these three questions in three separate papers. In the first paper, we carry out a review of the most relevant literature on private capital flows and analyze the stylized facts of private capital flows to developing countries since 1990. In the second one, we assess the extent to which idiosyncratic characteristics of developing countries attract FDI. This analysis surveys the most relevant literature, and carries out a sensitivity analysis of the determinants of FDI in developing countries. Additionally, The analysis incorporates a new methodological approach to assess the importance of FDI determinants. Finally, in the third paper, we compare whether there are regional differences in the idiosyncratic characteristics –or determinants- of developing countries that attract FDI. This last part also surveys the most relevant literature and carries out several sensitivity analyses to identify the differences in regional FDI determinants among regions.

The answers to these three questions provide an original way to analyze the importance of FDI in developing for several reasons. First, they combine the review of the most recent literature with the most recent empirical data and some new methodological approaches. Second, the joint analysis of the stylized facts of private capital flows, and the determinants of FDI provides a compelling case to explain the importance of FDI in developing countries. In other words, this analysis links a general analysis of private capital flows to developing countries –stylized facts, with a recipient perspective –the analysis of the FDI determinants. Since we structure our work into three separate papers, a final section summarizes the main findings.

2

CHAPTER II: STYLIZED FACTS OF CAPITAL FLOWS TO DEVELOPING COUNTRIES BETWEEN 1990 AND 2002: THE MAJOR ROLE OF FOREIGN DIRECT INVESTMENT FLOWS

I. INTRODUCTION

This first paper presents the evolution of private capital flows to developing countries since the early 1990s. During this period, two important events have attracted the attention of empirical research: the growth of total foreign private flows and the growing importance of FDI as a source of foreign capital. Since the early 1990s, private capital flows to developing countries grew more than fifteen times and the share of FDI in private capital flows grew from 60% in 1990 to more than 90% in 2002. Although the growth of private flows and the share of FDI have not been monotonic, it has been consistent over more than a decade.

What happened in developing countries to explain the overwhelming presence of FDI as a source of private capital? The empirical research has provided some explanations on growth in private capital flows and FDI in developing countries but it has fallen short in some respects. To our knowledge, no study has combined the literature of private capital flows to developing countries with the most recent empirical data to explain the importance of FDI. Previous studies have taken into account periods of time that do not include the developments in private capital flows occurring in the late 1990s and early 2000s that are –as we will see in this paper- critical to analyze the importance

3

of FDI in developing countries. On the other hand, other studies have concentrated in the events that occurred in the last three to five years but lack of enough time horizon to provide a comprehensive analysis of private capital flows and FDI in developing countries.

In addition, the empirical research has also pointed out to the growing importance of FDI in developing countries but has not provided a good cross-country analysis. In our opinion, even if today's share of FDI in private flows is similar in the main developing regions, there are important qualitative differences. This paper will show that there are "winners" and "losers" in terms of private capital flows and FDI flows in developing countries.

In order to carry out our study we combine the most relevant literature on private capital flows to developing countries and an empirical sample of private capital flows to eighty-three developing countries from 1990 to 2002. This sample represents around 99% of private capital flows to developing countries during that period.

The paper is divided into five sections. Section I consists on a general presentation of the recent evolution of private capital flows in developing countries. Section 2 explores why FDI became the largest source of private capital. Section 3 presents the main characteristics of FDI in developing countries. Section 4 carries out a regional and recipient analysis of the evolution of private capital flows in developing countries. Finally, Section 5 summarizes the main findings.

II. GLOBALIZATION AND PRIVATE CAPITAL FLOWS

Between 1985 and 2002 net private capital flows to developing countries grew more than fifteen times to reach US$ 150 billion and made many of these countries relevant members of the international financial system. This surge in international private capital flows can be traced from the mid-1980s when the world embarked on a gradual economic and financial integration, the so-called globalization of the world economy. Globalization not only affected developed but also affected, for the first time since the Great Depression, developing countries.

The arrival of private capital flows to developing economies is not new in international economics. During the last decades of the nineteenth and early twentieth century, large amounts[1] of private foreign capital went to the developing countries of that period. Some of the emerging economies of the time attracted the interest of foreign investors. For example, Argentina during that time had a stock exchange capitalization larger than that of the United Kingdom (Goetzmann and Jorion, 1997). However, the most distinct feature of this new wave of private capital flows in 1985-2002 has been its spectacular growth with respect to the past.

---

[1] The empirical findings conclude that the amounts of private capital flows in that period –particularly FDI and debt- were similar to today's. For example, the IMF (1997) shows that the net outflows of capitals in that early 20th for the UK where around 9% Gross National Product (GNP). Most of these capitals went during the three decades preceding World War I to emerging countries such as Australia, US, Canada and Argentina to cover current accounts deficits of approximately 5% of GNP. Today, open emerging markets like Thailand, host of large amounts of foreign capitals, are considered to have "dangerous current account deficits at around 7%-8% of GDP (See Bordo, Eichengreen et al., 1999). These data show that in both periods the amounts of flows had a similar importance.

5

The sudden increase of private capital flows during the last decade has attracted the attention of the empirical research. Some scholars have compared the present period with the late nineteenth century and the pre-1982 debt crisis situation (Eichengreen and Fishlow, 1998; Bordo, Eichengreen et al., 1999; Mauro, Sussman et al., 2002; Prasad, Rogoff et al., 2003). Others have analyzed the reasons behind the renewed interest of international private investment in developing countries (Calvo, Leiderman et al., 1992; Claessens, Dooley et al., 1995; Calvo, Reinhart et al., 1996; Bekaert and Harvey, 2002). Finally, other researchers have tried to assess the importance of the arrival of large amount of foreign capital to developing countries' recipient economies (Chuhan, Claessens et al., 1998; Stulz, 1999; Henry, 2000; World Bank., 2001).

Although scholars have paid attention to different aspects of the increase in private capital flows to developing countries, there have been two recurrent issues in the academic discussion: (i) the factors that attracted capital flows and (ii) the composition of the capital flows. With respect to the first issue, there has been an extensive discussion on whether factors external or internal to the recipient countries have been more relevant in determining the capital flows. Some authors conclude that factors external to the recipient countries such as growth in developed countries and international interest rates, have been the main drivers of the increase in capital flows (Calvo, Reinhart et al., 1996; Fernandez-Arias, 1996). Others consider that private capital flows have responded more to factors internal to the recipients countries such a domestic growth or political stability (Hausmann and Fernandez-Arias, 2000).

6

The second important issue that has attracted the interest of researchers has been the composition of capital flows. Researchers have noticed that, compared to previous periods of large capital flows to developing countries, there has been a large increase in short and long-term equity related flows with respect to debt related instruments flows (Eichengreen and Fishlow, 1998; Fernandez-Arias and Hausmann, 2000; Carlson, Hernández et al., 2002; Prasad, Rogoff et al., 2003). The importance of the composition of private capital flows to developing countries has also been analyzed from different perspectives. Some researchers have analyzed the economic advantages of this new composition of capital floes in the recipient economies (Bosworth and Collins, 1999; Stulz, 1999; Hausmann and Fernandez-Arias, 2000; Henry, 2000; World Bank., 2001; World Bank., 2002; Bekaert and Harvey, 2003; World Bank., 2003), while others have explored the risks associated with this large increase in equity related capital flows (Claessens, Dooley et al., 1995; Calvo, 1998; Bekaert and Harvey, 2003; Prasad, Rogoff et al., 2003).

Figure 1 displays the evolution of net private capital flows to the most advanced developing countries (i.e. emerging countries)[2]- during the last sixteen years and shows the growing predominance of equity related instruments –foreign direct investment and portfolio investment- with respect to other instruments. During this period, 1985-2002, we can distinguish three different phases in the evolution for private capital flows in developing countries: the second half of the 1980s with low but increasing levels of the different types of capital flows; the first half of the 1990s with a surge in total flows, and

---

[2] Emerging countries account for more than 95% of the private capital flows to developing countries during that period.

7

predominance of portfolio investment; and the late 1990s where there was a dramatic fall

in total flows –due to the fall in net portfolio and debt flows[3], and a switch to the

predominance of FDI.

Figure 2.1. Net Capital Inflows to Developing Countries, 1979-2002 (US$ billion)
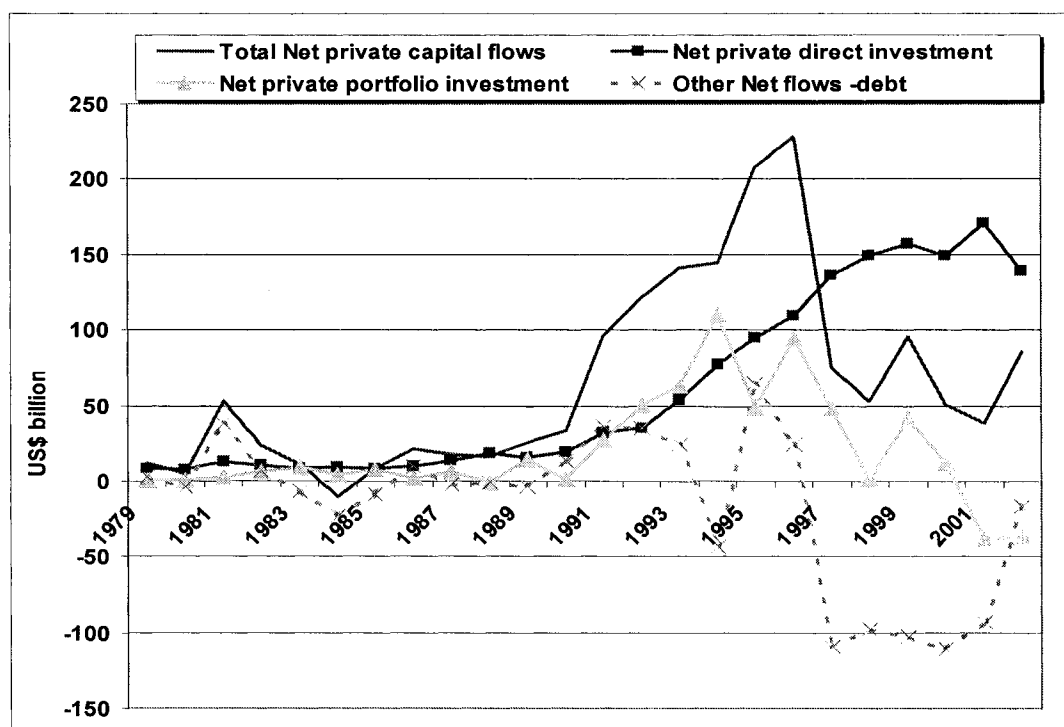
Source: World Economic Outlook (IMF)

The predominance of equity related instruments and the changes in the

composition of the capital flows since the late 1980s has also interested the empirical

research on private capital flows to developing countries. During the 1990s, some authors

focused the advantages of the growth in total private capital flows for domestic

investment in developing countries (Bosworth and Collins, 1999; Stulz, 1999; Henry,

---

[3] Net flows became negative or net outflows meaning that more portfolio and debt related flows were
leaving than arriving to developing countries

8

2000). Other researchers turned their attention to the types of capital flows and the dangers for developing countries of relying on short-term capital flows to obtain foreign financing. For example, Claessens, Dooley et al. (1995) examined the importance of portfolio capital flows for developing countries and tried to determine whether these flows were "hot" (speculative) or "cold" (stable) money. Montiel and Reinhart (2001), and Carlson and Hernandez (2002) studied which factors attracted short-term –equity and debt portfolio- and long-term flows –foreign direct investment and assess the risks of each type of foreign capital.

Yet, the financial crises of second part of the 1990s in Mexico, Asia and Russia changed the views of the academic research on private capital flows. Some authors warned on the dangers of the volatility in the private capital flows to developing countries (Sachs, Tornell et al., 1996; Calvo, 1998; Rodrik and Velasco, 1999). Other authors explored the changes in composition of capital flows that showed a dramatic fall in portfolio investment and a significant increase in Foreign Direct Investment (FDI) flows. Some researchers analyzed the change in private capital flows and predicted that FDI would be the biggest source of private capital flows in developing countries (Fernandez-Arias, 2000). Others explored the consequences of having FDI flows as the largest source of external financing in developing countries and reached different conclusions. For example, Boreinztein, Lee and De Gregorio (1998) find that FDI fosters growth and conclude that FDI is beneficial for developing countries. On the other hand, Fernandez Arias and Hausmann (2000) show that FDI grows with negative events such greater

9

political risk and have doubts on the economic benefits of certain types of FDI for developing countries.

Indeed, the academic interest on FDI flows in developing countries also responds to the global growth of FDI flows during the last decade that has affected both developed and developing nations. Between 1991 and 2002, world net FDI inflows grew more than four times from less than US$ 150 billion to nearly US$ 600 billion[4]. In the case of the developing countries, the growth of net FDI inflows was more modest, but still grew at an annual average rate 19% during the last decade, amounting to more than US$ 140 billion in 2002. Figure 2 presents the evolution of global FDI net inflows during the 1990s and shows a surge in FDI.

Figure 2.2. Total Net FDI Inflows, 1991-2002 (US$ billion)
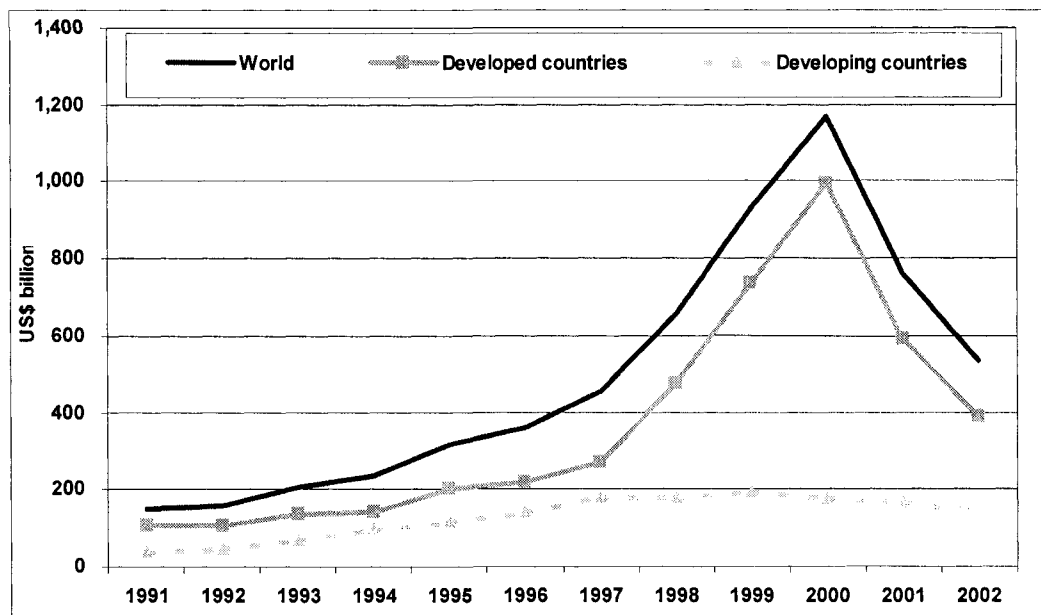
Source: World Bank's Global Development Finance Indicators (GDF)

---

[4] The 2002 figure already shows an important fall from the pick figure in 2000 where capital flows surpassed US$ 1 trillion.

10

Figure 2 shows that developing countries have not benefited as much as developed ones from the surge in global FDI. Between 1991 and 2001, the share of developing countries in global FDI flows did not change and remained around 22% of the total FDI flows. In fact between 1997 and 2000, the period of greatest growth in FDI flows, the share of the developing countries decreased significantly from 36% to 16%.

Moreover, the data from International Monetary Fund (IMF) in Figure 1 and from the World Bank's Global Development Finance Indicators (GDF) show that FDI is a more critical source of financing for developing than for developed economies. FDI is the largest source of international capital for the developing countries and the only source of private capital that remained stable. On the other hand, FDI for developed countries is a less relevant source of capital and represents around 20% of the total private capital flows during the 1990s (World Bank., 2001). Therefore, the changes occurred in the late 1990s appear to be a turning point in the pattern of foreign private financing to developing countries: their share in global financial flows is decreasing whereas FDI is the major source of private capital flows. This new financing structure will persist in the medium-term for several reasons. First, the financial crises of the late 1990s (e.g. Russian collapse in 1998 and Argentine default in 2001) have reduced the desire of investors for short-term and non-FDI investments in developing countries. Second, regulatory changes in developing countries have open new long-term investment opportunities which continue to attract foreign investors through large equity purchases (i.e. FDI). Third, developing

11

countries continue to run current account deficits and need foreign capital and while

portfolio and debt are scarce, countries will try to attract FDI[5].

Hence, the growing importance of FDI for developing countries leads us to

explore the role of FDI as an external source of financing in the developing world. In the

next section we provide a more detailed explanation on why FDI became the most

importance source of private foreign capital to developing countries.

III. WHY IS FDI THE MOST IMPORTANT SOURCE OF PRIVATE CAPITAL FLOWS FOR DEVELOPING COUNTRIES?

In the previous section, we reviewed the major findings of the empirical literature

on evolution of private capital flows in developing markets during the last decade. We

believe that some of these findings also provide an explanation to the evolution of FDI

flows. For instance, the empirical literature considers that the spectacular growth of all

types of capital flows are due to both external (Calvo, Leiderman et al., 1992) and

domestic factors in the recipient countries (Montiel and Reinhart, 2001). However,

scholars consider the adoption of liberalization policies in developing countries as the

necessary condition to foster growth in long-term capital flows such as FDI (Montiel and

Reinhart, 2001; Carlson, Hernández et al., 2002). This liberalization process expanded

domestic investment opportunities and attracted foreign investment and permitted the

integration of developing countries into international financial markets (Bosworth and

---

[5] Some of the empirical literature of FDI supports this view, for example Fernandez-Arias (1996) Hausmann and Fernandez-Arias (2000), consider FDI the most stable source of foreign financing

Collins, 1999; Henry, 2000; Montiel and Reinhart, 2001; Bekaert and Harvey, 2003; Prasad, Rogoff et al., 2003)[6].

Although some studies conclude that the impact of liberalization in emerging markets' cost of capital, volatility, beta and correlation with the global returns is small (Bekaert and Harvey, 2000; Henry, 2000; Bekaert, Harvey et al., 2001), new evidence confirms that the lack of good instruments to measure liberalization has underestimated the effect of liberalization (Stulz, 1999; Eichengreen, 2001; Edison and Warnock, 2002; Bekaert and Harvey, 2003; Kaminsky and Schmukler, 2003). The recent release of improved measures of liberalization has confirmed the liberalization policies do foster foreign investment (Edison and Warnock, 2001; Bekaert and Harvey, 2003). In a recent analysis of the effects of financial globalization in developing countries Prasad, Rogoff et al. (2003) present an updated view of the main drivers of the growth of capital flows in developing countries and attribute the growth in capital flows to two "pillars": capital account liberalization and legal reform.

In the case of FDI flows, the importance of capital account liberalization can be empirically demonstrated with the data from Edison and Warnock (2001) ("EW"). These authors constructed an index to measure the intensity of restrictions on the access for foreign investors to 29 major emerging countries equity markets that has been used as a proxy for capital account liberalization (Edison and Warnock, 2001; Prasad, Rogoff et al., 2003). Bekaert and Harvey (2003) explain that the relationship between capital account

---

[6] Scholars support liberalization but warn on the timing of reforms and the adoption of premature opening (Eichengreen, 2001, Carlson, Hernández et al., 2002, and Ishii, Habermeier et al., 2002).

liberalization and EW index works as follows: full capital account liberalization usually

includes stock market liberalization which in turn includes provisions on the access of

foreign investors. Low values in EW's index indicate low foreign investors' restrictions

in a particular country.

Figure 3 presents the evolution of the average EW index and the net FDI flows (in

US$ billion) to the 29 developing countries included in the EW index[7], between 1990 and

2000. Figure 3 shows a negative relationship between ownership restrictions and FDI

inflows, which has almost a perfect negative simple correlation, –98%. The index fell

more than 2/3 while FDI inflows grew more than 128 times. Since the countries of the

EW index received nearly 90% of the FDI flows to developing countries during the 1990s,

the empirical evidence suggests that FDI has been boosted by capital account

liberalization[8] [9].

---

[7] FDI data only include 26 countries. We do not include Greece, Portugal and Korea, considered by the World Bank high-income countries. The exclusion of these countries does not alter our results.
[8] We also calculated the correlation between the index and total FDI to developing countries and resulted also in near-perfect negative correlation, 97%
[9] Further analysis on the importance of capital account liberalization is provided by Eichengreen (2001) and the reports on international investment published by United Nation's Conference for Trade and Development (UNCTAD)

14

Figure 2.3. Foreign Ownership Restrictions and FDI inflows for EW Index Countries, 1990-2000
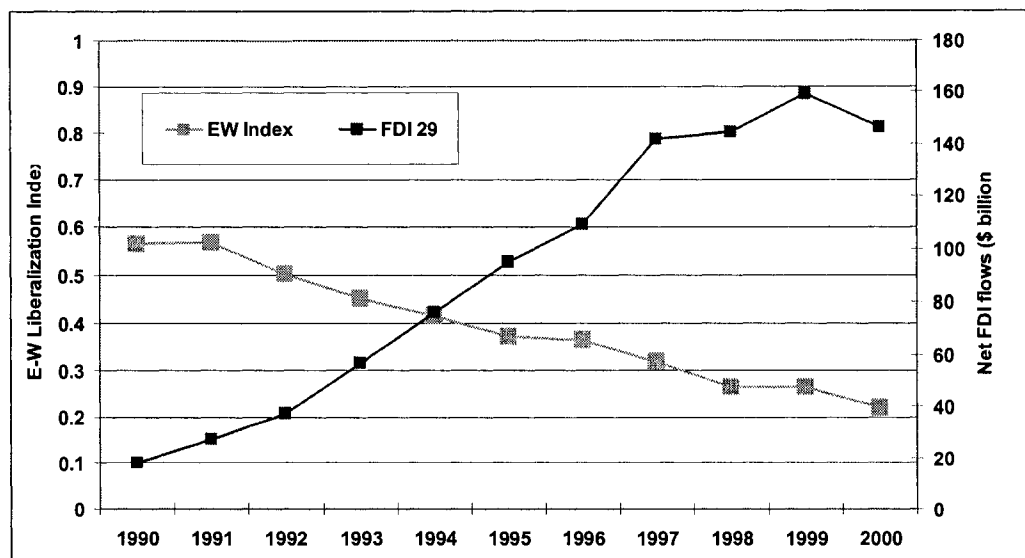
Source: Edison and Warnock (2001)

In addition to capital account liberalization, developing countries carried out important legal reforms to introduce changes to favor capital flows -specially FDI - such as the elimination of foreign ownership restrictions in domestic companies. Prasad, Rogoff et al. (2003) call this global movement towards a reduction of the legal constraints, a reduction of the *"de jure"*[10] restrictions in foreign investment.

Table 1 below illustrates the extent of Prasad's reductions of *"de jure"* restrictions and presents the regulatory changes in national FDI legislation occurred during the 1990s. The data provided by the United Nation's Conference for Trade and Development (UNCTAD) are divided between favorable and unfavorable FDI legislation. UNCTAD does not provide any country breakdown, but the overwhelming number of

---

[10] Prasad, Rogoff et al. (2003) borrow the term from Fernandez-Arias (1996).

15

FDI "friendly" regulatory changes (approximately 95% of the total during the period

1991-2001), and the number of countries that made regulatory changes (around sixty

countries made changes every year), support the importance of this worldwide movement

towards a more open FDI regime (UNCTAD, 2002; UNCTAD, 2003).

Table 2.1. Global Changes in FDI Regulation During 1990s

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Num. of countries that introduced changes in their investment regimes	**35**	**43**	**57**	**49**	**64**	**65**	**76**	**60**	**63**	**63**	**71**
Num. of regulatory changes of which:	**82**	**79**	**102**	**110**	**112**	**114**	**151**	**145**	**140**	**150**	**208**
favorable to FDI	80	79	101	108	106	98	135	136	131	147	194
less favorable to FDI	2	0	1	2	6	16	16	9	9	3	14
% favorable to FDI	100%	100%	99%	98%	95%	86%	89%	94%	94%	98%	93%
% less favorable to FDI	0%	0%	1%	2%	6%	16%	12%	7%	6%	2%	7%

Source: UNCTAD

To further highlight the extent of regulatory changes that occurred during the

1990s, UNCTAD also points out that nearly two-thirds of the regulatory changes made

since the early 1960s were adopted during the 1990s. However, according to UNCTAD,

the most relevant feature of this *"de jure"* rush has been the role played by developing

countries. The majority of the changes have been adopted by developing countries aiming

to adapt their domestic legislation to suppress the restrictive legislation that has existed in

16

those countries since the 1960s (UNCTAD, 2000; UNCTAD, 2000; UNCTAD, 2001; UNCTAD, 2002; UNCTAD, 2003).

An illustration in the changes that occurred in developing countries is the number of Bilateral Investment Treaties (BITs) –these treaties regulate international investments between countries- signed by these countries since the 1960s. Figure 4 shows the number of BITs signed by developing countries since the 1960s. The data from UNCTAD (UNCTAD, 2000) show that between 1980s and 1990s the number of BITs concluded by developing countries grew nearly seven times from 175 to more than 1,100.

Figure 2.4. Number of BITs Concluded by Developing Countries, 1960-1999
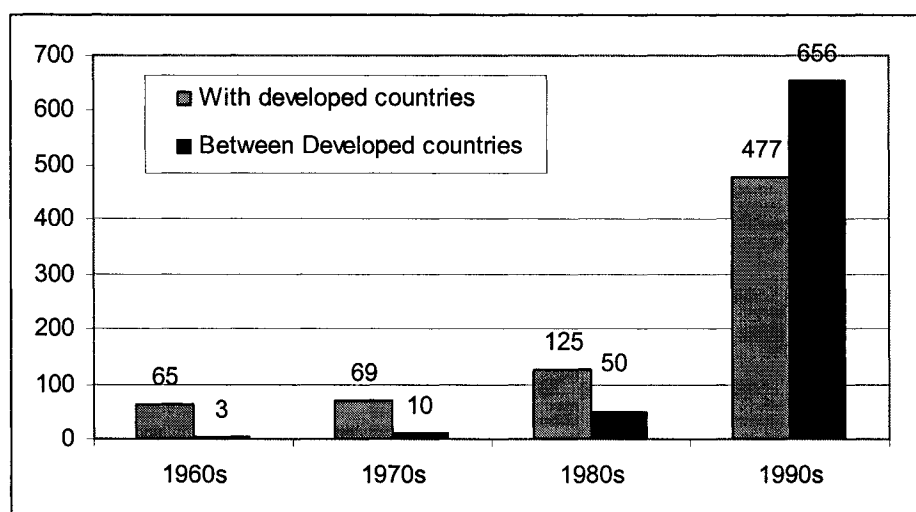
Source: UNCTAD

The case of South East Asia is also a good illustration of how developing countries have changed their attitudes toward FDI. In 1997, the region suffered a major economic crisis that could have led to a more restrictive FDI regime. On the contrary,

17

during the subsequent years, and not even accounting for China -the main recipient of

FDI, the region has been the leader in the adoption of favorable regulatory changes to

FDI, accounting for 40% of the total regulatory favorable changes (UNCTAD, 2001;

UNCTAD, 2002).

In addition to the liberalization and the legal reform undertaken by developing

countries, there is a third aspect to understand why FDI is largest source of external

financing in developing countries. FDI became the major private capital flow because

other sources of private capital have abandoned the developing countries. Figure 1 shows

that after the Asian financial crisis in 1997-1998, portfolio investment and debt

disappeared while only FDI continued to flow during the late 1990s. The 2003 Global

Development Finance Report (World Bank., 2003) underlined the stability of FDI flows

during the different crises that have affected the developing countries during the 1990s

and added:

"Foreign Direct Investment tends to be more resilient than equity or debt flows during a

financial crisis (World Bank, 1999). This is in part due to the fact that foreign

investments are long term strategic decisions that may not be affected by a financial

crisis (...)" (World Bank., 2003)

The reform process that led to the recent of growth FDI in developing countries

(i.e. capital account liberalization and domestic legal reforms to eliminate restrictions to

18

foreign investment) raises another important issue: it suggests that investment opportunities existed in developing countries before the liberalization but they were not accessible to foreign investors[11]. Hence, developing countries had some idiosyncratic characteristics that could act as FDI "attraction poles". In fact, the study of the FDI determinants in developing countries and has attracted scholars during the last 30 years. The empirical research on FDI, considers that a large variety of *"pull"* factors or characteristics of the host countries can explain the presence of FDI in developing countries. Factors such as domestic income (Wheeler and Mody, 1992; Hausmann and Fernandez-Arias, 2000), political risk (Root and Ahmed, 1979; Nigh, 1986), institutional quality (Schneider and Frey, 1985) trade openness (Singh, Jun et al., 1995), incentive policies (Mody, Dasgupta et al., 1999), wages (Fung, 2000), human capital accumulation (Noorbakhsh, Paloni et al., 2001) or domestic infrastructure (Wheeler and Mody, 1992), have been found to be important determinants of the level of FDI inflows[12].

In sum, financial integration in developing countries resulted in a new composition of private capital flows tilted toward the predominance of FDI with respect to any other source of foreign capital. The sequence of events can be summarized as follows: liberalization eliminated the restrictions to foreign investment and allowed foreign investors to access to socio-economic resources available in those countries. Yet,

---

[11] Since 1991 the World Investment Reports, UNCTAD has been compiling the major FDI liberalization measures adopted by developing countries such the elimination of sector foreign ownership restrictions, and the conclusion of Bilateral Investment Treaties (BITs) and Double Taxation Treaties (DTTs) and shows the gradual extension of investment opportunities in the developing countries. The end of the ownership restrictions in the banking sector in Latin America is a good example (UNCTAD, 1997).
[12] We will carry a thorough review of the literature on the determinants of FDI in Gijón-Spalla (2004b) and Gijón-Spalla (2004c).

19

the economic and financial volatility of developing countries made long-term strategic equity investments -or FDI, the safest way to invest.

As an illustration, Figure 5 compares the evolution of equity portfolio and FDI flows in developing countries between 1993 and 2002. We constructed two measures to assess the relative importance of portfolio and FDI flows in developing countries: the ratio net equity portfolio flows to market capitalization, and FDI to GDP. Figure 5 shows how the importance of portfolio has been declining during the period, and suffers the greatest decline in 1997. Conversely, FDI grows during most of the period and although it starts to decline in 2000, the size of FDI in 2002 continues to be significantly higher than at the beginning of the period.

Figure 2.5. Portfolio to Market Capitalization and FDI/GDP Developing Countries, 1993-2002
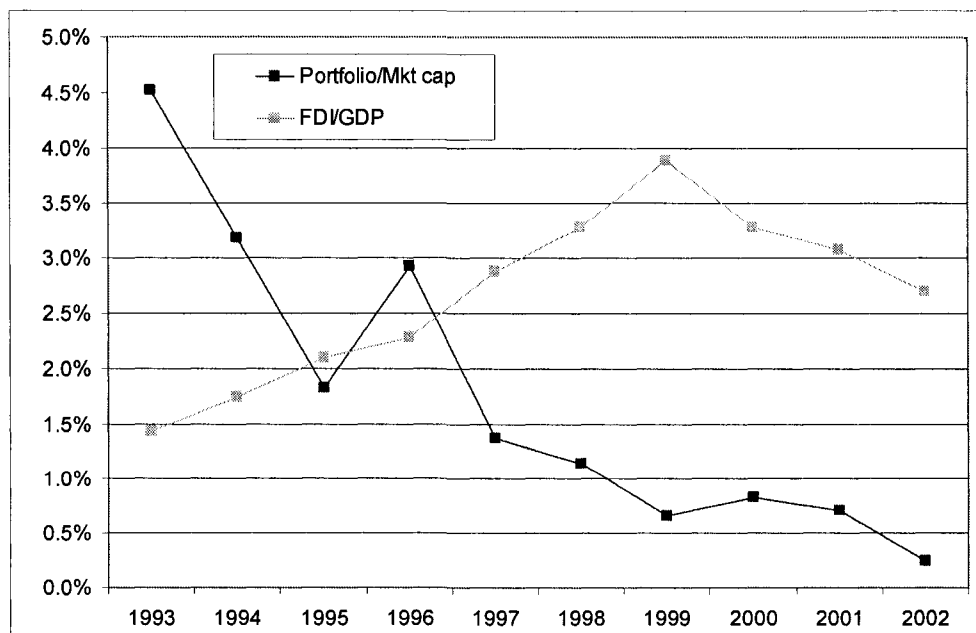
Source: Author calculations based on GDF and WDI

20

In this section we analyzed the reasons that explain why FDI flows have become such an important source of foreign capital for developing countries. In the next sections we will present the stylized facts of FDI as a source of private capital during the last decade. In our study we will use a sample of 83 countries that represents more than 99% of the FDI inflows that reached developing countries between 1992 and 2000.

IV. THE ROLE OF FDI AS A STABLE SOURCE OF EXTERNAL FINANCING

The empirical studies on international capital flows in developing or emerging markets, have been mostly concerned with the measurement the volatility and the size of the capital flows (Montiel and Reinhart, 2001; World Bank., 2002; Bekaert and Harvey, 2003; Prasad, Rogoff et al., 2003; World Bank., 2003) to determine the role of each type of capital flow as a source external of financing. Two popular techniques to measure the volatility and size of private capital flows are the coefficient of variation and the ratio of capital flows to Gross Domestic Product (GDP) (Laeven, 2001; Mishra, Mody et al., 2001; Montiel and Reinhart, 2001; Bekaert and Harvey, 2003; Prasad, Rogoff et al., 2003). In this section, we will use these two measures to assess the role of FDI as major source of foreign capital.

Between 1990 and 2002, FDI inflows to developing countries grew at an average annual rate of 13%, reaching US$ 142 billion in 2002 from US$ 22 billion in 1990. Figure 6 illustrates the evolution of net capital inflows in our sample of 83 developing

21

countries[13] between 1990 and 2002 FDI was the largest source of foreign capital during

the period. FDI represented approximately 70% of the total flows to developing countries,

whereas private non-guaranteed debt (PNG) and portfolio investment (portfolio)

represented, respectively, 16% and 14%.

**Figure 2.6. Net Private Capital Inflows to Developing Countries, 1990-2002
(US$ billion)**
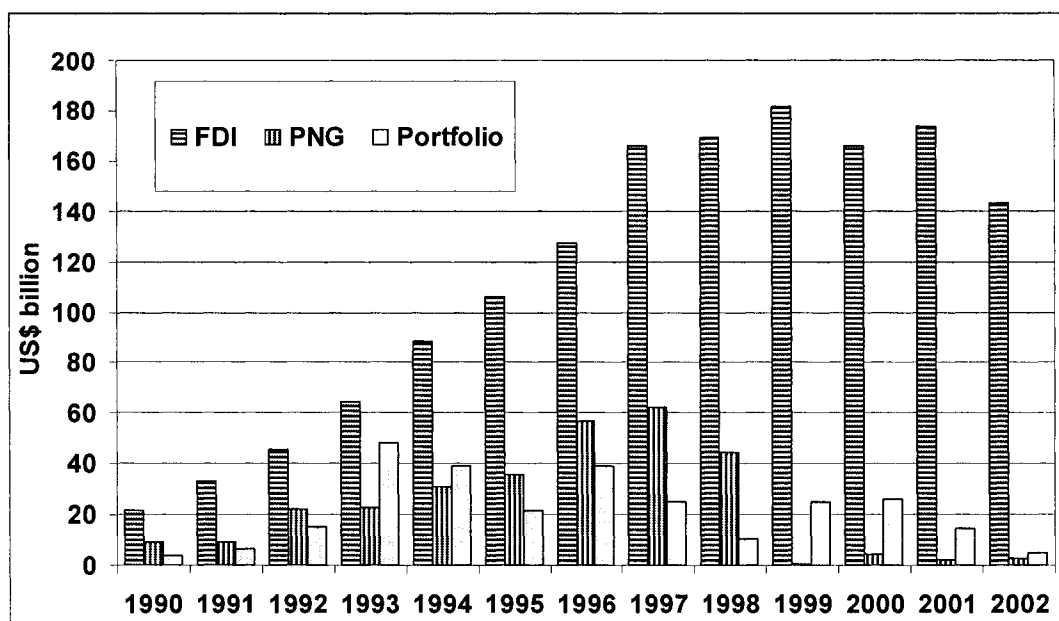
Source: GDF

The evolution of FDI during the 1990s can be divided into two distinct periods.

The first period, between 1990 and 1996, FDI inflows grew at a 25% annual average, and

a second one, between 1997 and 2002, where there was a slight decrease of less than 4%.

Despite the slight fall, FDI was the only source of external capital that remained stable

when the economic situation in the developing world deteriorated in the late 1990s.

---

[13] see Annex III for a complete list of countries

22

Between 1997 and 2002, FDI flows fell 13% in nominal terms or US$ 20 billion, whereas PNG and portfolio flows decreased 80% and 96% or US$ 60 billion and US$ 20 billion.

In order to assess the size and stability of FDI during 1990-2002, we also calculated the relative size to GDP and the coefficients of variation of the three major private capital flows. Table 2 presents the coefficients of variation of the different net external capital inflows to developing countries, and their respective average size measured as a percentage of Gross Domestic Product (GDP).

Table 2.2. Volatility and Size of Capital flows in Developing Countries

	Coefficient of variation	Percent of GDP
Debt	91%	0.4%
Portfolio	66%	0.2%
FDI	51%	2.4%

Source: GDF

Table 2 confirms FDI inflows are the least volatile source of private external financing received in developing countries, with 51% variation with respect to the mean, versus 91% and 66% for PNG and portfolio inflows. FDI is also the most important type of capital flow, since it represents on average around 2.4% of GDP, a figure 10 and 6 times bigger than that of equity portfolio and PNG.

The data from Table 2 are a strong advocate of the greater stability of FDI flows since they are based on a large 83-country sample, during a 13 period in which emerging countries suffered five significant financial crises (Mexico in 1995, Asia in 1997, Russia

23

in 1998, Brazil 1999, Turkey 2001 and Argentina 2001-2002) that changed the attitude of foreign investors with respect to developing countries[14].

Furthermore, Table 3 shows that FDI in developing countries is even more important than the average figures of the 1990s indicate. Table 3 presents the coefficients of variation, the average size, and the average annual growth of the private capital flows for two different periods, from 1990 to 1996 and from 1997 to 2002, to determine if there are differences before and after the onset of the financial crises that affected the developing countries after 1997. In both periods, FDI is the most stable and abundant source of capital.

Table 2.3. Private Capital Flows 1990 -2002: Before and After 1997

	1990-1996			1997-2002		
	Average Volatility	Average % of GDP	Annual Growth for the period	Average Volatility	Average % of GDP	Annual Growth for the period
Debt	62%	0.3%	83%	138%	0.5%	-96%
Portfolio	71%	0.2%	91%	51%	0.1%	-80%
FDI	57%	1.5%	83%	8%	3.4%	-13%

Source: GDF

The results in Table 3 also suggest that there was a capital flow "rush" into developing countries that reversed suddenly at the end of the decade[15]. During the first 7 years of the 1990s, private capital flows to developing countries exploded and peaked in 1997. After the Asian crisis, all types of private flows stopped flowing to developing countries. The most dramatic fall occurred in publicly non-guaranteed debt (PNG) and

---

[14] Other studies use smaller samples and reached similar conclusions. For example, Montiel and Reinhart (2001) use a sample of 15 countries during six 6 years, the World Bank (1997) use one of 8 countries during 7 years, and Claessens Klingebiel et al. (2002) use 10 countries during 17 years.

[15] See Klingen, Weder et al. (2004) to find more arguments on the "capital rush" occurred of the early 1990s. These authors only look at debt but their results can be easily extrapolated to total capital flows

equity portfolio, which by 2002 had decreased respectively 96% and 80% from the 1997

peaks. Only FDI remained relatively stable falling by only 13%. Table 3 also shows that

the difference in the average size of FDI flows with the other two sources of capital flows

increased dramatically, making FDI the only large source of external capital flowing to

developing countries, with 1.5% of GDP in 1990-1996 and 3.4% of GDP in 1997-2002.

A final indication of the importance of FDI is that all the 83 countries considered

in this study received FDI during the 1990s, whereas more than 30 did not receive

portfolio investment or private debt inflows. Annex 1 presents the countries that reported

zero US$ for debt and portfolio inflows. 32 countries did not receive portfolio inflows,

and 26 did not receive any PNG.

Hence, FDI to developing countries has a third important characteristic: it is not

only the least volatile and biggest source of external capital flows, but it has been the

only source of external financing for many countries. Annex 2 shows that 20 countries in

our original sample, more than 24% of the total, received only FDI inflows as private

external source of financing.

As we indicate at the beginning of this section, the literature provides some

explanations on why FDI is the exclusive source of private capital. For example,

Fernandez-Arias and Hausmann (2000) argue that inefficient debt and equity markets

will make FDI the only viable source of capital for foreign investors and domestic

companies. Fernandez-Arias and Hausmann consider that:

"(...) in countries with inefficient financial markets, inadequate contract enforcements and poor protection of intellectual property, foreign companies will operate directly relying in local suppliers, franchises or other arrangements (...). Also poorly functioning debt and equity markets can make FDI a more efficient way to access capital".

The arguments provided by Fernandez-Arias and Hausmann to justify the prevalence of FDI as private source of capital are also confirmed in our sample. The countries that only received FDI are generally in the lowest 18th percentile of the PRS - International Country Risk Guide (i.e. ICRG) financial risk index for all the countries of the sample, a good indication of low financial development in developing countries. The same countries also record an average percentile rank, 26%, in the Kaufman et al. governance indicators[16], suggesting that these 20 countries have a very weak institutional framework that prevents the development of alternative sources of private foreign capital. Annex 2 presents the ICRG financial risk and Kaufmann et al. average percentile for the countries that only received FDI.

Furthermore, a recent paper by Harms and Lutz (2003) makes a step forward and explains how the lack of governance the presence can also attract FDI. Harms and Lutz focus on the official development aid (ODA) recipient countries to explain the link between governance deficit and FDI. These authors point out that ODA recipient

---

[16] The six Kaufman et al governance indicators are voice and accountability, political instability, government effectiveness, regulatory quality, rule of law and control of corruption. The data are available for almost 200 countries for the period 1996-2002. The data are available at http://www.worldbank.org/wbi/governance/govdata2002/

26

countries have usually a very weak governance infrastructure and that ODA program can create the environment to attract private foreign capital, in particular FDI, by creating the sufficient institutional infrastructure to attract foreign investment. In our sample, the 20 countries of our sample that only received FDI as a source of private capital are large ODA recipients. Hence, the data from our sample seem to confirm Harms and Lutz's (Harms and Lutz, 2003) findings on why FDI can be the exclusive source of private capital flows for certain developing countries.

The absence of any other type of private capital flow than FDI in a large number of countries raises two important issues. First, based on the axiom that higher return is the necessary reward for higher risk, equity investments such as FDI request higher returns than other instruments such as debt (Agarwal, 1980; Hausmann and Fernandez-Arias, 2000; Asiedu, 2002), therefore, in terms of cost, some developing countries will only have access to the most expensive source of external financing.

Second, since the countries that only received FDI were usually the poorest -17 of the 20 countries were in the lowest 35th percentile of our sample in terms of GDP per capita- it seems that poor countries do not have access to other alternative sources of private capital. In this respect, the World Bank (2001, chapter 2) also finds that during the 1990s, poor countries represented less than 3% and 6% of the bond issuance and equity placement in developing countries. Therefore, poor countries have a less diversified and a more expensive portfolio of private foreign capital.

In this respect, our sample displays the strong the relationship between the average levels of income and the average share of FDI and capital flows to GDP. The data from Figure 7 show that the regions with the highest average income per capita[17], such as Eastern Europe (EECA) or Latin America, receive greater amounts of private capital flows and FDI. Moreover, Figure 7 also shows that FDI is a more important source of foreign capital for poorer regions. In fact, in Figure 6 the importance of FDI as a source of foreign capital is measured by the distance between the FDI/GDP and Private capital flows (CF)/ GDP lines, a small gap between the two lines indicates that most of the CF are FDI flows[18]. Figure 7 attests that poorest region, Africa, has also the shortest distance between these FDI and CF lines and provides further evidence on the importance of FDI for least developed countries.

---

[17] The data on average GDP per capita in US$, purchasing parity adjusted is from the Penn World Table (PWT). See Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP), October 2002. http://pwt.econ.upenn.edu/

[18] Arithmetically: the gap between both ratios is found by dividing CF/GDP and FDI/GDP therefore: $(CF / GDP) / (FDI / GDP) = CF / FDI$, which is the ratio of FDI in total private capital flows

Figure 2.7. GDP per capita Versus FDI Flows and Private Capital Flows (US$, percentage of GDP)
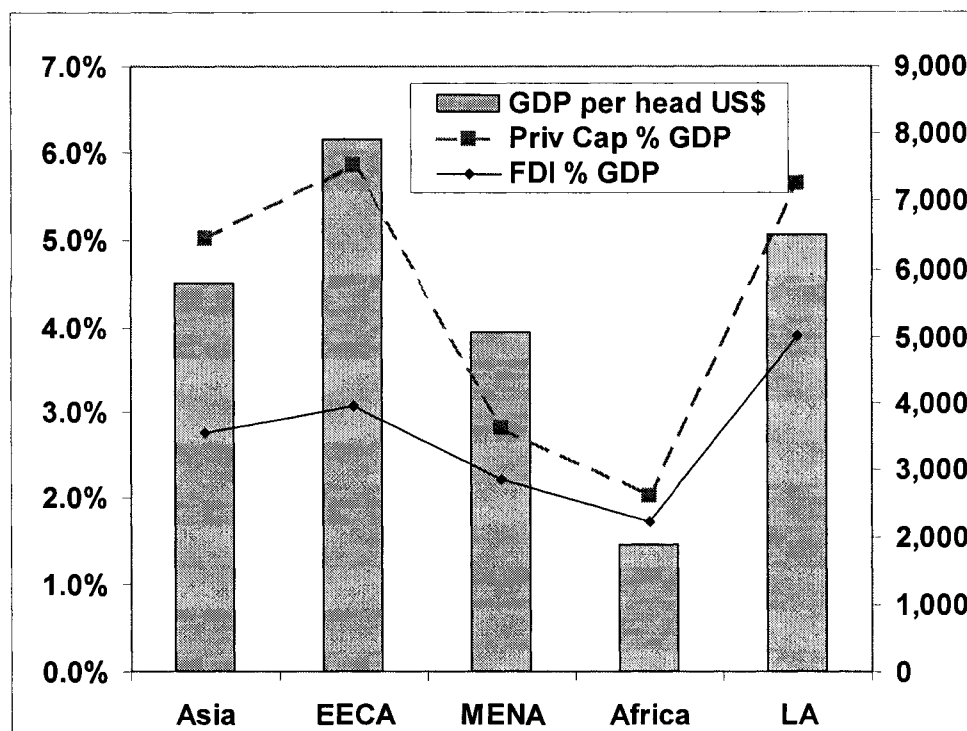
Source: GDF and WPT

This section has shown that FDI is the most abundant and stable source of financing for developing countries. Furthermore, its importance has been increasing during the 1990s, and has made FDI the only source of external capital for many countries. In the next section, we expand the study of FDI in developing countries with the analysis of the sample of eighty-three countries by regions and top recipients of FDI.

V. FDI AS SOURCE OF EXTERNAL FINANCING: A REGIONAL AND MAJOR RECIPIENTS ANALYSIS

To carry out the regional analysis, we divided the 83 developing countries sample into 5 regions: (i) Asia-Pacific (Asia); (ii) Eastern Europe and Central Asia (EECA); (iii) Middle East and Northern Africa (MENA); (iv) Africa; and (v) Latin America. This

classification follows that of the World Bank, with the exceptions of the Asia Pacific region, where we merged South Asian and East Asian countries, and MENA where we included Turkey[19]. The changes have not altered our results. Annex 3 presents the countries included in every region.

We also perform a second categorization of our sample and divide it by largest recipients of FDI. We consider that an analysis by top recipients is necessary due to the high concentration of FDI flows during the period of analysis. The top ten recipients represent 70% and the top twenty represent 87% of the all FDI inflows. Since the 83-country sample represents more than 94% of the FDI inflows to developing countries, the top recipients are also the largest for all developing countries. Annex 3 lists the top recipients of FDI by alphabetic order.

5.1. Regional Analysis

In the last paragraphs of the previous sections, we consider necessary to carry out the analysis of the top FDI recipients based on the larger dispersion of flows among countries that makes the top 10 recipients receive 70% of the FDI flows. The disparity in FDI flows received is also patent at the regional level. Figure 8 presents the regional distribution of FDI flows and shows that Asia and Latin America are the two largest

---

[19] Some multilateral organizations such as the World Bank and the International Monetary Fund include Turkey in the Middle East and North Africa group or in Eastern Europe and Central Asia. For this research project, we concluded that Turkey had to be included in MENA, not in the EECA group that only includes former socialist economies.

30

recipients, which accounted for more than 80% of the total FDI flows. Conversely, Africa

and MENA the two smallest recipients, only represent 8% of the total.

Figure 2.8. Regional Distribution of Net FDI Inflows, 1990-2002
(Percentage of Total Net FDI Flows)
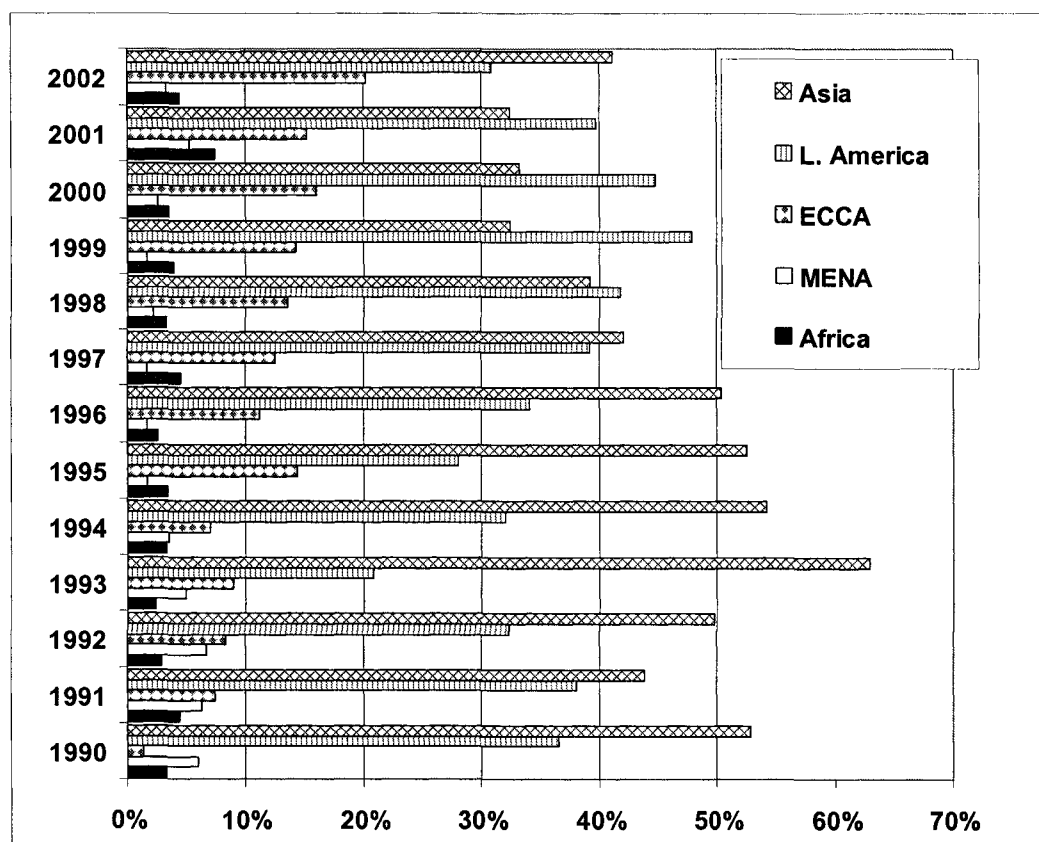
The disparity between regions remains when we analyze the distribution of total private

capital flows. In this case, the data (not shown in this paper) indicate there is also a 10:1

ratio of flows to Asia and Latin America with respect to those to Africa and MENA. The

next paragraphs will analyze the evolution of FDI and non-FDI flows in the five different

regions into consideration. This analysis will help us to understand the regional

disparities in terms of private capital flows

31

5.1.1. Africa

Africa had with MENA, the smallest amount of foreign private capital flows

between 1990 and 2002 both in absolute and relative terms. Africa received around $87

billion of net private capital flows, or around 4% of the total net flows. In terms of

regional GDP, the total flows to Africa represented less than 2%, less than half of the

figures registered in top recipient regions like Asia, ECCA and Latin America. Figure 9

displays the evolution of private capital flows to Africa in US$ billion and shows that

flows have grown during the period but have suffered an important decline after 2001.

Figure 2.9. Evolution of Private Capital Flows to Africa, 1990-2002 (US$ billion)
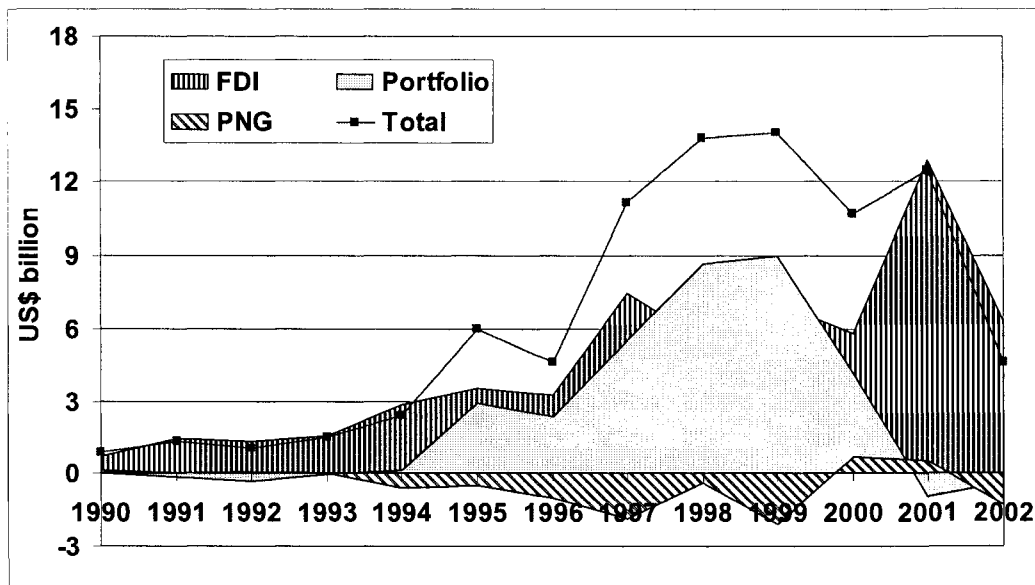
Source: GDF

Figure 9 also illustrates the importance of FDI for Africa. With the exception of the period 1998-1999, FDI was the largest source of foreign capital and represented 73% of the total flows, whereas non-FDI flows -PNG and portfolio equity accounted for 27%.

Annex II also attests the marginal role played by Africa in non-FDI private capital flows, given that only 12 countries (Botswana, Cameroon, Gambia, Ivory Coast, Mozambique, Niger, Nigeria, Senegal, South Africa, Tanzania, Togo, Zambia and Zimbabwe) out of 27 African countries received regular PNG and portfolio flows that is they received flows during more than half of the 1990-2002 period. Conversely, all 27 African countries received FDI flows. FDI represented on average 1.8% of GDP, and made FDI the only sizeable source of private capital flows for African countries.

The empirical literature explains why FDI is the major source of foreign capital: high socio-economic risk, the lack of proper financial markets or good governance infrastructure will make foreign investors consider only FDI to invest in certain countries (Gastanaga, Nugent et al., 1998; Fernandez-Arias and Hausmann, 2000; Alburqueque, 2001; Asiedu, 2002; World Bank., 2002; Asiedu, 2003). In this respect Africa is a good example to support the empirical findings: the region has the sample's lowest average rakings for ICRG political, economic and financial risk as well as for Kaufman governance indicators. Therefore, the dependence on FDI reflects a higher risk of investing in this region and weak institutions, and high political and economic instability (Asiedu, 2002; Asiedu, 2003).

33

Yet, the findings in the previous paragraph raise another important —and paradoxical- question. Why Africa receives FDI despite the lack of governance and high political risk? There are three good reasons. First comes the abundance of natural resources in Africa, which has always brought FDI (Jaspersen, Aylward et al., 2000). Second, the process of gradual liberalization explained in the previous section also affected African countries. According to Edison and Warnock (2001) and UNCTAD (2003), Africa made important advances to end with ownership restrictions on FDI and create investment opportunities through privatizations. Finally, we saw in section III, that empirical research explains how low governance and income countries can create optimal situations to attract FDI through the reception of large amounts of ODA (Harms and Lutz, 2003). African countries have the lowest governance indicators and the highest ODA flows to GDP ratio in our sample, therefore the ODA may have affected the level FDI flows to Africa and explains why FDI reaches all the African countries whereas other sources of private are absent.

Although Africa had low levels of private capital flows during the last thirteen years, Figure 9 shows that there were significant improvements during this period. In the late 1990s and early 2000s, there was a significant increase in private capital flows in Africa due to the growth in FDI.

34

The table 4 presents the evolution of total net private flows and FDI to Africa and middle income countries[20] for the period 1990-2002. The data are divided into three sub-periods: 1990-1993, 1994-1997 and 1998-2002. For all the three periods, the growth in total flows and FDI in Africa is larger than in middle-income countries. Moreover, for the last period, between 1998 and 2002, Africa's share of FDI to GDP, 3.1%, is close to that of middle-income countries, 3.6% and shows how Africa has been catching in up in terms of private capital flows and FDI with respect to more developed economies.

Table 2.4. Evolution of Private Capital Flows in Africa and Middle-Income Countries

	African Countries			Middle-Income Countries		
	1990-93	1994-97	1998-02	1990-93	1994-97	1998-02
Private Capital Flows (% GDP)	0.6%	1.3%	3%	1.9%	4%	5%
Private Capital Flows (% Growth)	--	129%	132%	--	97%	27%
FDI (% of GDP)	0.5%	1%	3%	1.2%	2%	4%
FDI (% Growth)	--	145%	138%	--	103%	50%

Source: GDF

Moreover, recent empirical findings show that there has been also a change on the type of foreign investment in Africa (Morisset, World Bank. et al., 2000; Klein, Aaron et al., 2001; World Bank., 2001). Until the 1990s, Africa attracted FDI for extractive reasons, such as in the mining and oil sector. For example, in the early 1990s, 80% of the FDI to Africa was mineral and oil related FDI. However, the share of non- mining FDI

---

[20] The World Bank (2003: 248) defines middle-income countries as countries with an average Gross National Income (GNI) between $726 and $9,206. In Africa, only four countries are in middle-income group, Botswana, Gabon, Namibia and South Africa.

35

grew significantly and represented by the late 1990s 50% of the FDI to Africa (World

Bank., 2001). According to the World Bank and the UNCTAD[21], the changes in the

composition of FDI in Africa in the late 1990s are due to the improvement of FDI

environment that fostered the diversification of FDI towards more value added activities

such as manufacturing, aside from the resource-based FDI which was the main type of

FDI to the region (UNCTAD, 1999; UNCTAD, 2000; World Bank., 2001; Asiedu, 2002).

Therefore, Africa received less private capital flows during the last decades than

other developing countries of our sample, and FDI was the main source of foreign

financing. However, the increase and the diversification of FDI show that the situation

improved in the late 1990s and early 2000s, and indicates that Africa is starting to catch-

up with respect to the other developing countries (UNCTAD, 2003).

5.1.2. Asia

Between 1990 and 2002 Asia was the largest recipient of total private capital

flows, receiving 40% of the total flows. The region included the fastest growing

developing countries during the early 1990s, i.e. China and the Asian Tigers (e.g.

Indonesia, Malaysia, Singapore, Thailand), and received the largest amounts for all the

private capital flows in developing countries: 37% of the total PNG flows, 50% of the

portfolio flows and 40% of the FDI flows. China was the largest recipient of private

---

[21] UNCTAD (2000) presented a survey on the determinants of FDI in Africa where the top ten determinants were not natural resource-related. The results of the survey supported the changes in the type of FDI in Africa

capital flows in developing countries and attracted 20% of total private capital flows during this period.

Yet, the evolution of private capital flows in Asia has two distinct periods: before and after the 1997 Asian crisis. In the first period, Asia received nearly 50% of the total flows to developing countries, at an annual average growth of 37%, whereby in the second one, Asia only accounted for 30% of the total flows at an annual average growth rate of -3%. After 1997 Asia was surpassed by Latin America as major recipient region. Figure 10 presents the evolution of private capital flows to Asia between 1990 and 2002. The figure shows that total flows peaked in 1996, fell between 1997 and 1998 during the Asian financial crisis, and never recovered pre-1997 levels.

Figure 2.10. Evolution of Private Capital Flows to Asia, 1990-2002 (US$ billion)

Source: GDF

37
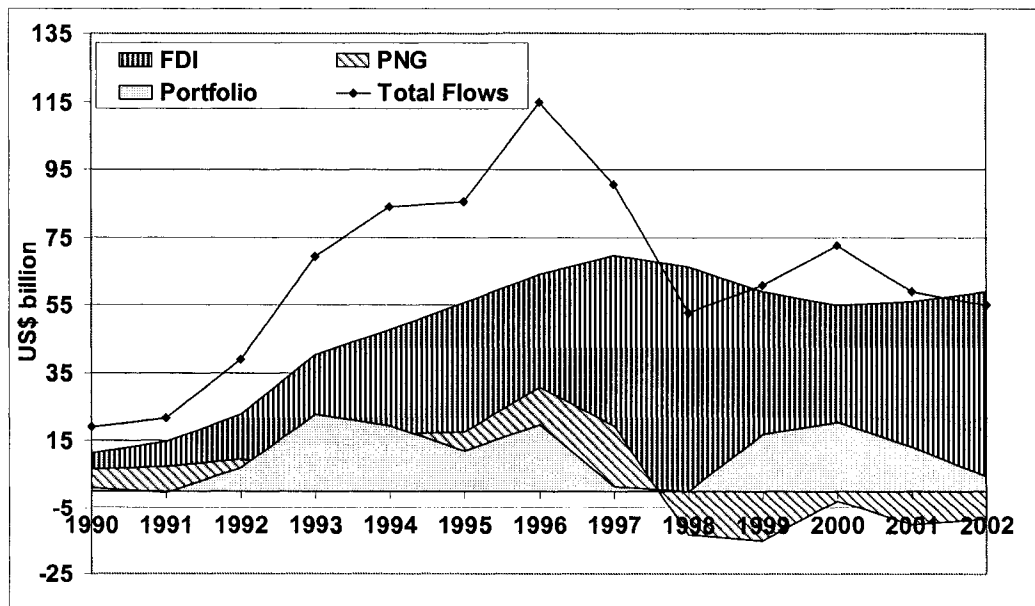
were: market size, trade openness, investment climate and human capital. Those results confirm the scholarly research conclusions on the determinants of FDI in Asia (Singh, Jun et al., 1995; Fung, 2000; Chakrabarti, 2001; Noorbakhsh, Paloni et al., 2001). Hence, the 1990s transformed the pattern of private capital flows to Asia. Two transformations occurred after the Asian crisis: a significant fall in total private capital flows and the growing importance of FDI as a source of foreign capital.

5.1.3. Latin America

According to the World Bank, Latin America received around US$ 800 billion worth of net private capital inflows between 1990 and 2002, making this region the second largest recipient of foreign financing in developing countries. The large amounts of foreign private capital flows to Latin America during the 1990s was a significant turnaround with respect to the previous decade when after the 1982 debt crisis in Latin America was marginalized by the international financial community (Klingen, Weder et al., 2004).

The change in investors' sentiments with respect to Latin America came about when the region decided in the late 1980s to carry out the Washington consensus-inspired liberalization reforms. The reform agenda included a gradual liberalization of capital markets, the elimination foreign ownership restrictions (Edison and Warnock, 2003) and a large privatization program that attracted the interest of foreign investors.

There are numerous empirical findings that support the importance of these

economic developments to explain the surge and the distribution of capital flows in Latin

America. For example, UNCTAD (UNCTAD, 1999) and the World Bank (World Bank.,

2001; World Bank., 2002) show that during the 1990s, privatizations in Latin America

were implemented through cross- national Mergers and Acquisitions to attract FDI. This

process made Latin America the region that attracted, in relative terms, the highest share

of FDI, with an average of 3.4% of –national- GDP. FDI was also the largest source of

foreign private capital and totaled 70% of the flows that reached the region between 1990

and 2002. Figure 11 displays the evolution of private capital flows to Latin America that

received, on average US$ 62 billion of net private capital flows per year.

**Figure 2.11. Evolution of Private Capital Flows to Latin America, 1990-2002
(US$ billion)**

Source: GDF

40
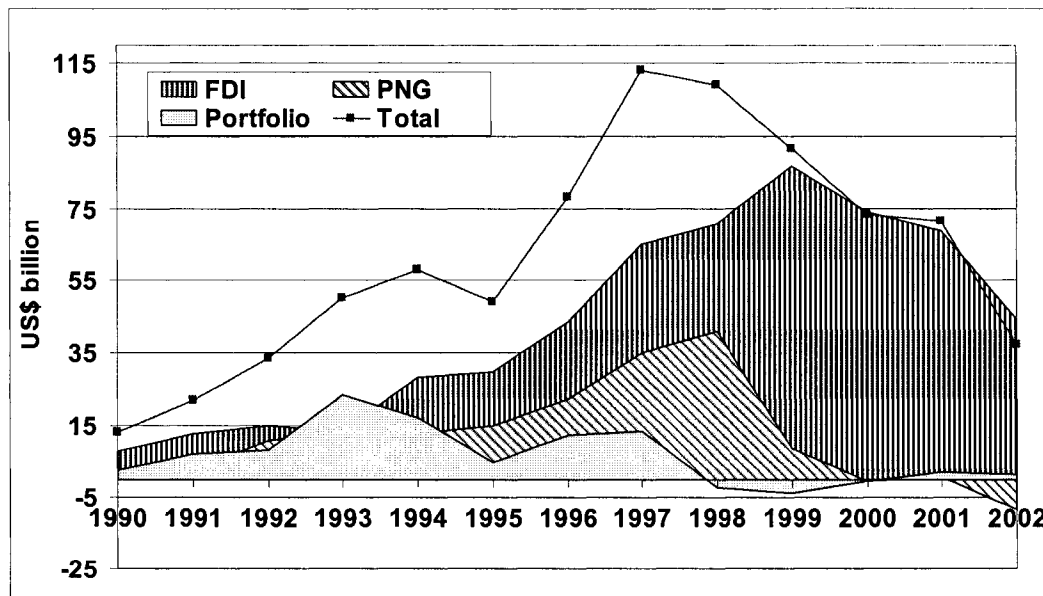
Nevertheless, the evolution of total private capital flows presents an uneven picture: flows were concentrated in a few countries and were mostly in FDI form. In this regard, the four major economies of the region, Argentina, Brazil, Chile and Mexico received 82% of the total flows, while FDI represented, on average, 75% of total private flows. The share of FDI in total flows has been growing during the period 1990-2002, until it became the only relevant source of foreign private capital.

The disparity in the distribution of flows in the early 2000s raises several questions. Why FDI, a non-market based type of investment is almost the exclusive source of private capital in Latin America? Why market-based investment instruments - portfolio and debt- are not present in a region with leading economic and financial reformers in the developing world? According empirical research, prevalence of FDI, and the disappearance of market-based foreign investment are a consequence of financial liberalization and integration of Latin American countries to international financial markets (Claessens, Klingebiel et al., 2002; Inter American Development Bank, 2002; Kaminsky and Schmukler, 2003; Schmukler, 2004). For example, the liberalization process lead to the privatization of large public companies. Former public companies were sold to strategic foreign investors that decided to de-list from domestic stock exchanges, which in turn reduced the liquidity and depth of local stock markets[22]. In fact, the data presented by Perry and Fiess (2003) show that between 1990 and 2000 there was a fall in the number of listed companies in six of the seven major regional Latin American stock markets.

---

[22] ECLAC (2000) and ECLAC (2001) provide information on the de-listing operations carried out by major foreign investors in Latin America such as Telefonica of Spain

However, after a decade of growth, total private capital flows to Latin America started to stall in the late 1990s and this does not seem to be explained only by the negative consequences that financial liberalization has for developing countries. Since 1998, total flows decreased in Latin America by 66%, the most important fall in developing countries, with exception of Africa.

Recent research attributes the drop in total capital flows in Latin America to several reasons such the fall in the returns of investment in the region (Perry and Fiess, 2003), economic instability (World Bank., 2002; World Bank., 2003), the lack of proper governance (Inter American Development Bank, 2002; Chong, Izquierdo et al., 2003; McKinsey Global Institute, 2003)[23] and exhaustion of the investment possibilities opened by the privatization of large public companies (UNCTAD, 2002; UNCTAD, 2003).

For these reasons exposed in the previous paragraphs, the prospects of private capital flows to Latin America are less promising than other emerging regions such as Asia or ECCA and will limit the arrival of private capital flows to the region. This conclusion is also supported by some recent data on the evolution of financial markets, which indicates that Latin America is lagging behind in terms of financing to the private sector. For example, according to the Bank of International Settlements (BIS), between 1994 and 2002, Latin America was the only region in the developing world where the share of private sector in outstanding international debt dropped significantly, from 40%

---

[23] See also McKinsey Global Institute surveys on corporate governance in emerging markets
http://www.mckinsey.com/practices/CorporateGovernance/

42

to 17%, and where the regional share in the total corporate debt outstanding in developing countries fell, from 54% to 40%.

In sum, Latin America is today a less attractive destination for foreign capital flows than ten years ago. This situation is the result of the combination of several factors that include economic instability, the end of the privatization process, the lack of good governance and the rise of more attractive locations in Asia and EECA. These shortfalls will undermine the chances of Latin America to attract large capital flows in the future. Meanwhile FDI will remain the major source of foreign capital in the region.

5.1.4. Eastern Europe and Central Asia (EECA)

Since the early 1990s, Eastern Europe and Central Asia (EECA) underwent a radical economic transition from a centrally planned to market oriented economy that made this region the third largest recipient of private capital flows in developing countries. Between 1990 and 2002 EECA countries received more than US$ 285 billion worth of net private capital flows.

The dramatic economic transformations are also reflected in the distribution and the size of capital flows (Garibaldi, Mora et al., 2001; Campos, Kinoshita et al., 2003). EECA was the region that received in relative terms the largest amounts of private capital flows, 4.6% of GDP, and the highest annual growth in capital flows in developing countries, around 38% per year. Figure 12 displays the total amounts of net private

43

capital flows to EECA between 1990 and 2002 and shows the impressive growth of flows

from less than US$ 0.1 billion in 1990 to $43 billion in 2002.

Figure 2.12. Evolution of Private Capital Flows to EECA, 1990-2002 (US$ billion)
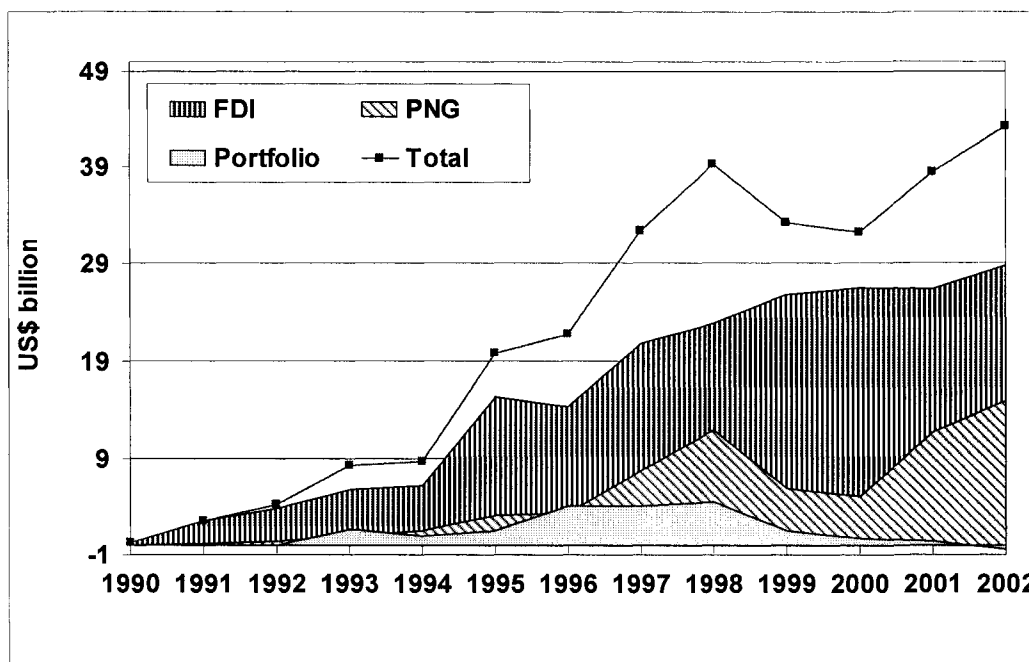
Source: GDF

In addition to the increase in capital flows in EECA, Figure 12 shows that there

has been a diversification in the foreign flows. In the early 1990s, FDI was almost the

exclusive foreign capital flows whereas in the late 1990s portfolio and, specially, private

debt also represented an important share in total capital flows. Not counting for Russia,

we find that FDI and portfolio investment flows have been growing and surpassing the

rest of the regions. EECA was the region that in terms of GDP received in highest

amount of PNG debt and FDI and was the second largest recipient for portfolio

44

investment. Thus, contrary to the other two major recipient regions, Asia and Latin America, EECA has diversified its foreign private capital portfolio during the 1990s.

PNG, portfolio and FDI flowed to the region to supply new products, and respond to new opportunities that were previously limited to public domestic capital, such as in the case of natural resources. For example, EECA was the second largest privatization region in the 1990s, with more than 20% of total privatization receipts in emerging markets. Those data are also support by the empirical research, which has demonstrated that privatizations attracted large FDI flows to the region (UNCTAD, 2000; Krkoska, 2001).

The evolution of private capital flows in EECA also shows that accession to the EU had a significant impact on the distribution and the size of capital flows in the region. The new EU members (Czech Republic, Hungary, Estonia, Latvia, Lithuania, Poland, Slovak Republic and Slovenia) received the largest flows in absolute and relative terms. Between 1990 and 2002, 75% of net inflows of private capital went to new EU countries, and registered the highest ratio of private flows to GDP, 6% of GDP.

Campos and Kinoshita consider that there are many reasons that explain the interest of foreign investors in new EU members such as their low factors prices that ensures cheap production costs and preferential access to the single European market (Campos, Kinoshita et al., 2003). In fact, data from the International Labor Organization (ILO) seem to confirm Campos and Kinoshita since the average manufacturing wages in

US$ in the EU are three times higher than in three EECA accession countries with the

highest manufacturing wages.

With respect to the types of capital flows, FDI was the major source of foreign

financing and accounted, on average for 70% of the total flows between 1990 and 2002, a

similar figure to that in Latin America and Asia. On the other hand, by the late 1990s, the

share of PNG and portfolio in total capital flows was a much larger figure than in Latin

America and Asia. Figure 14 displays the relative importance of PNG and portfolio in

EECA, Latin America and Asia. The data in Figure 14 show that PNG and portfolio have

been growing in EECA whereas it has plummeted in the other two regions, making

EECA the region with the most diversified portfolio of foreign capital sources.

Figure 2.13. Share in Total Capital Flows of PNG and portfolio in EECA, Latin America and Asia, 1990-2002

Source: GDF

46
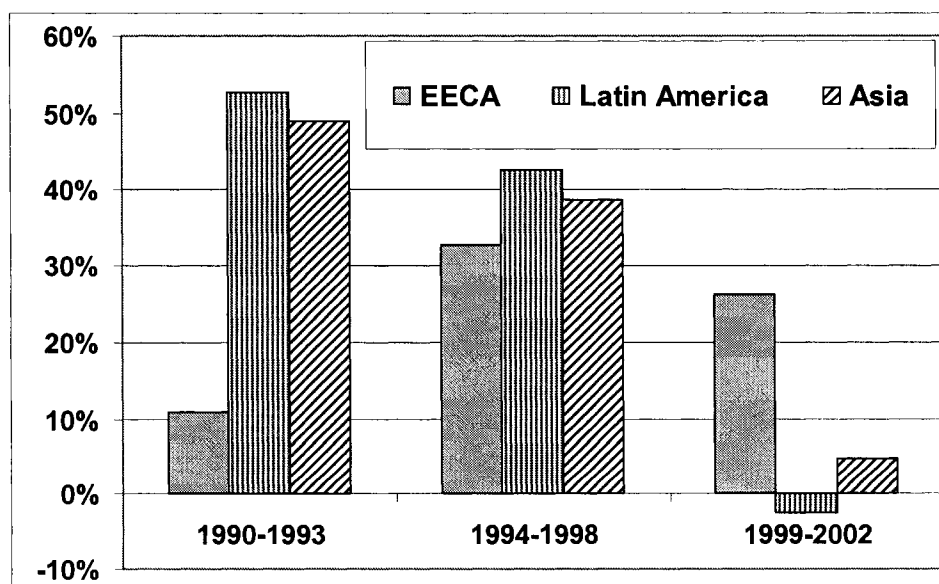
The strength of PNG and portfolio also appears to be also related to the accession to the EU of some EECA countries. Since the Russian crisis in 1998, new EU members have attracted more than 70% of the PNG and portfolio flows. Garibaldi, Mora et al. (2001) consider that the entry in the EU has provided enough security to portfolio investors to invest in new EU members. In addition, a recent IMF survey on investor opinions on emerging markets points out that the growing interest in EU accession countries due to " *an accelerated convergence of legal and regulatory frameworks in these countries [New members] to Western European Standards.* " (International Monetary Fund, 2003)

Therefore, the growth of capital flows in EECA was primarily due to the transition to the market economy (World Bank., 2000; World Bank., 2001; Lipschitz, Lane et al., 2002; World Bank., 2002; World Bank., 2003). Like in the other regions, FDI was the most important source of capital but the share of PNG and portfolio has been growing. EECA is the only region where the non-FDI sources of foreign capital have been grew after the financial crises of the second half of the 1990s. However, the data and empirical research show also two different groups of countries: new EU accession countries and the rest. The first group received around 70% of the total capital flows, whereas the second only received 30% even if it represents the majority of the population and the GDP of the region.

Empirical research concludes that the motivations to invest in one of the two groups are very different (Garibaldi, Mora et al., 2001; Campos, Kinoshita et al., 2003;

47

International Monetary Fund, 2003) and explains the disproportion in the shares of private capital flows. For new EU members, the enforced economic and institutional transformation enforced has been one fundamental determinant of foreign investment and will ensure future streams of flows.

On the other hand, for the non-EU members, primary resources have been the key determinant of foreign investment. This second group of countries will probably not receive enough capital flows and FDI will be the major source of foreign financing (see Shiells, 2003; UNCTAD, 2003; World Bank, 2003).

5.1.5. Middle East and Northern Africa (MENA)

MENA received between 1990 and 2002 US$ 72 billion worth of net private flows and was, the smallest recipient region in our sample. Like in the other regions, FDI was the dominant source of private capital flows and 60% of total flows. The other sources of capital represented around 40% of total flows, a figure well above that of the other regions.

The scarcity of private capital flows in MENA and its distribution during the period 1990-2002 years has been analyzed by recent empirical research. Factors such as the lack of economic liberalization, dependence on hydrocarbons and economic and political instability are considered the main barriers to attract foreign capital flows to the region. For example, Grais, Kantour et al. (2003) signal the slow path of financial liberalization in the region, with restrictions to foreign ownership and high state

48

intervention, explain the low level of integration with international financial markets. Eid and Paua (2002) also consider that MENA countries lack diversified economies and are too dependent out on hydrocarbons, a sector which, in turn, is protected by restrictive foreign investment regimes.

The problems of MENA to attract capital flows have also resulted in an uneven distribution of types of capital among countries. For example, Annex I shows that MENA is the region with the second largest group of countries that only received FDI investment as a source of private external flow. Moreover, the region has a very high concentration of flows in a small number of countries. Two countries, Turkey and Egypt[24] received nearly 66% of the total private capital flows that reached MENA, and 80% of PNG and portfolio. According to empirical research, the concentration of flows is the results of three different factors that gave a competitive hedge to Turkey and Egypt. These factors are: (i) the relative progress of legal and economic reforms (World Bank., 1999; World Bank., 2000; World Bank., 2002; Grais, Kantur et al., 2003); (ii) higher levels of income (World Bank., 2001); (iii) and diversified economies (World Bank., 2002; World Bank., 2003).

Hence, MENA presents a contradictory situation: the two main recipients of flows are non-oil producers[25] in a region with the world's highest concentration of oil-producing countries. The empirical literature concludes that the underperformance of

---

[24] Egypt is also an hydrocarbon producer but has a more diversified economy than its neighbors, see Economist Intelligence Unit country reports

[25] Egypt one of the two top recipients is an oil producer but the role of oil sector is far more marginal than for the other MENA countries.

49

foreign investment in hydrocarbons, the sector with greatest potential in the region, is due three main reasons. First, domestic legislation continues to restrict foreign investment in oil-related activities. Despite the recent openings, many countries still impose a 49% limit to foreign investment in the hydrocarbons sector and dissuade foreign investors who are wary of domestic majority shareholders (Eid and Paua, 2002). The second reason is sector vulnerability to hydrocarbon price changes that makes the investments very volatile (Fujita, 2002). For example, Eid and Paua (2002) and Fujita (2002) suggest that low hydrocarbon prices explain the low levels of FDI in Arab countries between 1985 and 2000. Finally, the low levels of economic reforms and governance dissuade foreign investors to carry out projects in the region (Grais, Kantur et al., 2003; UNCTAD, 2003). In this regard, Eid and Paua (2002) and Grais and Kantur (2003) consider this last point essential to explain why Egypt is one of the largest recipients in MENA.

Therefore, the evolution of capital flows in MENA during the 1990s and early 2000s suggests that the region will continue to receive relatively small amounts of foreign financing. FDI will continue to be the main source of finance although it will flow below its potential (UNCTAD, 2003). On the other hand, the size of non-FDI flows will depend on the ability of Turkey and Egypt to attract these sources of capital (World Bank., 2003).

50

5.2. Analysis by Top Recipients

The analysis of the top recipients shows all types of capital flows are concentrated in small group of countries. More than 67% of all the private capital flows went to 10 countries and 80% of the flows went to a "selected club" of 20 countries. Moreover, the concentration in the top recipients is larger in certain categories of capital flows. For example, the top 10 and 20 recipients received, respectively, 70% and 83% of FDI flows, and 78% and 98% of portfolio flows.

In addition to the concentration of capital flows in few recipients, the relative size of capital flows in the top recipient countries is larger than in other country or region. Top recipients received capital flows that represented an average 4.2% of GDP, whereas the average developing country would receive less than 3%.[26]

In addition to the high concentration in amounts of private capital flows that reach developing countries, there is also a great geographic concentration. All the top 10 recipients are from the largest recipient regions Asia, EECA, and Latin America. The concentration of capital flows confirms the interest of foreign capital in medium-size income countries: none of the top 10 or 20 recipients is a low-income country. These findings are supported by empirical research, which considers that middle countries are

---

[26] Only two regions, Latin America and EECA, have slightly greater shares of FDI (LA and EECA- and PNG –EECA). These two exceptions reinforce the findings of previous sections on the importance of FDI and PNG to Latin America and EECA.

51

more attractive to international investor because they offer better investment opportunities in less risky environments (Claessens, Klingebiel et al., 2002; UNCTAD, 2003; World Bank., 2003)[27].

In addition, the share of the different sources of foreign capital measured in terms of average of GDP shows that the top 10 recipients have more diversified sources of private capital. The next table presents the shares of FDI, PNG, and portfolio in terms of average GDP for the top recipients, average developing country and 5 developing regions.

Table 2.5. Shares of FDI, PNG and Portfolio in Terms of Average GDP

	FDI	PNG	Portfolio
Top 10	66%	19%	15%
Average	*83%*	*12%*	*5%*
Asia	80%	8%	10%
EECA	68%	24%	4%
MENA	82%	14%	2%
Africa	99%	-4%	5%
Latin America	84%	11%	4%

Source: Author estimations based on GDF

Table 5 shows that for the top recipients FDI represents a smaller share of foreign financing -66%-, whereas for the average emerging country or region is at least 80%. EECA is the only region with the same share of FDI in terms of average GDP. Hence, top recipients have a more diversified portfolio of foreign capital sources. According to the

---

[27] For example, see World Bank (2003), chapter 2 and chapter 4 for middle-income countries debt and FDI in developing countries, and UNCTAD (2003) chapter 1 for FDI in developing countries. The World Bank (2002) also discusses why middle-income attract more capital than poor countries.
See also Claessens, Kinbiegel and Schmukler (2002) and their review of the literature on the relationship between income level, governance and capital flows in developing countries

52

empirical literature on foreign capital flows, this will allow these countries to have access to cheaper capital (Stulz, 1999; Henry, 2000; Prasad, Rogoff et al., 2003).

However, the distribution of capital flows has changed dramatically for the top recipients. Like for the rest of developing countries, FDI became the quasi-exclusive source of foreign capital flows during the late 1990s. The data from Figure 14 show that after 1997 the net inflows of non-FDI flows for the top recipients have been declining and became negative in 2002. Figure 14 also illustrates how private capital flows were affected by the financial crises occurred in developing countries during the second half of the 1990s that affect many top recipient countries (Argentina, Brazil, Malaysia, South, Korea, Philippines, Russia, Thailand and Turkey). Furthermore, the data suggest that there was a "dry up" or, in Guillermo Calvo's words, a "sudden stop" (Calvo, 1998) of non-FDI sources due to the excessive financial volatility in developing countries.

Figure 2.14. 1990-2002 Total Private Capital Flows to Top Recipients
(US$ billion)
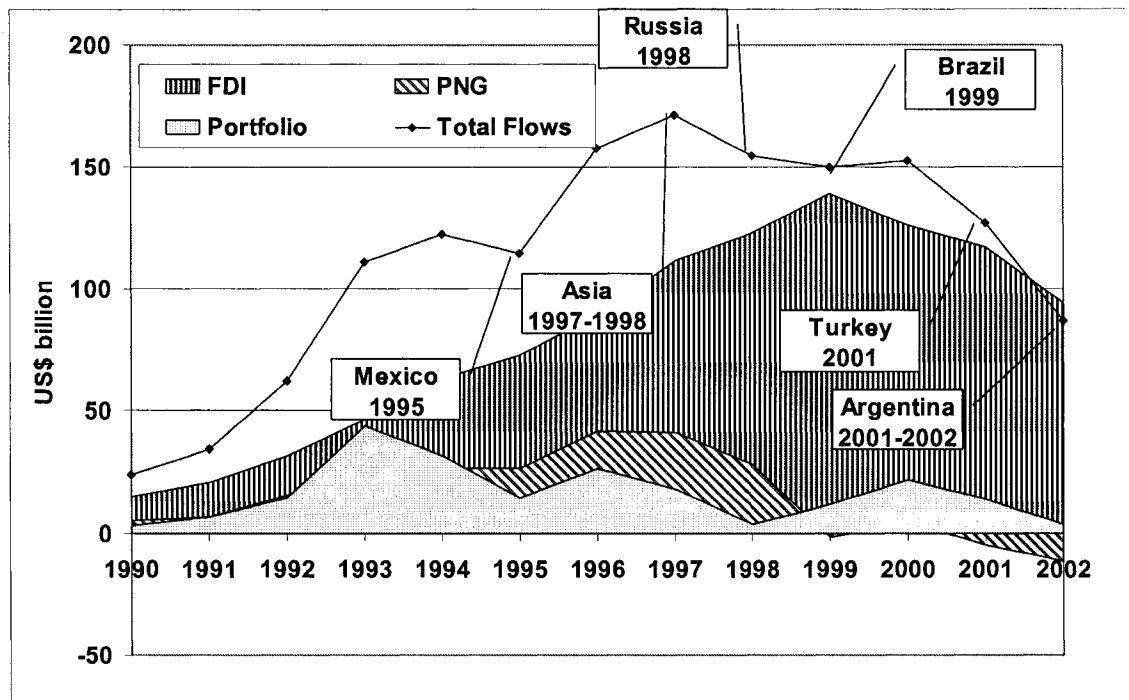
Source: GDF

Therefore, the recent evolution of capital flows in the top recipients suggests that

FDI is becoming the predominant source of foreign finance like for the rest of developing

countries. Recent studies consider that the disappearance of non-FDI sources of private

capital flows can be attributed to several factors. For example, the World Bank considers

that there are three major factors in developing countries to explain for the fall in equity

portfolio flows: high-equity prices coupled with the low growth of emerging countries,

poor legal and governance infrastructure, and a "straightforward" substitution of portfolio

equity by foreign direct investment (World Bank., 2003). The combination of these

factors with the economic situation in developed countries, an economic expansion in the

late 1990s and a recession in the early 2000s, affected investors' perception on the risk

and return trade-off required to carry out an investment. The changes in this trade-off had

two major consequences: foreign investors left developing countries or remained but

54

using safer ways to invest. For example, the lack of proper legal protection and governance made foreign investors opt for ownership and control, making foreign investors prefer FDI than equity portfolio (World Bank., 2003).

In addition, some the same factors also affected domestic investors willing to participate in domestic equity markets. For example, weak legal protection and governance stimulated local companies to raise capital in major capital markets in developed countries. Claessens Klingebeil et al. (2002) show that this shift to international markets and also depressed portfolio flows. Hence, the attitude of foreign and domestic investors seems to justify the fall of equity portfolio flows to the top recipients.

In contrast, the fall of PNG can be attributed to different reasons. The World Bank points out to the developments in the two largest PNG holders, Latin America and Asia, to explain the fall in PNG flows. Latin America had traditionally demanded large amounts of PNG, which in the late 1990s and early 2000s was unable to raise new PNG funds. The impossibility to raise funds had two consequences: the net PNG flows became negative during the late 1990s and spreads rose due to the excess demand of funds (World Bank., 2003). For Asia the contrary was true, countries recovered from the 1997-1998 crisis, repaid PNG and did not demand more funds. The consequences were different to those in Latin America: net PNG flows were negative but the spreads declined as a result of the lack of demand for funds. Since Latin America and Asia were

the largest recipients of PNG flows, the net outflows explain the fall in total PNG flows after 1998 in the top recipients.[28]

Therefore, the situation for the top recipients in 2002 can be described as follows: FDI, the largest source of foreign financing before the financial crises of the late 1990s, became almost the exclusive one. Non-FDI sources have disappeared and will not come back until economic and institutional reforms in the top recipients -and in developing countries- change the perceptions of foreign and domestic investors.

VI. CONCLUSIONS

This paper has analyzed the evolution of private capital flows to developing countries during between 1990 and 2002. The main findings can be summarized as follows: capital account liberalization and legal reforms in developing countries enabled an unprecedented growth in private capital flows to developing countries. The elimination of the barriers to foreign investments allowed foreign investors to have access to the economic resources of a large number of developing nations. Private capital flowed under three forms: PNG, portfolio and FDI. Although FDI was the most important source of capital, PNG and portfolio represented important shares of foreign investment. Yet, the distribution of flows varied among regions and top recipients. Africa and MENA attracted little foreign capital and was mainly FDI, whereas Asia, Latin America, EECA

---

[28] See McGuire and Schrijvers (2003) and Klingen, Weder et al. (2004) analyze debt returns, show the differences between Latin America and Asia and reinforces the conclusions draw by the World Bank (2003). McGuire and Schrijvers (2003) also show that the common factor of spreads in emerging countries is small with respect to idiosyncratic ones. See also Chuhan, Claessens et al. (1998) for an earlier study.

and the top recipients attracted larger and more diversified flows of private foreign capital. The empirical data shows that income and institutional infrastructure were essential to determine the amounts of private capital flowing to recipient countries.

With the onset of the financial crises in late 1990s, there was a dramatic turnaround in pattern of foreign capital flows to developing countries. In this new phase, PNG and portfolio stopped flowing while FDI remained stable. Indeed, with the exception of EECA, all the regions suffered important falls in private capital flows and had to rely more on FDI as the only relevant source of foreign capital.

Hence, the growing importance of FDI in developing countries has an important implication: financial liberalization is a necessary but not sufficient condition to have access to large foreign capital flows. Foreign investors demand economic stability and good institutional infrastructure. The behavior of foreign capital in new- EU EECA countries proves that countries that provide these two safeguards will continue to attract foreign investors. On the contrary, Latin America shows the consequences for countries unable to provide enough security to foreign investors. Those countries will have to learn how to live with fewer and more expensive sources foreign capital.

Annex 1: Countries that did not received Portfolio and Debt PNG

	PORTFOLIO	DEBT PNG
1	**Angola**	Algeria
2	Bolivia	Angola
3	**Burkina Faso**	Bangladesh
4	**Cambodia**	Botswana
5	Cameroon	Burkina Faso
6	**Congo, Dem. Rep.**	Cambodia
7	**Congo, Rep.**	Congo, Dem. Rep.
8	**Ethiopia**	Congo, Rep.
9	**Gabon**	Ethiopia
10	**Gambia, The**	Gabon
11	Georgia	Gambia, The
12	Iran, Islamic Rep.	Jordan
13	Jamaica	Madagascar
14	**Madagascar**	Malawi
15	**Malawi**	Mali
16	**Mali**	Myanmar
17	Malta	Niger
18	**Myanmar**	Sierra Leone
19	Nicaragua	Sudan
20	**Niger**	Syrian Arab Republic
21	Papua New Guinea	Togo
22	Paraguay	Tonga
23	Senegal	Trinidad and Tobago
24	**Sierra Leone**	Uganda
25	**Sudan**	Vietnam
26	**Syrian Arab Republic**	Yemen, Rep.
27	Tanzania	
28	**Togo**	
29	**Tonga**	
30	**Uganda**	
31	**Yemen, Rep.**	
32	Zambia	
Africa:	19/27	16/27
MENA	4/13	4/13
OTHER	9	5

Note: In bold countries that only received FDI inflows

58

Annex 2: Countries that did not received Portfolio and Debt PNG

	ONLY FDI	ICGR FINANCIAL PERCENTILE RANK	KAUFMANN ET AL. PERCENTILE RANK AVERAGE
1	Angola	3%	6%
2	Burkina Faso	21%	39%
3	Cambodia	13%	25%
4	Congo, Dem. Rep.	1%	2%
5	Congo, Rep.	10%	12%
6	Ethiopia	8%	33%
7	Gabon	59%	34%
8	Gambia, The	44%	48%
9	Madagascar	5%	42%
10	Malawi	18%	39%
11	Mali	7%	43%
12	Myanmar	6%	6%
13	Sierra Leone	0%	16%
14	Sudan	0%	6%
15	Syrian Arab Republic	47%	26%
16	Togo	29%	24%
17	Tonga	NA	37%
18	Uganda	20%	33%
19	Vietnam	13%	34%
20	Yemen, Rep.	41%	24%
	AVERAGE	18%	26%

59

Annex 3: Regions and Top recipients

Asia-Pacific	East Europe & Central Asia	Middle East North Africa	Africa	Latin America	Top 20 Recipients	Top 10 Recipients
Bangladesh	Bulgaria	Algeria	Angola	Argentina	Argentina	Argentina
Cambodia	Croatia	Bahrain	Botswana	Bahamas, The	Brazil	Brazil
China	Czech Republic	Egypt, Arab Rep.	Burkina Faso	Bolivia	China	China
India	Estonia	Iran, Islamic Rep.	Cameroon	Brazil	Chile	Chile
Indonesia	Georgia	Jordan	Congo, Dem. Rep.	Chile	Colombia	Korea, Rep.
Korea, Rep.	Hungary	Lebanon	Congo, Rep.	Colombia	Czech Republic	Malaysia
Malaysia	Kazakhstan	Malta	Cote d'Ivoire	Costa Rica	Hungary	Mexico
Mongolia	Latvia	Morocco	Ethiopia	Dominican Republic	India	Poland
Myanmar	Lithuania	Syrian Arab Republic	Gabon	Ecuador	Korea, Rep.	Singapore
Pakistan	Poland	Tunisia	Gambia, The	Jamaica	Malaysia	Thailand
Papua New Guinea	Romania	Turkey	Kenya	Mexico	Mexico	
Philippines	Russian Federation	United Arab Emirates	Madagascar	Nicaragua	Nigeria	
Singapore	Slovak Republic	Yemen, Rep.	Malawi	Panama	Peru	
Sri Lanka	Slovenia		Mali	Paraguay	Philippines	
Thailand	Ukraine		Mozambique	Peru	Poland	
Tonga			Namibia	Trinidad & Tobago	Russian Federation	
Vietnam			Niger	Uruguay	Singapore	
			Nigeria	Venezuela, RB	South Africa	
			Senegal		Thailand	
			Sierra Leone		Venezuela, RB	
			South Africa		Vietnam	
			Sudan			
			Tanzania			
			Togo			
			Uganda			
			Zambia			
			Zimbabwe			

60

CHAPTER III: SENSITIVITY ANALYSIS OF FDI DETERMINANTS IN CROSS-COUNTRY LINEAR REGRESSIONS IN DEVELOPING COUNTRIES: EVIDENCE FROM AN 80-COUNTRY SAMPLE

I. INTRODUCTION

The analysis of the stylized facts of private capital flows since 1990 shows that the two major sources of private foreign financing, debt and portfolio equity, have disappeared in many developing countries and that Foreign Direct Investment (FDI) has become the only relevant source of foreign private capital in developing countries. To find an explanation to the relevance for FDI to developing countries, we propose to answer three interconnected questions: what happened in private capital flows to developing countries since the early 1990s; what are the determinants of FDI in developing countries; and what are the regional differences in terms of determinants of FDI. The three questions are addressed in three separate papers.

The previous paper presented the stylized facts of the evolution of foreign private capital flows in developing countries and showed how the gradual liberalization of developing countries in the early 1990s enabled the arrival of foreign flows. Moreover, the stylized facts illustrated that after the Asia crisis in 1997, FDI, already the largest source of private capital, almost became the exclusive one. The present paper concentrates on the determinants of FDI in developing countries and aims to find the

61

characteristics of developing countries that make them attractive to foreign direct investors. In order to carry out the analysis of the determinants of FDI in developing countries, this paper combines two elements, a review of the literature of FDI in developing countries, and a series of statistical sensitivity analyses to identify the major determinants of FDI.

The first element, the review of the literature, outlines the main categories of determinants of FDI. We show that the recent growth of private capital flows and FDI to developing countries has been coupled with a vast literature on what attracts FDI to developing countries. Despite the diversity of its findings, this literature shares a common characteristic; the use of a similar technique -cross-country linear multivariate regression analysis- to identify the linkages between FDI and recipient countries' idiosyncratic characteristics.

However, a review of the literature not only has to focus in the analysis of a large array of independent variables that may affect FDI, but it also has to explore the different dependent variables used in the literature. Recent findings of empirical literature show that a consistent analysis of the determinants of FDI depend as much as on well defined left side variables as on right side ones (Chakrabarti, 2001, Lim, 2001, and Wezel, 2003). For example, Hausmann and Fernandez-Arias (2000) show that the division of the classical dependent variable to analyze FDI —the ratio of FDI to GDP- into two separate components -FDI over capital flows and capital flows over GDP- can bring very different

62

results. For this reason, the review of the literature also carries out a thorough discussion on how to measure the dependent variable, FDI.

The second element of this paper is the application of Edward's Leamer's Extreme Bound Analysis (EBA) (Levine and Renelt, 1992) to identify the key determinants of FDI from cross-country multivariate linear regressions. This method has been widely used in other fields of applied economics such as growth theory (Levine and Renelt, 1992 and Sala i Martí, 1997) or international finance (Levine and Schmukler, 1997)- and has provided relevant information with respect to the determinants of economic growth and international capital flows.

The EBA technique helps to assess the sensitivity of prior findings in the empirical literature of FDI in developing countries by making small changes in the conditioning information set of the linear regressions that try to explain the relationship between FDI and its determinants. In other words, EBA tests the robustness of regression coefficients by altering the set of constrained information in any possible linear regression including this coefficient.

Using this technique, this paper identifies the most important determinants of FDI and most suitable variables to measure FDI. It carries out several cross-country multivariate regressions, to determine the sensitivity of the main FDI determinants identified in the literature to different measures of FDI. The paper shows that different

63

measures of FDI provide very different conclusions with respect to reasons why FDI flows to developing countries.

This paper makes at least two important contributions to the empirical research on FDI. The first contribution is the use of the EBA technique to assess the determinants of FDI. The comparison of the sensitivity of analyses of different measures of FDI has never been considered by empirical research of FDI. To our knowledge, only two studies (Chakrabarti, 2001 and Wezel, 2003) have applied the EBA technique to FDI, analyzing only the sensitivity of the traditional measure of FDI in multivariate FDI models, FDI over GDP. This paper demonstrates that the use of measures of the importance of FDI in developing countries provides new insights to FDI empirical research.

Second, the paper provides -to date- the most comprehensive sensitivity analysis on FDI in developing countries. First, the paper uses a sample of 80 developing countries between 1992 and 2000, whereas Chakrabarti (2001) carries out an analysis for a sample of developed and developing countries and covers the year 1994 only. As we pointed in the previous paper, the developments in international private capital flows during the 1990s require a larger time span to carry out a consistent sensitivity analysis of FDI. Second, the paper considers the total FDI flows that reached developing countries between 1992 and 2000. The other two studies fall short in this respect. For example, Wezel (2003) only considers German FDI flows to developing countries, whereas a consistent sensitivity analysis of FDI in developing countries has to include the total FDI flows that reached to developing countries.

The paper is divided into five sections. Section I consists of a review of the literature of most relevant work on FDI determinants in developing countries. Section II discusses the importance of the determination of the dependent variable in cross-country FDI linear multivariate regressions. Section III presents the modified Extreme Bound Analysis technique used in this paper. Section IV presents the main findings. Finally, Section V presents our main conclusions and their significance to explain the current importance of FDI in developing countries.

II. Literature Review

2.1. Introduction to the Theory of Multinational Enterprises: Vertical and Horizontal FDI

According the classical theory of Multinational Enterprises (MNEs), three advantages have to converge in a firm to invest in a foreign location: Ownership, Locational and Internationalization Advantage (Dunning, 1971 and Dunning, 1988)[29]. Traditionally, the literature on MNEs has given more importance to the Ownership and Internationalization advantages (Rugman, 1981, Ethier, 1986 and Caves, 1996), but new

---

[29] Ownership refers to firm-specific skill or asset that provides to the firm a specific advantage with respect to its competitors. This ownership advantage allows the firm to compensate the economic costs of the foreign investment. Internalization refers to the advantage of keeping the firm-specific skill or asset e inside the firm instead of selling it or licensing it. This firm-specific advantage may be difficult to sell and internalization can be the only way for the way to use the firm-specific skill or asset in a foreign location. Finally, Locational refers the foreign location input factors that in combination to the other two advantages makes the production abroad more attractive. The locational factors are important given that without them the firm will export the product instead of creating a foreign location.

65

research considers that locational advantages are becoming more important (Dunning, 1998).

In this regard, the scholarly research considers that one of the most compelling reasons to explain the growing importance of the determinants in FDI decisions has been the worldwide liberalization of capital flows occurred during the 1990s.In the case of developing countries, the analysis of the stylized facts between 1990 and 2002 shows that the fall in the capital account restrictions (Edison and Warnock, 2001) and the legal reforms (Prasad, Rogoff et al., 2003) carried out in developing countries played a significant role in the growth of foreign private capital flows. The reduction of foreign investor's restrictions in developing countries expanded the investment opportunities for foreign companies and influenced the reasons to invest in developing countries. In other words, the process of liberalization of foreign investment in developing countries made the locational factors more accessible to foreign investors. In fact since the late 1990s, the United Nation Conference for Trade and Development (UNCTAD) has been surveying the reasons of MNEs to invest in developing countries and realized that domestic determinants are critical to enforce foreign investment decisions in developing countries (UNCTAD, 1998, UNCTAD, 2000, and UNCTAD, 2002).

Yet, the importance of each locational factor for MNEs depends on the investment strategies of the foreign investors. In general, scholars consider that MNEs follow three major FDI strategies: production efficiency, market seeking and resource seeking. An MNE follows a production-efficiency FDI strategy when it invests abroad to

optimize its production costs. In other words, the MNE locates a part of its productive process abroad in order to take advantage of a host country's characteristics such as labor costs. Once this stage of the production process is completed the product is either sent to another location to finalize the production or it is sold in international markets. This type of FDI also called "vertical" FDI (Shatz and Venables, 2000 and Lim, 2001).

One particular case of the vertical FDI is resource-seeking FDI. In this case, a firm decides to invest in a foreign location in order to have access to a cheap and –or- abundant domestic natural resource. Hence, "vertical" FDI is generally aimed to export-oriented activities and takes advantages to local inputs –factors, natural resources- to become more competitive.

An MNE pursues a market-seeking FDI strategy when it invests a in foreign country to have a better access to host country's domestic market. This strategy consists on the replication of the MNE's production process in the local foreign market to sell the production locally. This type of FDI strategy substitutes exports to the foreign location, and aims either to reduce costs of supplying the local market –such a tariffs or transportation costs- or to make the firm more competitive –proximity to the local market. The theory of MNEs predicts that companies will choose to replace exports by FDI in larger markets. According to (Shatz and Venables, 2000) there are two main reasons: the possibility to spread the investment's fixed cost among a larger number units of product; and existence of more local firms that will drive domestic prices down and will make the export option less attractive, particularly if the marginal cost of supplying them is high.

67

Hence, market-seeking FDI or "horizontal" FDI is more concerned by the access to

foreign location than by the cost of the domestic inputs.

Dunning considers that the globalization of the world economy since the early

1990s has changed FDI strategies in developing countries and the importance that foreign

investors pay to determinants of developing countries (Dunning, 1998). Nowadays, FDI

traditional strategies –market and resource seeking- are coupled with a growth in

efficiency seeking FDI. According to Dunning, certain determinants that affect more

investment decisions in developed countries such as physical and human infrastructure

are variables that are now taken into consideration in FDI in developing countries.

Dunning concludes that there are three main factors that have affected

international investment decisions since the early 1990s: the growth to more knowledge-

based activities in corporate world[30]; the fall of trade barriers to the flow of goods and

capital; and the management decentralization in MNEs. The combination of these three

factors justifies the changes towards more production-efficiency FDI strategy in

developing countries and calls for dual categorization of FDI in developing countries:

traditional and non-traditional determinants. Traditional determinants are those that have

always affected FDI strategies in developing countries, and affect all types of FDI. On the

other hand, non-traditional FDI are those that foster new forms of FDI such as efficiency-

seeking FDI. Those differences in determinants have been tested in recent empirical

---

[30] The importance of knowledge-based activities in international business is key issue in international
business studies and explains the growth of FDI in the service industry (Dunning, 1998). Kogut and
Zander's (1993) seminal work provide a theoretical framework on the importance of knowledge-based
activities in MNEs.

68

research and it has been found that both traditional and non-traditional determinants may play an important role in FDI to developing countries (Pfeffermann and Madrassy, 1992, Nunnemkamp, 2001, Noorbakhsh, Paloni et al., 2001, UNCTAD, 2001, UNCTAD, 2002, UNCTAD, 2003, Wezel, 2003).

2.2. Determinants of FDI: Traditional Versus Non-Traditional

The recent empirical literature has taken into consideration the division of traditional and non-traditional determinants of FDI. For example, Wezel (2003) uses this division in his analysis of the German FDI determinants to Latin America and Asia. Nunnemkamp (2001) also makes this distinction and considers that non-traditional determinants such as human capital are relevant to explain FDI in developing countries. In this section we will analyze the FDI determinants using the traditional and non-traditional division of determinants as a first categorization but will also take into consideration a second categorization of FDI.

This second categorization refers to the different social, institutional and economic clusters in which we can divide the main determinants of FDI. The review of the literature in this work suggests that there are six major clusters of FDI determinants in developing countries: economic structure, economic environment, factor costs, country risk, agglomeration, political and institutional stability, and human capital[31]. Hence, we

---

[31] The classification is the result of the categorization made in some studies. For example Edwards (1990), who considers three categories; host country's structural characteristics; host country's economic policy; host country's political environment. Paloni et al. (2001) and Fung et al. (2001) show that human capital is

69

will divide FDI determinants into traditional and non-traditional determinants, and each category will include some of the clusters of the second categorization.

2.2.1. Traditional Determinants

a)- Economic Structural Characteristics

Market Size

The literature review shows that the market size is the most frequent determinant of FDI. 35 out of 38 the empirical works surveyed in this literature review control for market size to assess the importance of domestic markets for foreign investors. GDP, GDP per capita and GDP growth are three variables used to measure the size of the domestic market. However, previous literature reviews conclude that the GDP per capita is better a measure of the market size (Shatz and Venables, 2000, and Lim, 2001).

In the literature review, we found that 23 out of 38 studies use GDP per capita to measure market size in developing countries. In addition, the sensitivity analyses of Chakrabarti (2001) and Wezel (2003) also use GDP per capital as the variable control for market size. Wezel tests two different measures of market size –absolute GDP and GDP per capita- and finds that the latter variable not the former is a significant determinant of FDI.

---

a distinct and new type of determinant to take into account in cross-country FDI linear regressions. Wezel (2003) and Nunnemkamp (2001), classify determinants between traditional and non-traditional.

70

The relationship of market size and FDI depends on the type of FDI strategy. For example, Dunning (1998) explains that bigger domestic markets attract greater amounts of horizontal FDI. Thus, market size must have a positive relationship with horizontal FDI, a type of investment that tries to have a better access to domestic markets. On the other hand, the relationship between market size and vertical FDI is irrelevant since efficiency oriented market size is not concerned by the size of the domestic market. The literature review indicates that the importance of market size may be decreasing over time. Early studies on FDI to developing countries, present a very strong relationship with FDI. For example Root and Ahmed (1979) and Schneider and Frey (1985) find that market size is significant at 1% to 5% level for two samples of developing countries in the 1970s and 1980s. Yet, Wezel (2003) finds that during the 1990s market size is not significant for some specifications of German FDI in Latin America and emerging Asia. Since MNE theory predicts that recent FDI to developing countries has a greater share of vertical FDI, these results can indicate that market size is no longer an important FDI determinant.

Natural Resources

Ten studies in our literature review include natural resources in their regressions. In principle, empirical research expects a positive relationship between natural resources and FDI as one of the main traditional drivers of FDI to developing countries is the presence of natural resources. However the results vary among studies. For example, Jun

71

and Singh (1995) find that natural resources measured as the percentage of natural resources exports to GDP is not significant for low and high FDI host developing countries. Similarly, Noorbakhsh et al. (2001) find that natural resources are not significant for FDI flows to 36 developing countries. The authors conclude that besides the empirical evidence of a positive relationship between FDI and natural resources, the changing nature of FDI to developing countries, less resource oriented reduces the importance of natural resources.

The decrease in significance in natural resources may also explain that early studies on FDI cross-country regressions find that natural resources are an important determinant. For example, Root and Amhed (1979) and Agodo (1978) find that this determinant is significant in FDI flows to developing countries in the 1960s and 1970s. However, some regional FDI analyses continue to find natural resources has an important effect in inward FDI. For example, Morisset (2000) finds this variable is significant in the study of FDI to 29 African countries between 1990 and 1997. Morisset uses panel data and cross-country estimations and finds very significant results in both cases. Therefore the linkage of natural resources and FDI is uncertain. However, the role of natural resources cannot to be ignored. Recent empirical research considers that natural resources do not play an important role in FDI but can change the composition of capital flows toward FDI (Hausman and Fernandez-Arias, 2000).

b)-Economic Environment

The economic environment determinants are the economic characteristics of the

host countries that are a consequence of economic policy decisions. We divide economic

environment variables between macroeconomic stability determinants and economic

growth determinants.

b1)- Macroeconomic Stability

The most frequently cited macroeconomic stability variables are external debt,

inflation, and real exchange rate volatility[32]. Twenty-two of the 38 empirical studies on

FDI in developing countries include macroeconomic stability variables, and 19 at least

include external debt, inflation and real exchange rate volatility.

External Debt

The empirical research considers that external indebtedness should have a

negative effect on FDI inflows to developing countries. Wezel (2003) considers two

arguments to explain this negative relationship. First, high external debt levels make

agents anticipate future growth in tax liabilities to repay debt. If the integration of capital

markets is low, as it may happen in many developing countries, resulting capital outflows

can raise domestic cost of capital and decrease the profitability of subsidiaries. The

second argument lies in the possibility of default and the risk expropriations and

---

[32] The importance of government related regulations is empirically tested in Pfeffermann, Kisunko et al. (1999), study based on a survey of 3,951 firms in 74 countries. These four variables are considered to be a major obstacle to do private business

73

restrictions of the capital account. Nevertheless, Wezel finds that external debt is not a relevant determinant for German FDI in Latin America and Asia.

Conversely, Singh and Jun (1995), in a larger study of FDI in developing countries, find some evidence that debt swaps stimulate FDI flows, showing that a fall in level of external indebtedness –or an increase in debt swaps- can attract FDI. Therefore, the empirical research has not provided conclusive results on the linkages between and external debt on FDI.

Inflation

Authors consider generally that inflation will have a negative effect in FDI. For example, Schneider and Frei (1985) carried out a well-cited study on political and economic determinants in 54 developing countries in the late 1970s and early 1980s. These authors considered that inflation rate was a "sign of internal economic tension and of inability or unwillingness of the government (...) to balance the budget" (Schneider and Frey, 1985: 165) and had a negative effect on FDI. Rogoff and Reinhart (2003) conclude that inflation is also a major deterrent of FDI in African countries for similar reasons.

However, the significance of inflation varies across studies. For example, Schneider and Frey (1985), Drabek and Payne (2001) and Asiedu (2002) do not find inflation significant for FDI. Conversely Taylor (2000) finds that inflation has significant

74

at 10 % when he analyzes of US FDI outflows by type of industry. Therefore, empirical research does not provide enough evidence on the importance of inflation as a determinant of FDI.

Real Exchange Volatility

Empirical research has conflicting opinions on the relationship between the fluctuations of real exchange rate and FDI. A part of the empirical research considers that exchange volatility is another variable to measure loose domestic macroeconomic policies and can help to predict changes in policies that restrain FDI. For example, Kostonelou and Liargovas (2000) consider that real exchange rate depreciations can trigger policies of protectionism, and, therefore, increase horizontal but not vertical FDI. Similarly, Jun and Singh (1995) include exchange rate volatility to control for the negative effects of exchange rate fluctuations in FDI. Jun and Singh argue that exchange rates can play what Lucas calls "a residual role (...) in determining the value of repatriated profits or in threatening restrictions such as remittances" (Lucas, 1983: 393).

A second group in the empirical literature considers the positive effects of exchange on FDI. Froot and Stein (1989 and 1991) explain that real exchange rate depreciations can give an advantage to foreign investors to acquire assets due to the effects of exchange rate fluctuations in international wealth, thus fostering all types of FDI. Similarly, Harison and Revenga (1995) consider that exchange rate depreciations make recipient countries more output competitive and lead to an increase in FDI inflows.

75

In sum, the empirical results provide different results on the relationship between real exchange rate and FDI. Jun and Singh (1995), Gastanaga, Nugent and Pashamova (1998), Chakabarti (2001), Asiedu (2002) and Wezel (2003) conclude that there is not a significant relationship. Conversely, Edwards (1990), Lecraw (1991), Harrison and Revenga (1995), Ghura and Goodwin (2000) find that real exchange rate is significant at least at 10% level. Finally, one study finds that the significance of exchange rate varies among foreign investors. Goldberg and Klein (1997) find that exchange rate depreciation increases Japanese FDI in South East Asia and Latin America but does not have a significant impact on US FDI. Therefore, the empirical literature is uncertain on the relationship and the significance of exchange rate volatility.

b2)- Economic Growth

Determinants of economic growth are those that represent political economy choices that can help to promote growth in a host country. For example, trade openness represents the degree of liberalization of trade regimes. Standard trade theory predicts that greater liberalization fosters economic growth (Balassa, 1985, Edwards, 1992 and Edwards, 1998). In this literature review, we identify two relevant determinants under this category: trade openness and taxes.

76

In our literature review, 27 out of the 38 empirical studies on FDI in developing countries use a measure of trade openness in their regressions. The large number of studies that use trade openness shows the great concern researchers have regarding its impact on FDI. Many studies use a traditional trade openness variable, total or sector exports and –or- imports to GDP, and find a positive and significant relationship with FDI (Agodo, 1978, Wheeler and Mody, 1992, Harrison and Revenga, 1995, Jun and Singh, 1995, Lansbury Oain, 1996, Hausmann and Fernandez-Arias, 2000, Chakrabarti, 2001, Noorbakhsh, Paloni et al. 2001, Asiedu, 2002). Other studies use different trade openness proxies, such as qualitative indexes (Wheeler and Mody, 1992) and tariffs (Gastanaga, Nugent et al. 1998), and also find a significant relationship with FDI.

However, the linkage between FDI and trade openness is not clear and varies upon the type of trade openness control. For example, if the control for trade openness is the amount of trade barriers, high trade barriers will attract "market-seeking" or "tariff-hopping" FDI, since greater barriers enable the foreign investors to have a preferential access to the domestic market. Conversely, trade barriers deter efficiency-seeking FDI. Efficiency seeking FDI invests in a location to optimize its costs in the production process, and looks for locations with cheap and well-trained labor force as well as for good infrastructure. In addition, efficiency-seeking FDI requires the import of intermediate goods and exports of finished goods from the host market. Therefore, trade

barriers can deter efficiency FDI in certain locations. Hence, trade openness –measured through the amount trade barriers- has an undetermined effect on FDI.

This last example underscores the complexity of trade openness concept and raises the question on whether the empirical research on FDI uses adequate proxies. Recent empirical research has analyzed different trade openness proxies and has concluded that these proxies only tend to account for one dimension of trade policies making them imperfect proxies of the outward orientation of a country Pritchett (1996)[33]. Similarly, Edwards (1998) shows that depending on the type of proxy used to measure trade intensity, the result can greatly differ. For example, Edwards shows that a country like Korea is considered a very open economy in some studies and very closed in others.

Wezel (2003) attempts to solve the problems of finding a good proxy for trade openness using two statistically independent variables. First, Wezel adjusts trade intensity, the most widely used proxy of trade openness in FDI literature, for structural and non-policy determinants of trade intensity[34]. Wezel regresses trade intensity on the logs GDP per capita and population and uses the residuals as proxies for trade openness. Second, Wezel includes another proxy to control for domestic price distorting trade policies. Wezel uses the share of tariff revenues in total fiscal revenues as a proxy for trade policy.

---

[33] Pritchett (1996) analyzes six different openness indicators that are included in one of the three trade policy measures: incidence of tariff barriers; trade flow outcome; and price distortion. He concludes that none of measures are correlated and fall to provide a convincing explanation on the significance of FDI. Still Pritchett considers that the combination of some output and incidence measures is a better proxy for trade openness than any single used in the literature.

[34] Based on Balassa (1985), Pritchett (1996) and Lehman (1999)

78

In our opinion, the method used by Wezel seems more satisfactory to explain the relationship with FDI since it divides the effect of trade openness effect into two distinct but complementary dimensions. The first dimension refers to the trade output measure that indicates by which amount the openness of a country exceeds or falls short of the expected openness value for a country with "similar characteristics"[35]. The second dimension controls for trade policy issues that can alter a country's trade openness. These two dimensions are expected to have opposite effects in FDI and account for the different types of FDI. On the one hand, the trade output variable should have a positive relationship with efficiency seeking FDI and negative one with market seeking FDI. On the other hand, trade incidence measures should have a negative relationship with efficiency seeking and a positive one with market seeking. Therefore, ignoring one dimension of trade openness can lead the researcher to wrong conclusions.

Wezel finds that both trade openness variables are significant to explain the linkages between FDI and trade openness. For example tariffs are significant, for German FDI in Latin America and Asia. Other empirical works also show the importance of considering trade openness a multi-dimensional concept that requires different controls in the same regression analysis. For example Jun and Singh (1995) and Harrison and Revenga (1995) find that trade openness is significant and tariffs are not significant or inversely related to FDI. These results reinforce the importance of controlling for the multifaceted relationship of trade openness for FDI.

---

[35] See Pritchett (1996: 312)

Taxes

The empirical research on FDI also often finds that taxes are an important determinant for FDI. Scholars analyze the effects of corporate and dividend taxes, expecting that greater tax burden should restrain FDI. The theory of FDI considers that taxes should deter any type of FDI. Since taxes reduce the benefits of any project and damage profitability. One early study on FDI determinants, Root and Ahmed (1979) finds that there is a positive and significant relationship between taxes and FDI in 41 developing countries. However more recent studies cannot find any significant relationship (Lecraw, 1991, Loree and Guisinger, 1995, Gastanaga, Nugent et al., 1998, Chakrabarti, 2001, Stein and Daude, 2001).

There are at least three reasons that explain why taxes may be less important for FDI. First, since the late 1980s, all countries, including developing ones engaged in a process of liberalization of FDI that included a reduction of corporate taxation. This process resulted in an "international tournament" to attract foreign investment (Wheeler and Mody, 1992) that has decreased corporate tax levels worldwide and has put them in a similar tax range. The second, major problem of taxes in cross-country regressions is that tax indexes do not usually capture the amount effectively paid by a foreign investor. Every national tax system has a series of exceptions and credits that usually make the effective tax index less than the official one. Third, the changes of tax rates are minimal

across time, except in tax reform years, and makes very difficult to capture the effects of taxes.

In sum, all these reasons have made taxes a less important determinant. Perhaps one possibility to measure the importance of taxes for FDI would be to use the percentage corporate tax revenues over total fiscal revenues, however these data are usually unavailable for a large number of developing countries.

c)- Factor Costs

The literature of FDI has tried to evaluate the importance of factor cost in FDI decisions. However, research has paid more attention to labor costs. Labor is a factor largely immobile and cannot easily move across countries, whereas other important production factors such as intermediate goods and capital can move easily across border and are traded in price-equalizing markets that reduce cross-country differences[36]. Hence, labor is the only factor that can significantly influence the cost of production for efficiency seeking MNEs.

Labor costs

The FDI cross-country analysis has frequently consider the labor costs in their regressions and finds, in general, that the cost of labor is negatively and significantly correlated with FDI (Schneider and Frey, 1985, Wheeler and Mody, 1992, Woodward

---

[36] See Wezel (2003:11) and Turner and Golub (1997: 8-6)

and Rolfe, 1993, Loree and Guisinger, 1995, Feenstra and Hanson, 1997, Taylor, 2000, and Wezel, 2003). However, there are some exceptions that do not find labor cost significant for FDI (Agodo, 1978, Jun and Singh, 1995, and Chakrabarti, 2001).

Despite the strong empirical evidence towards a positive relationship between labor cost and FDI, there is a growing concern among researchers on how to measure labor cost. Some authors (Schneider and Frey, 1985, Lecraw, 1991, and Wezel, 2003) argue that the standard proxy, average wage, is not adequate to control for labor cost. These authors argue that the labor cost or wage has to be productivity-adjusted. Productivity adjusted labor cost is a better measure of cost competitiveness assuming that labor is an immobile factor with different prices across countries[37].

Lecraw (1991) adjusts average wage cost by secondary education and compares the resulting ratio with that of the US. The changes in the ratio relative to the changes in the ratio to of the US were used in the regression analysis and had significant relationship with FDI. However, the review of the literature shows that researchers that encountered important problems in calculating productivity adjusted salaries for developing countries. Most of the productivity-adjusted variables require total output per worker and earning measures that are not available for many countries. For example, Turner and Golub (1997) only manage to find partial productivity adjusted costs of labor measures for 23 developing countries. Those productivity measures required a large amount of "secondary" information that can induce to inaccurate indexes[38](Turner and Golub, 1997).

---

[37] See Wezel (2003: 11)
[38] Turner and Golub (1997: 15-16)

82

Yet some authors consider that productivity adjusted labor costs are not necessary. For example, Huber and Pain (1991) and Lehmann (1999) consider wages or unit labor cost capture differences in labor quality. Also, recent research finds that unit labor cost may not be such an important determinant for FDI. Fung (2000) and Mody, Dasgupta et al. (1999) find that the "skill" of labor is more important than labor cost for Japanese firms investing in South East Asia. The hypothetical importance of skill labor force has led researchers to assess the measurement of "skills". Mody, Dasgupta et al. (1999) conclude that skill refers to work experience more than education but the majority of empirical research measures skills based on the years of education (Dees, 1998, Fung, 2000 and Noorbakhsh, Paloni et al. 2001). Therefore, the relationship between labor costs and FDI is unclear. In addition new research shows that skills of the labor force and not wages are an important factor for FDI. In section 1.2.2 we will analyze the last findings on the linkages between the skills of the domestic labor force and FDI.

d)-Financial Determinants

Returns of FDI

The literature has attempted to explore the relationship between FDI and the returns in developing countries. Authors expect to see an increase in FDI with greater returns in the host countries. The literature tackles this issue in two different ways based on the premise that investment returns data are scarce for developing countries. The first

group tries to assess the return of capital considering that developing countries are capital scarce. Capital scarcity should bring high returns to capital. Therefore foreign investors expect high returns to their investments. Edwards (1990), Jaspersen, Aylward et al. (2000) and Asiedu (2002) estimate the returns of capital with the inverse of per capita income or per capita income. Thus lower per capita income yields higher returns to capital. The results of these empirical analyses do not provide conclusive results. For example, Edwards finds that per capita income –used as a proxy for its inverse- yields an expected negative sign but it is not significant in any specification. On the other hand, Jaspersen, Aylward et al. and Asiedu find that the return proxy, the log of the inverse of GDP per capita is 1%-10% significant for the FDI inflows to Africa.

In addition to these inconclusive results, the attempts to measure the returns of capital also pose some methodological problems. For example, the scholars that used any functional form of GDP per capita or its inverse are using a variable that is widely used to measure market potential of the host market. According to the theory of FDI, the relationship of GDP per capita -or the inverse- and FDI can be inconclusive for recent FDI flows to developing countries since vertical FDI –the growing type of FDI since the early 1990s- does not show a strong linkage with the evolution of host countries' domestic market. Furthermore, the use of the inverse of GDP per capita in a linear regression that also includes in a GDP measure to control for domestic market erodes the quality of the regressions estimates.

84

However, new empirical research is trying to cope with the measurement of the

return of FDI. Two recent papers from Lehmann (2002) and Lehmann and Mody (2004)

explain how to assess the income or returns of FDI. Both papers present ways to measure

the returns of FDI based on the International Monetary Fund's (IMF) Balance of

Payments Statistics and data from the Bureau of Economic Analysis (BEA). In either

case, the authors underline the difficulties to measure the income due to the differences in

domestic balance of payment accounting to record income from foreign investors, and

due to complexities to evaluate the stock of FDI that are usually priced at historic costs.

However Lehmann (2002) manages to compare the income of FDI based on IMF's

Balance of Payment Statistics and the BEA data and finds different though comparable

data on FDI, which provide an interesting tool to evaluate the return of FDI, based on

recorded FDI-related transactions.

e)- Political and Institutional Stability

The majority of the empirical reviewed in this paper control for the relationship

between political instability -or risk- and FDI. From a theoretical point of view, political

risk has to play an important role in the attraction of FDI in developing countries. Many

developing countries suffer from large periods of political instability that reduce domestic

and internal investment decisions. Hence, riskier countries should receive less FDI.

Early studies of FDI to developing countries included political instability (Agodo,

1978 and Root and Ahmed, 1979), but it was not until the mid 1980s when political risk

85

became a relevant variable for empirical research on FDI. Two seminal works, Schneider and Frey (1985) and Nigh (1986), introduced political risk into empirical literature to FDI. Schneider and Frey included political and socio economic variables in their cross-country regression analysis and showed that these variables were a significant contribution to explain FDI in 54 developing countries. Similarly, in a study of 8 Latin American countries during 21 years Nigh showed that certain components of political risk influenced more US foreign investment decisions than others. Nigh found inter-nation and intra-nation conflicts had the most impact in foreign investment decisions.

However, the results of subsequent research have not always been as conclusive. Wheeler and Mody (1992) find that risk is not significant for a panel of 42 developed and developing countries during the 1980s. Similarly, Loree and Guisinger (1995) find that political risk has negative effect for US FDI in developing countries 1979 but not in 1982. On the other hand, Lecraw (1991) also finds political risk significant in a sample of 27 developing countries between 1974 and 1986. Jun and Singh (1995) also obtain a significant relationship between political risk and FDI for a sample of 31 developing countries between 1970 and 1993.

Despite the differences in the significance of political instability, large microeconomic surveys indicate that political instability is a major concern. Pfeffermann, Kisunko et al. (1999) examine a survey in 3,500 firms in 74 countries and find that investment is sensitive to political risk. The difference of this survey from previous empirical works is that political instability is divided in different elements and shows that

86

companies have different sensibilities to different elements of political risk. The approach followed by Pfeffermann, Kisunko et al. differed from other studies that used composite indexes to measure political instability. For example, Jun and Singh (1995) use the Political Risk Index from Business Environment Risk Intelligence (BERI), an index that conveys six different variables that measure different dimensions of political risk. Although there is not conclusive empirical evidence, the tendency of current empirical research is to analyze political instability or risk using different variables instead of a general aggregate.

Recent empirical research has realized that certain elements of political risk may play more significant role than others. For example in the second half of the 1990s, several studies assessed the importance of governance issues for investors. Bubnova (2000) shows that corruption can seriously affect the spreads of bond in developing countries. Similarly, Smarzynska and Wei (2000) find that corruption and uncertainty about corruption are significant and negative factors for developed countries' FDI in 45 developing countries.

The empirical research also reflects the growing importance of governance factor to explain FDI. To be sure, some studies only use governance variables to control for the political instability of host countries. For example, Stein and Daude (2001) carry out a cross-country analysis of 28 OECD countries' FDI outward stock to 63 host countries and only use three types of governance indicators to asses host countries' instability:

87

Kaufman, Kraay et al.'s governance indicators[39], Laporta's shareholder rights index[40] and governance variables of ICRG's political risk index[41]. Stein and Daude find that governance indicators are generally highly significant. For example, a standard deviation improvement in regulatory burden, Kaufman's variable with the largest impact, increases the stock of FDI by 6.5 times.

However, other researchers opt for an alternative solution to analyze country risk in FDI cross-country regression. Since previous research (Jun and Singh, 1995) indicates that political risk indexes that contain governance and non-governance variables are important, some researchers have decided to build two different variables to separate political stability and governance. For example, Hausman and Fernandez Arias (2000) use a political risk index and Kaufmann governance indicators in their FDI cross-country regressions for 59 countries. Hausmann and Fernandez Arias find that political risk, and Kaufman's indicators are usually significant and have the right –negative- sign. Similarly, Wezel (2003) divides the ICRG political risk index into two aggregates: one that includes the "political disorders" related variables, and another that considers governance-related variables[42]. Wezel finds that only one of the two aggregates, the governance related variables, is significant with German FDI in Latin America.

---

[39] See Kaufman, Kraay and Zoido-Lobaton (1999b) Governance indicators for 1996-2002 are available at www.worldbank.org/wbi/governance/
[40] See Laporta Rafael, F. Lopez de Silvanes and A. Shielfer (1998) "Law and Finance" Journal of Political Economy 106(6): 1113-1115
[41] http://www.countrydata.com/
[42] Wezel finds that previous literature (Bubnova, 2000 and Pistoresi, 2000) has successfully implemented this division of political risk.

2.2.2. Non-Traditional Determinants

a)- Agglomeration

Many authors consider that the advent of the globalization of the world economy in the early late 1980s and the expansion of MNEs in developing countries makes agglomeration effects an important group of determinants of FDI in developing countries. In a paper on the importance of locational factors for FDI decisions, Dunning (1998) defines agglomeration effects as those that are *"an agglomerative magnet by which firms can benefit from being part of geographical network or cluster of related activities and specialized support programs"* (Dunning (1998: 51)). In other words, agglomeration determinants measure the potential of a host country to attract firms that can be a part of a network of foreign investors and enjoy the spillover effects of the concentration of foreign investment activities in one single location. Dunning concludes that FDI in developing countries must have a positive and significant relationship with agglomeration effects

In fact, some empirical works have demonstrated the importance of agglomeration in developing countries. For example, Moran (1998) shows that agglomeration effects are important in the FDI to car industry in Latin America and the electronics industry in South East Asia. Moran describes how the decision of one foreign investor to locate its production in one country, triggers other foreign investment in the same location and sector. In more formal studies, Jackson and Markowski (1995) and

Fung (2000) show respectively the relevance of agglomeration determinants for FDI in the Asia Pacific region, and US and Japanese FDI decisions in several Chinese regions.

However, the empirical literature is not clear on how to find an adequate proxy (Lim, 2001 and Wezel, 2003). In general, researchers use two types of proxies to measure agglomeration effects: the lagged FDI flows or stocks (Wheeler and Mody, 1992, Noorbakhsh, Paloni et al., 2001, and Wezel, 2003), or infrastructure measures (Agodo, 1978, Root and Ahmed, 1979, Lecraw, 1991, Loree and Gusinger, 1995, Jackson and Markowski, 1995, Fung, 2000, Asiedu, 2002). The use of these two groups of variables poses different problems to researchers of FDI in developing countries. The lag FDI flows or stock can induce endogeneity problems, and the use infrastructure measures is seriously limited due to the lack of data for developing countries that forces researchers to use poor proxies. However, from a theoretical and empirical point [43] of view, agglomeration is considered one of the most relevant determinants for FDI.

b)- Human Capital

The evolution of FDI in developing countries towards more efficiency seeking or vertical FDI (Dunning, 1998 and Lim, 2001) has led researchers to investigate certain determinants that only mattered for FDI in developed countries such as human capital. Scholarly research considers that the spread of capital and skill intensive FDI in

---

[43] For example, Wheeler and Mody (1992) use the two types of proxies, lagged FDI and infrastructure measure, and find that both are significant for US manufacturing FDI in developing countries.

90

developing countries since the early 1990s, should make human capital a relevant

determinant of FDI (Pfeffermann and Madarassy, 1992).

Recent empirical studies on FDI in developing countries have controlled for

human capital. Yet, the tendency has been to control for human capital in very specific

frameworks, that is analyzing human capital for a certain type of FDI in a certain host

country or region. For example, Fung (2000) find human capital to be significant for

Japanese FDI in China, whereas it is not significant for US FDI. Mody, Dasgupta et al.

(1999) also find some evidence on the importance of human capital for Japanese FDI in

South East Asia. On the other hand Morrisset (2000) finds the level of illiteracy

insignificant for FDI in Africa.

In addition there are some FDI cross-country analyses that control for human

capital where the authors the results are less conclusive than region-specific studies. For

example, Root and Ahmed (1979), Schneider and Frey (1985) and Narula (1996), find

little significant evidence on the importance of human capital for FDI in developing

countries. Noorbakhsh, Paloni et al (2001) argue that the explanation to the lack of

significance of human capital are the periods covered in those studies -the 1970s, and

1980s- were efficiency-seeking FDI was not as relevant as in the 1990s.

In our opinion, Noorbakhsh, Paloni et al. (2001) is the most serious cross-country

analysis on the relationship between human capital and FDI in developing countries.

Noorbakshsh, Paloni et al.'s study covers a large sample of 36 developing countries

during a recent period of time, 1980-1994. In addition, Noorbakhsh, Paloni et al. test

different measures of human capital such as percentage enrollment in secondary and

tertiary education and the number of years of schooling. They control for basic education

using secondary enrollment, and for skills and experience using tertiary enrolment.

Finally, they also control for productivity and non-productivity adjusted wages in order to

isolate the effect of human capital. Noorbakshh, Paloni et al. find that human capital is

significant in all the specifications. They also find that the significance of human capital

does not change for productivity and non-productivity adjusted wages[44] and its

significance has been growing over time. Hence, the results of Noorbakshh, Paloni et al.

(2001) suggest that human capital is an important determinant of FDI.

2.3. The Dependent Variable

Another important issue raised in the empirical literature of FDI in developing

countries is how to define the dependent variables in FDI cross-country regression

analyses. The literature does not generally agree on which is the most convenient method

to measure FDI. Overall, the literature uses either FDI stocks or FDI flows normalized by

GDP or population, and more than half of the literature reviewed in this paper uses FDI

flows normalized by GDP. In our opinion there are several theoretical and practical

argument that have pushed researchers to consider the ratio of FDI to GDP the best

endogenous variable.

---

[44] The authors only shows the relationship between one measure of human capital (ENROL) and three
wage measures but they mention that the results were similar with other human capital measures (SEC,
SEC&TER) see Noorbakshh et al. (2001: 1600-1601)

First, as shown by Lehmann (2002) and Wezel (2003), there are problems in evaluating the stocks of FDI in that they are recorded at historical costs and should be measured at current prices. Second, researchers have also problems in concealing national legislations that makes the reporting of FDI stocks difficult to compare. For example, the national regulations on asset depreciation can make the value of the stock of FDI differ from the recipient and host country perspective (Lehmann, 2002 and Wezel, 2003). Third, FDI normalized by GDP also provides a measure of the importance of FDI flows into an economy. Fourth, FDI flows are more accessible than stock values for developing countries.

However, Hausmann and Fernandez-Arias (2000) conclude that FDI to GDP is not an accurate measure to evaluate the importance of FDI in a host economy as well as the linkages with FDI determinants. Hausmann and Fernandez Arias decompose FDI flows to GDP into two components, Total Private Capital Flows to GDP, a "volume effect' in the authors' terms; and FDI flows to Total Private Capital Flows, a "composition effect". Thus, these authors regress three different endogenous variables – FDI to GDP, Total Private Capital Flows to GDP, and FDI to Total Private Capital Flows- to an equal set of FDI determinants for a sample of 60 countries. Hausmann and Fernandez-Arias find that some linkages are completely reversed. In particular, the determinants of FDI to GDP and FDI to Total Capital Flows have opposite signs and present a different perspective of the linkages between FDI and its determinants. For

93

example, in the case of Kaufmanns's governance indicators[45], there is a strong and positive relationship between better governance and FDI to GDP, whereas this relationship becomes negative and significant for FDI to total capital flows. Therefore, a sensitivity analysis of the determinants of FDI should be based on more than one dependent variable to uncover the relationships that the analysis of a unique dependent variable cannot provide.

III. EXTREME BOUND ANALYSIS

3.1. EBA and FDI Empirical Research

Based on the sensitivity analyses carried out by Levine and Renelt (1992) and Sala-i-Martin (1997) in growth theory and Chakrabarti (2001) and Wezel (2003) for FDI theory, we carry out a sensitivity analysis of the determinants of FDI in developing countries based on a modified version of Leamer's (1983) and (1985) Extreme Bound Analysis (EBA).

The rationale behind the use of EBA is the same as in the previous paper (Gijón-Spalla, 2004b). EBA helps to assess the sensitivity of prior findings in the empirical literature of FDI in developing countries by making small changes in the conditioning information set of the linear regressions used to explain the relationship between FDI and its determinants.

---

[45] Kaufman governance indicators are explained in the section dealing with political risk determinants of FDI and in footnote no. 12. These indicators are widely use by the empirical literature of FDI measure several aspects of the institutional quality of developing countries.

EBA is particularly useful for growth and FDI empirical literatures, two fields not supported by a widely accepted theory. The lack of an accepted theory leads empirical researchers to define a large array of models whose specifications work only in relatively constrained frameworks. In other words, the empirical analysis of the determinants of economic growth or FDI cannot offer a full specification of the variables that should remain constant when the relationships between the endogenous and exogenous variables are statistically tested. The diversity in the specification of the FDI models causes certain variables to have a significant role in explaining FDI under certain conditions but become insignificant under other specifications. EBA tests the robustness of any variable by altering the set of constrained information in linear regressions including this variable.

To test the significance of FDI determinants using the EBA, we will consider two types of variables in a regression: free and doubtful variables. Free variables are those that remain in any specification of the model due to their relevance in the empirical literature. In other words, free variables are those that are usually found significant in any regression analysis. Doubtful variables are those that are not always present in the regressions and whose significance varies across models, although, researchers consider that they can play a significant role in explaining the dependent variable.

Levine and Renelt's modified version of EBA[46] examines the robustness of a doubtful variable, x, in a given equation $\omega = \beta_y y + \beta_x x + \beta_z z + \varepsilon$, where ω is the

_____

[46] Levine and Renelt's modified EBA version used is explained in Levine and Renelt (1992: 943-944)

95

dependent variable, y is the set of free variables always included in the regression, and z is a subset of variables chosen from the pool of variables identified in previous empirical research. EBA varies the subset of z variables to find the largest range of coefficients for the doubtful variables. Then we define the extreme bounds for the x variable from the group of z variables that yields the most (least) significant coefficient plus (minus) two standard deviations, $\beta_z \pm 2\sigma_z$.

Therefore, the highest upper bound is equal to $\beta_{zh} + 2\sigma_{zh}$, where β_{zh} is the most significant coefficient for the x variable under consideration and $2\sigma_{zh}$ is two times its corresponding standard error. Conversely the lowest bound is equal to $\beta_{zl} - 2\sigma_{zl}$, where β_{zl} is the least significant coefficient for the x variable under consideration and $-2\sigma_{zl}$ is minus two times its corresponding standard error. If the significance of β_{zh} and β_{zl} is 95% or higher and the sign of $\beta_{zh} + 2\sigma_{zh}$ and $\beta_{zl} - 2\sigma_{zl}$ does not change, then the x variable is considered robust.

However the implementation of EBA for FDI determinants in developing countries requires some modifications to avoid several problems encountered by empirical research. In this respect, previous reviews on the determinants of FDI in cross-country regressions stress two important –and common- problems in the literature of FDI. The first problem is the lack of good variables to define the linkage between FDI and the recipient country's characteristic. For example, until recently, empirical research had problems quantifying variables that measure qualitative events such as political risk. The

96

second problem is more specific to developing countries and deals with the lack of data even for common and easily quantifiable variables. For example, researchers have found it difficult to build a large sample on tariff and tax rates in developing countries due to the lack of data.

These two problems challenge the feasibility of a sensibility analysis of FDI determinants in developing countries. On the one hand, a loose definition of the variables may create a misspecification of the models. For example, the use of some ill-defined risk variables in cross-country regressions can create multicollinearity. Multicollinearity can arise if the EBA includes variables such as financial risk index and the level of external indebtedness since external debt is one of main components of financial risk.

Since multicollineary indicates weak data selection and not procedural errors[47], we will establish a set of restrictions in our EBA analysis. First, to analyze the fixed and doubtful variables y and x, we will only allow the procedure to choose four z variables – set of doubtful variables. Therefore, the model tests will include just 6 explanatory variables. Second when we analyze the variable of interest x, we exclude from the pool of z variables the variables that can also be used to measure a similar phenomenon. For example, when we test the relationship between FDI and a political risk index, we exclude the indexes of political instability, corruption and unemployment since these factors are embedded in the construction of the political risk index. Third, the set of conditioning variables z is limited to 9 variables that represent a reasonable sub-set of z. We argue that a "reasonable sub-set" fulfills two conditions: it includes variables widely

---

[47] See Levine and Renelt (1992:944)

used in the literature of FDI to developing countries; and provides sufficient data to carry

the analysis. For example, a variable on wages could not be included due to the lack of

wage data in developing countries.[48]

3.2. How the EBA Works

In the previous paragraphs we presented the arguments for the use of the EBA in

the analysis of the regional determinants of FDI. In addition, we also introduced a

modified version of EBA that adapts this technique to the analysis of the FDI

determinants and avoids some potential problems with this analysis such as inappropriate

selection of variables or "overparametrization" (Leamer (1985: 309-310 and 312)). In the

next paragraphs we proceed to make a formal presentation of the model used and how the

EBA technique works to test the robustness of the variables under consideration.

First, for every region, we use ordinary least squares (OLS)[49] [50] to estimate the

parameters. Therefore we define the following linear regression model $y = X\beta + \varepsilon_i$,

based on the following usual assumptions:

---

[48] Other variables have been included to assess the importance of domestic labor force.

[49] For a longer explanation of the convenience of the OLS estimation in the EBA analysis see Leamer (1983 and 1985). Leamer (1983) makes a comparison between experimental and non-experimental research. Leamer concludes that any type of non-experimental analysis will, by definition, contain some bias expressed misspecification matrix M and will persist on "randomnized" experiments. Leamer considers that a good definition of the controls to minimize M may be more important to the sophisticated model specification that will not result in $M \neq 0$. Leamer (1983 and 1985) proposes "extreme bounds" sensitivity tests based on simple estimation techniques, such as OLS, to obtain sound econometric results.

[50] Levine and Renelt (1992), Sala-i-Martin (1997) and Chakrabarti (2001) also use OLS as estimation technique in their sensitivity analyses of the determinants of growth and FDI. Conversely, Wezel (2003:26-27) uses GLS to avoid potential bias due to the geographic proximity of the countries in his sample –10 countries from Latin America and South East Asia, which could break the assumption on the statistical

98

1)- X is an n X K matrix with rank K

$$2)\, E[\varepsilon|X]=0 \text{ or } E\begin{bmatrix} \varepsilon_1|X \\ \varepsilon_2|X \\ \varepsilon_3|X \\ \vdots \\ \varepsilon_n|X \end{bmatrix}=0$$

3) $E[\varepsilon\varepsilon'|X]=\sigma^2 I$

4)- X is a non-stochastic matrix

5)- $\varepsilon|X \sim N[0,\sigma^2 I]$

Therefore the population regression is $E[y_i|x_i]= x_i'\beta$ and the estimate of $E[y_i|x_i]$

is denoted $\hat{y} = x_i'b$, where for any value of b the estimate of any ε_i is the residual

$e_i = y_i - x'_i b$ [51]

As explained in the previous section, the matrix X will contain three types of

variables: y, x and z. Based on the results of previous empirical research on the

determinants of FDI, for every y fixed variable, we choose, a set of x testable variables.

We regress the dependent variable on 6 independent variables: one fixed variable, y, one

doubtful variable, x and a set of 4 additional z variables drawn from a pool of 9 variables.

The z variables are variables widely included in the analysis of the determinants of FDI,

which usually yield inclusive results (i.e. insignificant). During the EBA analysis, the y

---

independence between the cross-sections. Here, the GLS estimator is $b[X'V^{-1}X]^{-1}X'V^{-1}y$ with

$$V=\begin{bmatrix} \sigma_{11}I\dots\sigma_{1M}I \\ \sigma_{21}I\dots\sigma_{2M}I \\ \vdots \\ \sigma_{M1}I\dots\sigma_{MM}I \end{bmatrix}$$

[51] For a detailed explanation of the classical OLS technique please consult Greene (2000: 210-265)

99

and x are kept fixed (i.e. are always included in the regression), whereas the z variables are permuted in order to run all the regressions containing the y and x variables and any combination, without repetition, of the set of z variables. In other words, the EBA is specified to avoid the inclusion of the same variables in the x and z sets. Therefore, when one of the x variables is tested, it is automatically excluded from the z variable set. The following example shows how we generate the regressions for the EBA.[52]

$$\overset{y}{\longrightarrow}\ \overset{x}{\longrightarrow}\ \overset{z_i}{\longleftarrow \qquad\qquad \longrightarrow}$$

$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z4} z_4$$
$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z5} z_5$$
$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z6} z_6$$
$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z7} z_7$$
$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z8} z_8$$
$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z9} z_9$$
$$\Downarrow$$
$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z4} z_4 + \beta_{z5} z_5$$
$$\vdots$$

In order to complete the EBA, we calculate the extreme bounds for the x variable from the group of z variables that yields the larger (smaller) coefficient plus (minus) two standard deviations, $\beta_z \pm 2\sigma_z$. If the sign of the extreme bounds remains the same and the estimates of x at the extremes are also significant, the x variable is considered robust.

---

[52] In study, we generated sets of 256 and 126 regressions depending on the number of fixed variables under consideration.

3.3. Selection of Variables

3.3.1. Sample and Adjustments

We base our EBA analysis on a sample of 80 developing countries for the period 1992-2000. This sample represents more than 90% of the FDI to developing countries during that period. We run the EBA with three types of independent variables, FDI to GDP, FDI to Private Capital Flows (KF) and KF to GDP. In the analysis we use 11 independent variables: 6 are considered x testable variables, whereas the remaining will stay in the z category.

In addition, we make some adjustments to eliminate some extreme values that could potentially distort our results. First, we eliminate the inflation values for some African and Central and Eastern European countries larger than 900% per year. Second we eliminate FDI and KF observations when the ratios of FDI to KF are very strongly negative, such as in the case of Malaysia in 1997. We also eliminate the FDI to KF ratios of more than 200% in absolute values. Only four countries, Cameroon, Kenya, Niger and Cote D'Ivoire are adjusted in two or more years. The countries in the sample and the adjustments are presented in Annexes I and II.

101

3.3.2. Endogenous Variables

The goal of this paper is to bring new evidence on the linkages between FDI and its determinants. We agree with Hausmann and Fernandez-Arias (2000) that the linkages of FDI and socio-economic determinants can be better explained by decomposition the traditional FDI measure in cross-country analyses into two other ones: FDI to KF and KF to GDP. Hence, we carry out EBAs for these three measures, FDI to GDP, FDI to KF and KF to GDP. In other words we test the same x variable using three different endogenous variables -generating around 114,912 regressions[53]. Our main hypothesis is that the results will vary significantly depending on the specification of the endogenous variable.

The data for the dependent variables have been collected from the World Bank's World Development Indicators (WDI) and Global Development Finance (GDF) Indicators. FDI corresponds to the net annual inflows of FDI in current US$ to a certain country. Private capital flows are the summation of net annual FDI flows in current US$, net annual portfolio equity flows in current US$ and net annual private non-guaranteed flows current in US$[54]. GDP is gross domestic product in current US$.

---

[53] See Annex III for a detailed explanation on the number of regressions required in this paper

[54] The short term private debt flows are not available in any significant database. The World Bank's Global Development Finance Indicators (GDF) cannot provide this data due to the lack of reporting in domestic economies. Short-term debt in GDF contains public, publicly guaranteed and private non-guaranteed debt flows. Since the public and publicly guaranteed flows are the largest share of short-term flows, we did NOT include them. See the notes in the GDF annual reports on short-term debt flows for more information. We also looked at the IMF/World General Data Dissemination System and found the same problems.

102

3.3.3. Exogenous Variables

a)- Market Size

The literature review in this paper shows that the market size is considered a fundamental determinant for FDI. Furthermore, authors prefer to use GDP per capita to assess the size of the domestic market. In our study, alternatively, we use three different measures of GDP per capita: GDP per capita in current US$, GDP per capital in constant 1995 US$, and GDP per capita in US$ at PPP (Purchasing Parity Power) exchange rates. The first two variables come from the WDI, and the third from World Penn Tables[55]. Moreover, based on the EBAs results presented in the next section, we only include GDP per capita in US$ using PPP adjusted exchange rates _(gdpc)_ as a z pooled variable[56].

b)- Trade openness

The review of the literature of FDI considers that trade openness is also a fundamental determinant of FDI. However the recent research shows that to evaluate the linkage of trade openness with FDI, we have to consider different aspects of trade openness. The most recent literature takes into account two different dimensions of trade

---

[55] The data on average GDP per capita in US$, purchasing parity adjusted is from the Penn World Table (PWT). See Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP), October 2002. http://pwt.econ.upenn.edu/

[56] The other two measures of GDP per capita are discarded since they perform very poorly in EBA

103

openness: an output dimension usually represented by trade intensity, and an incidence

dimension that takes into account the trade barriers and policies to incentive trade

(Pritchett, 1996 and Wezel, 2003).

To control for the importance of the relation between trade openness and FDI, we

make the two following decisions. First we use two different measures of trade openness

output to evaluate the importance of this determinant. One is the traditional trade

openness output measure, the ratio of exports to imports to GDP *(tinent1)*. For the second,

we use an alternative trade openness output measure based on Pritchett (1997) and Wezel

(2003), obtained as a residual from a regression of trade intensity on population, the

natural log of land area, GDP per capita PPP adjusted US$ and a dummy of natural

resources. These residuals are used as an alternative proxy for trade intensity *(tintent2)*

and we present a trade openness measure adjusted for non-policy determinants[57]. Second,

we combine the two trade output measures with a control for price distortions or trade

barriers. For this we use the share of taxes on international trade in current fiscal revenues

(duty). This measure is a convenient solution to control for the price distortion effect for

two reasons.

First, tariff rates do not account for the total amount of tariff receipts since tariff

payments are subject to deductions that reduce the effective duty paid. Second, share of

taxes seems the only alternative to control for other non-tariff barriers whose distorting

effects are difficult to capture, especially in developing countries where there is little data

---

[57] Annex IV explains the regressions and the sources of information

available. The data of the share of trade taxes in total fiscal revenues are from the WDI and the IMF country reports.

c)- Agglomeration

The review of the literature suggests that agglomeration[58] has become a more relevant determinant of FDI, since Wheeler and Mody (1992)'s seminal work and the contributions of Moran (1998) and Dunning (1998). To measure agglomeration, we decided to use the number of telephone lines per employee *(aggl)* from the WDI, a standard proxy of the level of infrastructure development and agglomeration effects.

d)- Political Risk

For political risk we use three different variables. First, we control for overall political risk with a multivariable index that includes political stability and governance factors. The index of total political stability *(polrk)* is the Political Risk Services (PRS), International Country Risk Group (ICRG) political risk index. Second, we follow Wezel (2003) and decompose the political risk index into two variables, political stability and governance quality. Political stability *(stab)* includes only pure political risk variables from ICRG's political risk index that are rescaled to a 100 points base. Governance quality *(gov)* consists of the governance variables that are included in the ICRG's political risk index that are rescaled to a 100 points base.

---

[58] Wheeler and Mody (1992:58) refer to "agglomeration (...) or increasing benefits to co-location by economic units" which provides clusters of investors that attract further investment. Infrastructure measures such as the number of telephone lines are used to assess the potential of agglomeration effects.

105

For all three measures, a greater index value means less political risk, more political stability or more governance quality. The following table shows the components that are included in the three indexes.

Table 3.1. Components of Political Risk Variables

Components/ Indexes	Political & Institutional Stability	Political Stability	Governance quality
Government Stability	X	X	
Socioeconomic Conditions	X	X	
Investment Profile	X		X
Internal Conflict	X	X	
External Conflict	X	X	
Corruption	X		X
Military in Politics	X	X	
Religion in Politics	X	X	
Law and Order	X		X
Ethnic Tensions	X	X	
Democratic Accountability	X		X
Bureaucracy Quality	X		X

Source: PRS ICRG

e)- Human Capital

In the review of the literature we see that domestic factors, labor in particular, appear to become more important determinants for FDI. However, recent empirical research (Fung, 2000, Noorbakhsh, Paloni et al., 2001, and Nunnemkamp, 2001) shows that the quality of labor is becoming more relevant than the price of labor. In addition we see that the literature has not found compelling evidence on whether wages should or should not be productivity-adjusted. In this study, we attempt to construct measures to control for the quality and the price of labor. Unfortunately, the data from International organizations and domestic governments do not provide enough information to build a series on wages or productivity-adjusted wages. There are not enough data available on

106

sector labor force and sector output to find output per worker figures. Similarly, the International Labor Organization does not provide enough information on wages.

Given the lack of data and the controversy of the use of labor cost measures, we control for human capital quality with the percentage of students in tertiary education in total population *(educ)*. According to Noorbahsh, Paloni et al. (2001) and Fung (2001), this measure is the most suitable to control for labor force quality. In addition, we include total labor force *(lforce)*, since this variable showed to provide additional explanatory power to human capital (Noorbakhsh, Paloni et al., 2001). Human capital and labor force variables are from the WDI.

f)- Returns of FDI

The review of the literature has also analyzed the relationship between FDI and the returns of FDI in recipient countries. We found that Lehmann (2002), and Mody and Lehmann (2004)[59] provide a new way to calculate those returns that, in our opinion, improve proxies used in previous studies (Edwards, 1992, Tsai, 1994, and Asiedu, 2002).

We define the returns of FDI *(returns)* as the annual return of income from FDI from total FDI stock. We obtain the income from FDI from the World Bank's GDF. The GDF data on income of foreign investors is an estimation of the repatriated and investment income of foreign investors, based on the analysis of the IMF balance of payments and recipient countries information. We obtain the stocks of FDI from the

---

[59] See Lehmann (2002) and Lehmann and Mody (2004)

107

United Nations Conference for Trade and Development (UNCTAD) database on FDI[60].

Annex V lists all the x variables under consideration, the acronym used in the EBA

analysis, and the data source.

g)- Other Variables

We have also included another group of variables that are frequently used in FDI

cross-country regressions: inflation *(infl)*, budget deficit *(budget)* and public debt *(pbdbt)*.

Inflation is the percent annual change of the domestic GDP deflator and comes from the

WDI. Budget is the consolidated budget deficit -including grants- from the WDI and the

economic statistics of the African Development Bank and the Asian Development Bank.

Public debt is the total annual public external and publicly guaranteed debt outstanding as

percentage of GDP from the GDF.

We exclude 1 well-cited variable -exchange rate volatility- for two reasons. The

first reason is the high correlation with inflation, nearly 80%, that can create

multicollinearity problems. The second reason is the data source. All the inflation data

comes from one source, the WDI, whereas exchange rate volatility was compiled from

different data sources. Although exchange rate data seem correct, we preferred to be

consistent.

---

[60] This organization keeps updated data on FDI stocks taking into account depreciation and asset market value. Although the data may be imperfect they provide the best source of FDI that do not require further adjustments.

IV. EBA RESULTS

We carry out two types of EBA tests: one with the average of the variables for the

period 1992-2000, and another where we pool variables of our sample. The first test has

80 observations and the second 720 observations. We use three different independent

variables in our test so we will carry three EBA for every tested variable. The three

functional forms are:

$\varpi = \beta_y y + \beta_x x + \beta_z z$, with ϖ equal to FDI/GDP, FDI/KF or KF/GDP y equal to *GDP*

per capita in US\$ PPP adjusted, tinten1 or *tintent2*; x equal to *gov, aggl, duty, hk, polrk,*

return, stab; and z *gov, aggl, **budget**, duty, **infl**, hk, **lforce, pdebt**[61], polrk, return, stab.*

Moreover, the EBA is specified to avoid the inclusion of the same variables in the x and z

sets. Therefore, when one of the *x* variables is tested, it is automatically excluded from

the *z* variable set.

Furthermore, in order to avoid further multicollinearity problems, we do not

include at the same time more than one political risk variable. Hence, when we test *gov*,

we exclude *polrk* and *stab* and so forth. Similarly, when we test one non-political risk *x*

variable (i.e. *aggl, duty, hk, return*), we only include *polrk* in the regressions. Due to the

large number of EBAs carried out in this part -more than 60 EBA and 114,912

regressions, we will only report the results of the pool EBAs.

---

[61] The z variables in bold style indicates that these variables are exclusively in the z category

4.1. The Determination of the y Variables

We carry out the EBA without any prior assumption of the relevance of any variable with respect to others. Therefore, we tested the robustness of the most widely cited variables in the literature. If these variables are robust, we include them in the y or free variable, the category of variables always present in the regression analyses.

We test the robustness of the important variables for two reasons. First, the introduction to this paper states that from a theoretical perspective, the FDI in developing countries has been changing. Dunning (1998) said that vertical FDI was more important during the 1990s than ever before. Therefore some variables important for horizontal FDI -such as GDP per capita – may have lost significance. Second, evidence from previous EBA results also suggests that to test the robustness of the most relevant determinants in FDI regressions. For example, Chakrabarti (2001) assumes that GDP per capita is the only y variable in his EBA without testing its robustness. Chakrabarti (2001) follows previous EBA analysis in other economic fields that take for granted the robustness of certain variables (Levine and Renelt, 1992 and Sala-i-Martin, 1997). However Wezel (2003) tests the robustness of GDP per capita as a free variable and finds that the variable fails the test for some specifications. Hence we carry out the EBA for two major FDI determinants: GDP per capita and trade openness.

Finally, we also decided to accept a decision rule on the role of free variables in our EBA analysis with three different independent variables. If the tested variables are

110

robust in two of the three specifications (FDI to GDP, FDI to KF and KF to GDP), we included that variable as a free variable. This decision allows us to use the same free variable, y, for every EBA. This variable is the one that always remains in our EBA tests.

4.1.1. GDP per Capita

None of the three proxies for market size –GDP per capita current US$, GDP per capita 1995 constant US$ and GDP per capita PPP adjusted US$- are found robust in any of the three specifications of our EBAs. Only GDP per capita PPP adjusted almost satisfies the robustness test. Therefore, we conclude that GDP per capita is not an adequate free variable in our EBAs tests.

4.1.2. Trade Openness

We tested the two measures of trade openness and both are considered to be robust for two of our specifications: FDI to GDP and KF to GDP. In these two cases EBA shows a strong positive and significant relationship with trade openness. Although trade openness is not robust for FDI to KF, we decided to use the two measures of trade openness as our two alternative free variables in the EBA analysis. We also realized that trade openness also yields the most "robust" results for FDI to KF: the sign of the estimates does not change in the different specifications generated by the EBAs. The results of the test are presented in the next table.

111

Table 3.2. EBA Results for Trade Openness

	FDI/GDP		FDI to KF		KF to GDP	
Tested variable	High bound	Low bound	High bound	Low bound	High bound	Low bound
(X+M)/GDP	0.04181	0.01097	0.16168*	-0.0836*	0.05081	0.01423
Residual	0.03138	0.00001	0.19627*	-0.0905*	0.03710	0.00001

* Results not robust

4.2. *x* Variables Analysis

In this section we examine the robustness of "dubious" FDI determinants. In other words, those determinants that are the empirical research consider important but has failed to present conclusive results. Since we study FDI in developing countries during the 1990s, we consider that this class of determinants includes: political risk, agglomeration effects, duties, human capital and returns of FDI. For this group of variables we will use the two alternative fixed variables discussed in the previous section. In Annex VI we present a correlation matrix of the *x* variables.

With respect to the test of the political variables, we make some adjustments to avoid possible multicollinearity problems. This problem exists when we test the two variables obtained from the same ICRG political risk index: political stability and governance quality. These two variables have a correlation of more than 80%. Therefore, in every political variable test –i.e. political risk index, governance and political stability– we exclude other similar variables. For example, in the test of governance quality, we do not include the global political risk or the political stability indexes. The results are shown in the tables 3 to 8 below:

112

Table 3.3. EBA Results for FDI/GDP with (X+M)/GDP

			Dependent: FDI/GDP, Fixed: (X+M)/GDP		
			$FDI_i/GDP_i = \beta_y(X+M)/GDP + \beta_x x + \beta_{z_i}z_i + \beta_{zj}z_j + \beta_{zk}z_k + \beta_{zl}z_l$		
x-variable			t-value	z-variables	Robustness
Political risk	**High bound**	**0.00137**	**6.45**	**budget, infl, pbdbt, lforce**	**Yes**
(polrk)	**Low bound**	**0.00002**	**2.15**	**duty, educ, aggl, returns**	
Governance	**High bound**	**0.00126**	**6.28**	**budget, infl, pbdbt, lforce**	**Yes**
(gov)	**Low bound**	**0.00001**	**2.06**	**duty, educ, aggl, returns**	
Pol. Stability	High bound	0.000931	5.12	gdpc, budget,pbdbt, lforce	No
(stab)	Low bound	-0.00015	0.77	duty educ aggl, returns	
Agglomeration	High bound	0.00022	6.23	budget infl. pbdbt lforce	Yes
(aggl)	Low bound	0.000024	3.04	infl duty polrk return	
Duties	High bound	0.00311	-1.75	gdpc educ aggl returns	No
(duty)	Low bound	-0.08666	-5.81	budget infl pbdbt lforce	
Human Cap.	High bound	0.07612	4.18	Budget infl lforce returns	No
(educ)	Low bound	-0.05189	-1.56	duty lforce aggl returns	
FDI returns	High bound	0.00975	-1.1	gdpc educ lforce polrk	No
(returns)	Low bound	-0.05644	-3.06	budget inlf pbdbt lforce	

113

Table 3.4. EBA Results for FDI/KF with (X+M)/GDP

			Dependent: FDI to KF, Fixed: (X+M)/GDP $$FDI_i / KF_i = \beta_y (X + M)/GDP + \beta_x x + \beta_{z_i} z_i + \beta_{zj} z_j + \beta_{zk} z_k + \beta_{zl} z_l$$		
x-variable			t-value	z-variables	Robustness
Political risk	High bound	0.00230	-0.84	gdpc infl, duty pdbt	No
(polrk)	Low bound	-0.00946	-3.52	budget infl. lforce returns	
Governance	High bound	0.00185	-1.04	gdpc infl duty pbdbt	No
(gov)	Low bound	-0.00890	-3.56	budget infl. lforce returns	
Pol. Stability	High bound	0.00423	0.17	gdpc infl duty pbdbt	No
(stab)	Low bound	-0.00803	-2.54	budget infl. lforce returns	
Agglomeration	High bound	0.000814	0.26	gdpc infl., duty pbdbt	No
(aggl)	Low bound	-0.001780	-3.27	budget infl lforce returns	
Duties	High bound	0.68694	3.97	budget infl lforce returns	No
(duty)	Low bound	-0.19093	0.81	gpdc educ lforce polrk	
Human Cap.	High bound	0.07907	1.63	gdpc duty pbdbt aggl	No
(educ)	Low bound	-0.04599	-2.31	budget infl lforce returns	
FDI returns	High bound	0.3381	0.86	budget infl pbdbt lforce	No
(returns)	Low bound	-0.25418	0.12	gdpc educ lforce polrk	

114

Table 3.5. EBA Results for KF/GDP with (X+M)/GDP

	Dependent: KF to GDP, Fixed: (X+M)/GDP $KF_i / GDP_i = \beta_y (X + M)/GDP + \beta_x x + \beta_{z_i} z_i + \beta_{zj} z_j + \beta_{zk} z_k + \beta_{zl} z$				
x-variable			t-value	z-variables	Robustness
Political risk	**High bound**	**0.00134**	**6.56**	**budget infl pbdbt lforce**	**Yes**
(polrk)	**Low bound**	**0.00001**	**2.08**	**duty educ aggl returns**	
Governance	**High bound**	**0.00124**	**6.38**	**budget infl pbdbt lforce**	**Yes***
(gov)	**Low bound**	**-0.000002**	**1.98**	**infl pbdbt lforce returns**	
Pol. Stability	**High bound**	**0.001169**	**5.58**	**budget infl lforce returns**	**Yes***
(stab)	**Low bound**	**-0.000007**	**1.96**	**duty educ lforce aggl**	
Agglomeration	**High bound**	**0.000279**	**7.16**	**budget infl. pbdbt lforce**	**Yes**
(aggl)	**Low bound**	**0.000050**	**3.52**	**gdpc infl duty educ**	
Duties	High bound	0.00245	-1.8	gdpc educ aggl polrk	No
(duty)	Low bound	-0.08582	-5.97	budget infl pbdbt returns	
Human Cap.	High bound	0.69474	4.54	budget infl lforce returns	No
(educ)	Low bound	-0.59564	-1.21	duty lforce aggl returns	
FDI returns	High bound	0.01057	-1.02	gdpc educ lforce polrk	No
(returns)	Low bound	-0.05531	-2.99	budget infl pbdbt lforce	

* Fails test in one or two specifications but all the estimates are at least 95% significance

115

Table 3.6. EBA Results for FDI/GDP with Trade Residual

			Dependent: FDI to GDP, Fixed: Residual Trade $FDI_i / GDP_i = \beta_y residualtrade + \beta_x x + \beta_{z_i} z_i + \beta_{zj} z_j + \beta_{zk} z_k + \beta_{zl} z_l$		
x-variable			t-value	z- variables	Robustness
Political risk	**High bound**	**0.00073**	**7.59**	**budget infl pbdbt lforce**	**Yes**
(polrk)	**Low bound**	**0.00004**	**2.29**	**duty educ aggl returns**	
Governance	High bound	0.00149	7.26	budget infl pddbt returns	Yes
(gov)	Low bound	0.000069	2.05	duty educ aggl returns	
Pol. Stability	**High bound**	**0.00113**	**6.95**	**budget infl pddbt returns**	**Yes**
(stab)	**Low bound**	**0.00057**	**2.67**	**duty educ aggl returns**	
Agglomeration	**High bound**	**0.000194**	**6.2**	**budget infl pbdbt lforce**	**Yes**
(aggl)	**Low bound**	**0.00001**	**2.03**	**budget duty polrk returns**	
Duties	**High bound**	**0.00002**	**-2.06**	**gpdc infl pbdbt polrk**	**Yes***
(duty)	**Low bound**	**-0.0786**	**-6.28**	**budget infl pbdbt lforce**	
Human Cap.	High bound	0.06972	4.05	budget infl pbdbt lforce	No
(educ)	Low bound	-0.03652	-0.87	duty lforce aggl polrk	
FDI returns	High bound	0.01316	-0.53	gpdc educ lforce polrk	No
(returns)	Low bound	-0.03681	-2.04	gdpc budget infl pbdbt	

* Fails test in one or two specifications but all the estimates are at least 95% significance

116

Table 3.7. EBA Results for FDI/KF with Trade Residual

		Dependent: FDI to KF, Fixed: Residual Trade			
		$FDI_i / KF_i = \beta_y residualtrade + \beta_x x + \beta_{z_i} z_i + \beta_{zj} z_j + \beta_{zk} z_k + \beta_{zl} z_l$			
x- variable			t-value	z- variables	Robustness
Political risk	High bound	0.00259	-0.7	gdpc infl duty pbdt	No
(polrk)	Low bound	-0.00815	-2.93	budget infl lforce returns	
Governance	High bound	0.00208	-0.87	gdpc infl duty pbdt	No
(gov)	Low bound	-0.0078	-2.98	budget infl lforce returns	
Pol. Stability	High bound	0.00423	0.15	gdpc infl duty pbdt	No
(stab)	Low bound	-0.00768	-2.19	budget educ lforce returns	
Agglomeration	High bound	0.00074	0.03	gdpc infl duty pbdbt	No
(aggl)	Low bound	-0.0004	-2.95	budget infl lforce return	
Duties	High bound	0.15433	3.32	budget infl lforce returns	No
(duty)	Low bound	-0. 18701	0.86	gdpc educ lforce lforce	
Human Cap.	High bound	0.84103	2.32	gpdc duty pbdbt aggl	No
(educ)	Low bound	-0.4708	-1.37	budget infl lforce returns	
FDI returns	High bound	0.37502	0.63	budget infl educ lforce	No
(returns)	Low bound	-0.19020	1.12	gdpc educ lforce polrk	

117

Table 3.8. EBA Results for KF/GDP with Trade Residual

	Dependent: KF to GDP, Fixed: Residual Trade $KF_i / GDP_i = \beta_y residualtrade + \beta_x x + \beta_{z_i} z_i + \beta_{zj} z_j + \beta_{zk} z_k + \beta_{zl} z_l$			
x-variable		t-value	z-variables	Robustness
Political risk	**High bound** 0.001103	**9.04**	**budget infl pbdbt lforce**	**Yes**
(polrk)	**Low bound** 0.000356	**4.07**	**infl educ aggl polrk**	
Governance	**High bound** 0.001601	**8.69**	**budget infl pbdbt lforce**	**Yes**
(gov)	**Low bound** 0.0031	**3.88**	**infl educ aggl polrk**	
Pol. Stability	**High bound** 0.000425	**8.18**	**budget infl lforce returns**	**Yes**
(stab)	**Low bound** 0.000290	**3.76**	**infl educ aggl polrk**	
Agglomeration	**High bound** 0.000019	**6.97**	**budget infl pbdbt lforce**	**Yes**
(aggl)	**Low bound** 0.000002	**2.05**	**gdpc infl duty educ**	
Duties	**High bound** -0.0002	**-1.97**	**gdpc infl educ polrk**	**Yes***
(duty)	**Low bound** -0.10759	**-7.42**	**budget infl pbdbt lforce**	
Human Cap.	High bound 0.10235	6.01	budget infl lforce returns	No
(educ)	Low bound -0.03630	-0.27	gdpc lforce aggl polrk	
FDI returns	High bound 0.01314	-0.81	gdpc budget educ polrk	No
(returns)	Low bound -0.04524	-1.81	budget infl pbdbt lforce	

* Fails test in one or two specifications but all the estimates are at least 95% significance

118

The data from tables 3 to 8 present several important results. First, FDI to GDP and KF to GDP present robust relationships with at least two sets determinants with the two alternative trade openness measures as y fixed variables. The results show that FDI to GDP and KF to GDP have strong robust relationships with correct signs for two political risk variables –total political risk and governance -, and agglomeration effects. FDI to GDP and KF to GDP increase with less political risk –higher values in the political variables indicate less risk- and with agglomeration effects.

Second, we also conclude that the duty and the political stability determinants can be also considered robust. We based this conclusion on the results of the EBAs tests and previous empirical work using EBAs. The results show that the duty and political stability determinants, with the second trade openness measure *(tintent2)* as a fixed variable, fails the EBA by only one or two specifications. In addition, in both cases the estimates are at least 95% significant and have the correct negative sign. Moreover, the previous empirical work considers that at the margin, the EBA can be too strict in determining the robustness of the x variables (Sala-i-Martin, 1997 and Chakrabarti, 2001). Hence, these three arguments lead us to conclude that duty and political stability can also be considered a robust determinant.

The third relevant result is that the ratio of FDI to KF fails all the EBA analyses. We find that none of the determinants are robust in the determination of the share of FDI in KF. However, the persistency of the sign of some coefficients provides interesting information. For example, in the 6 EBAs –3 for each free variable- for total political risk,

119

administration and duty, the sign does not change for the 126 regressions generated in each test: the ratio of FDI to KF grows with worse political variables –in particular total political risk and governance- and grows with more duties. These results can be an indication of a positive relationship between greater political risk and trade barrier with the share of FDI to KF. This interpretation of the tests would be consistent with the findings of previous empirical works (Hausmann and Fernandez-Arias, 2000).

Therefore, EBA shows that countries with more political stability, agglomeration effects and less trade barriers increase the size of private capital flows and FDI flows to developing countries. These results suggest that two traditional determinants –political risk and duty- and one non-traditional –agglomeration- play an important role in bringing more private capital flows to developing countries. Moreover, the growth of private capital flows appears to be coupled with more FDI flows. Although the non-robustness of EBA tests for ratio of FDI to KF fail to fully support this conclusion, we consider that the near significance of the EBAs in this paper, together with the analysis of the stylized facts carried out in the previous paper provide enough evidence to draw this conclusion.

V. CONCLUSIONS

This paper attempts to explore the most relevant relationships between FDI and the locational socio-economic determinants in developing countries. Based on a literature review, we find the most relevant determinants, decomposing the dependent variable FDI to GDP into two other ratios: FDI to KF and KF to GDP. Then, we run separate

120

sensitivity analysis for each dependent variable using Extreme Bound Analysis (Leamer, 1983, and Leamer, 1985).

The resulting EBAs for FDI to GDP and KF to GDP show that trade openness, total political risk, governance quality, and agglomeration effects, are robust determinants across 80 countries. The EBA results also show that duty and political stability are robust determinants with the second of the trade openness specification. Conversely, the EBAs for FDI to KF do not find any FDI determinant robust. The analysis of the stylized facts and EBA results suggest that countries with better political variables, more trade openness, and agglomeration effects will receive more private capital flows, and larger amounts of FDI.

Thus, the paper clarifies at least three important questions in the empirical research on FDI. First, it demonstrates that political variables must be considered in FDI cross-country regression analysis in developing countries. Second, it provides further evidence on the importance of trade openness. Finally, it provides additional evidence on the importance of non-traditional determinants such as agglomeration effects, which can be an indication of the growing importance of efficiency seeking FDI in developing countries.

Further research could analyze the sensitivity of FDI using a decomposed FDI dependent variable with different techniques less strict than EBA. Alternatively, it should also carry out EBA analyses based on regional data to analyze whether or not there are

significant regional differences. In the next paper we will analyze these regional

differences while we will leave the alternative sensitivity analysis for further empirical

work.

Annex 1: List of countries

Algeria	Jamaica	Sudan
Angola	Jordan	Syrian Arab Republic
Argentina	Kazakhstan	Tanzania
Bangladesh	Kenya	Thailand
Bolivia	Latvia	Togo
Botswana	Lebanon	Trinidad and Tobago
Brazil	Lithuania	Tunisia
Bulgaria	Madagascar	Turkey
Burkina Faso	Malawi	Uganda
Cambodia	Malaysia	Ukraine
Cameroon	Mali	Uruguay
Chile	Mexico	Venezuela, RB
China	Mongolia	Vietnam
Colombia	Morocco	Yemen, Rep.
Congo, Dem. Rep.	Mozambique	Zambia
Congo, Rep.	Nicaragua	Zimbabwe
Costa Rica	Niger	
Cote d'Ivoire	Nigeria	
Croatia	Pakistan	
Czech Republic	Panama	
Dominican Republic	Papua New Guinea	
Ecuador	Paraguay	
Egypt, Arab Rep.	Peru	
Estonia	Philippines	
Ethiopia	Poland	
Gabon	Romania	
Gambia, The	Russian Federation	
Georgia	Senegal	
Hungary	Sierra Leone	
India	Slovak Republic	
Indonesia	South Africa	
Iran, Islamic Rep.	Sri Lanka	

123

Annex 2: Values adjusted (Year)

	FDI/KF	Inflation
Angola		1,237%(93), 2,171%(94), 1,897%(95), 5,462% (96)
Brazil		969%(92), 1,997%(93) 2,239%(94)
Bulgaria		949% (97)
Cameroon	-597% (99), -190% (00)	
Congo D.R.		4,078% (92), 1,662%(93), 26,762% (94)
Cote d'Ivoire	226% (97), 252% (98), 359% (99)	
Croatia		1,467%(92)
Georgia		1,205%(92) 18,032%(93), 9,349%(94)
Iran	-50% (96)	
Kazakshtan		1,472% (92) 1,243%(93) 1,547%(94)
Kenya	-70% (95) 237 (97) -2,471% (98) -156% (99)	
Latvia		976% (92)
Lithuania		942% (921)
Malaysia	-6064%(97)	
Niger	-526%(95), 228%(96), -61%(97)	
Pakistan	308%(99), 2,026(00)	
Paraguay	463%(00)	
Philippines	909%(00)	
Russia		1,490%(92)
South Africa	599%(94)	
Venezuela	-664%(93)	
Ukraine		1,761%(92), 3,355% (93), 953% (94)
Zimbabwe	393%(00)	

124

Annex 3: Regressions Estimate in the EBA Sensitivity Analysis

For the every EBA analysis we tested the significance of twelve possible y variables: (1) GDP per capita in US$ at PPP (Purchasing Power Parity) exchange rates; (2) GDP per capita in US$ at 1995 prices (3) GDP per capita in US$ at current prices (4) Gross trade Intensity or total export plus imports divided by GDP; (5) Adjusted trade intensity or the residual of the regression of gross trade intensity on the log of population, log of land, GDP per capita and a dummy for natural resources; (6) Trade taxes of total fiscal revenues; (7) Percent of students in Tertiary; (8) Average Political Risk (9) Governance; (10) Political Stability; (11) Returns; (12) Agglomeration Effects. Since we have 11 explanatory variables, we fix one of the 3 potential fixed variables in 6-variable multiple regressions, the combinatory with no repetition yields 252 models per analysis (i.e. $10!/[5!*5!] = 252$).

Next, once we find a fix variable we carry the EBA for the 7 testable variables x: administrative risk *(gov)*; political stability *(stab)*; aggregate political risk *(polrk)*; agglomeration effects *(aggl)*; Duties *(duty)*; human capital *(hk)*; and returns of FDI *(returns)*. Since we have 11 explanatory variables, and we have 1 y and 1 x variable that remain fixed in each EBA test for the 6 testable variables, the combinatory with no repetition in a 6 variables multiple regression yields 126 models per analysis (i.e. $9!/[4!*5!] = 126$). However since we carry out the test with two different sets of y variables (i.e. gross trade intensity and adjusted trade intensity), we run 126*2 =252 regressions

For each region we carry out the EBA with 3 different endogenous variables (i.e. FDI to GDP; FDI to KF; and KF to GDP), thus each EBA is performed 3 times. Then the total amount of models generated for each region is: 252*3*12+126*2*3*7 = 14,364 regressions per sample type of sample

Given that we have 2 samples, average and pool the total amount of regressions generated in this paper is 14,364*2 = 28,728 regressions. Furthermore, we run each regression at least 4 times to check for mistakes. Therefore the total amount of regressions run for this paper is 28,728*4=114,912 regressions.

Annex 4: Trade Residual regression

$TradeIntensity = \alpha + \beta_1 \ln(population) + \beta_2 \ln(land) + \beta_3 \ln(GDPperc) + \delta Nressources + \varepsilon$

Dependent Variable: INT				
Method: Least Squares				
Sample: 1 720				
Included observations: 720				
White Heteroskedasticity-Consistent Standard Errors & Covariance				

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.756	0.1451	19.001	>0.0000001
LNGDPC	0.0321	0.00967	3.315	>0.001
LNPOP	-0.0639	0.00814	-7.86	>0.0000001
LNLAND	-0.0939	0.00739	-12.700	>0.0000001
RES	0.0227	0.02409	0.941	0.347

R-squared	0.3479	F-statistic	95.35
Adjusted R-squared	0.3442	Prob(F-statistic)	0

Sources: World Bank's World Development Indicators and IMF country reports. The dummy RES is constructed based on the percentage of natural resources production in GDP. Natural resources include any relevant oil or mineral domestic production. A country with natural resources has a value of 1 assigned.

127

Annex 5: x-variables: acronyms and data source

Variables	Acronym	Data Source
y-variables		
GDP per capita in US$ at PPP	*Gdppen*	Penn Tables
Gross Trade	*Tinent1*	WDI
Trade residual	*Tinten2*	WDI and International Financial Statistics (IFS)
x- variables		
Institutional stability or governance	*Gov*	Political Risk Services (PRS), International Country Risk Group (ICRG)
Political stability	*Stab*	PRS, ICRG
Average political risk	*Polrk*	PRS, ICRG
Agglomeration effects	*Aggl*	WDI
Duties	*Duty*	International Monetary Fund (IMF), country reports
Human capital	*HK*	WDI
Returns	*return*	GDF

128

Annex 6: Correlation matrix

	Return	Stab	Tinten1	Tinten2	Pbdbt	Labor	Infl	Educ	Duty	GDPc	Budget	Averisk	Aggl	Admin
Return	1	-0.008	0.133	0.023	0.042	-0.052	-0.030	-0.085	0.027	-0.040	0.089	-0.033	-0.056	-0.039
Stab		1	0.285	0.011	-0.329	0.004	-0.175	0.367	-0.401	0.565	0.272	0.850	0.406	0.768
Tinten1			1	0.278	0.049	-0.219	-0.093	0.178	-0.143	0.260	0.097	0.277	0.038	0.261
Tinten2				1	0.133	0.104	-0.063	-0.141	0.104	-0.093	0.007	-0.013	-0.120	-0.019
Pubdbt					1	-0.132	0.017	-0.403	0.314	-0.520	-0.164	-0.355	-0.435	-0.344
Labor						1	-0.021	-0.110	-0.032	-0.092	0.039	0.037	0.022	0.044
Infl							1	0.090	-0.056	0.003	-0.114	-0.219	-0.073	-0.220
Educ								1	-0.531	0.697	0.117	0.359	0.628	0.339
Duty									1	-0.620	-0.150	-0.415	-0.518	-0.398
GDPc										1	0.224	0.575	0.677	0.549
Budget											1	0.269	0.139	0.254
Averisk												1	0.429	0.990
Aggl													1	0.413
Admin														1

CHAPTER IV: SENSITIVITY ANALYSES OF REGIONAL FDI DETERMINANTS IN CROSS-COUNTRY AND CROSS-REGIONAL LINEAR REGRESSIONS

I. INTRODUCTION

In the previous two papers, we explore the stylized facts of the evolution of private capital flows (Gijón-Spalla, 2004a), and carried out a sensitivity analysis of the determinants of foreign direct investment (FDI) in developing countries during the 1990s (Gijón-Spalla, 2004b). These two previous papers are the first stages of an analysis of the evolution of foreign direct investment in developing countries.

In Gijón-Spalla (2004a), we see that after the financial crises of the late 1990s, FDI almost became the exclusive source of private capital flows in developing countries. Furthermore, in Gijón-Spalla (2004b), we observe that only certain determinants have been significant for FDI flows to developing in the 1990s. In this regard, the results of the sensitivity analyses in an 80-country sample show that trade intensity, certain types of political risk and agglomeration effects are significant to explain the share of FDI in a host economy.

This paper concludes the analysis on FDI in developing countries by studying the differences in the sensitivity analyses of the determinants of FDI across and between different regions of the developing world. Like in Gijón-Spalla (2004b) we will use Edward Leamer's extreme bound analysis (EBA) (Leamer, 1983 and Leamer, 1985) to

130

test the sensitivity of FDI determinants but we carry out two different types of analyses. In the first one, we explore the differences in FDI determinants across countries in four developing regions, Asia, Africa, Eastern Europe and Central Asia –EECA, and Latin America, and in the top 10 and 15 FDI recipient subgroups. In the second analysis, we study the differences in FDI determinants between regions using the same 80-country sample as in Gijón-Spalla (2004b).

We have divided our work into five sections. Section II explores the empirical literature on the regional determinants of FDI in developing countries and identifies some of the key regional FDI determinants. Section III presents the adjusted EBA for the determination of FDI for the study of regional determinants of FDI. Section IV presents the results of the regional sensitivity analysis across countries in the Asian, African, ECA and Latin American regions as well as for the top fifteen and ten top FDI recipients. Section V shows the results of the regional sensitivity analysis across regions. Finally, section VI summarizes the main findings and presents the main conclusions.

II. LITERATURE REVIEW ON REGIONAL DETERMINANTS OF FDI

This section presents the main findings of the empirical studies on the determinants of FDI in across countries in the same or in different developing regions. The objective is to identify the major determinants found by scholarly research for every region and to contrast them with the results of the sensitivity analysis in the next two sections.

131

2.1. Africa

The analysis of private capital flows in developing countries shows that Africa, as a region, has been the smallest recipient of FDI during the 1990s (Gijón-Spalla, 2004a). Traditionally, empirical research has shown that foreign investors go to Africa to exploit its abundance in natural resources (Jaspersen, Aylward et al., 2000). However, recent empirical findings have underscored important changes in the FDI flowing to the African region. For example, the World Bank and UNCTAD notice that the attitude of foreign investors toward the African continent has been changing. In the early 1990s, 80% of the FDI to Africa was natural resource-related FDI, whereby in the late 1990s only 50% of the FDI was natural resource oriented.

The World Bank finds that changes in the composition of FDI to Africa in the 1990s are due to the improvement of FDI environment such a the improvement of the political situation in many parts of the region, that fostered the diversification of FDI towards more value added activities such as manufacturing, aside from the resource-based FDI which was the main type of FDI to the region (Pigato, 2001, World Bank, 2001). Similarly, UNCTAD finds in recent large business surveys on FDI in Africa that the exploitation of natural resources is no longer a priority of foreign investors (UNCTAD, 2000 and UNCTAD, 2001).

Other studies show that there has been a significant growth in the amounts of flows to Africa, which is catching-up with respect to other developing regions. For

132

example, between 1998 and 2002, the growth in FDI flows to Africa has more than doubled that of middle-income countries, the traditional recipients of FDI in developing countries (Gijón-Spalla, 2004a).

Research on the determinants of FDI has also explored the major socio- economic characteristics in Africa that pull foreign capital into the region. Scholars focus on these factors to explain why Africa is the smallest recipient of FDI and why the situation has been changing in the late 1990s (Agodo, 1978, Morisset, 2000, Asiedu, 2002, and Rogoff and Reinhart, 2003).

In this respect, the literature on the determinants of FDI in Africa reaches four conclusions. First, investors have a negative perception about Africa. Empirical findings show that Africa is penalized by the aversion of foreign investors to invest in a region perceived as unstable and distant. For example, Jaspersen, Aylward et al. (2000) and Asiedu (2002) use an African dummy variable to compare the FDI flows in several developing countries and find that it remains significant in all types of specifications, even after including variables that ought to diminish its explanatory power (e.g. political or economic instability). The importance of this dummy seems to be an indication of the negative perception that foreign investors have on Africa. This negative perception has been recorded in large cross-country studies carried out by the World Bank and UNCTAD.

Second, political risk and corruption are important factors affecting FDI in Africa and shows that Africa's persistent political instability has negative consequences for FDI. For example, two major cross-regional studies, Jaspersen, Aylward et al. (2000) and Asiedu (2002), show that political risk in general and the levels of corruption in particular have a negative impact on the FDI to Africa. Similarly, Basu, Srinivasan et al. (2002) and Roggoff and Reinhart (2003) conclude that political instability has been a deterrent for FDI and suggest that the improvement on political stability has also improved FDI prospects in the region.

Third, trade openness is a key determinant for FDI in Africa. Asiedu (2002) finds that trade openness is less relevant for Africa than for other developing regions but also finds that a marginal increase of trade openness has a greater impact for Africa. Asiedu concludes that trade openness has a greater impact for African countries than for the other countries of her sample study. Morrisset (2000) also finds that trade openness is a significant determinant in his study of FDI and investment climate in 27 sub-Saharan African countries.

Finally, the empirical literature also finds that the abundance of natural resources is important for FDI in Africa. For example, Morisset (2000) finds that abundance of natural resources is the most significant variable in his African FDI study between 1990 and 1997 for a sample of 18 African countries. Bassu, Srinivasan et al. (2002) also conclude that natural resources are important for African countries. In their study, they carry out a study of FDI in Africa during the 1990s and they find that a large share of FDI

134

went to the primary sectors in some of the largest FDI recipients such as Angola, Botswana, Namibia and Nigeria.

Do the results of the importance of natural resources contradict the findings of the World Bank on the decreasing role of natural resources for FDI in Africa? No, the empirical studies on FDI in Africa do not include the late 1990s and early 2000s, when there has been a significant change in the sector distribution of FDI in Africa. Furthermore, natural resources continue to play a significant role in Africa and empirical research shows that the primary sector still attracts the interest of foreign investors.

In sum, the results of empirical research on FDI determinants in Africa are a reflection of the changes occurring in that region which continues to attract foreign capital based on traditional factors such as the endowment of natural resources, and non-traditional ones such as trade openness.

2.2. Asia

During the 1990s, Asia was the largest FDI recipient region among developing country areas and included some of the top recipient countries such as China, the largest FDI recipient among developing countries. The empirical research has tried to analyze the main factors that have attracted large amounts of FDI to Asian economies. The empirical studies on the determinants of FDI in Asia either (i) focus on one particular country, usually China (Dees, 1998, Bajpai and Sachs, 2000, Cheng and Kwan, 2000,

135

Fung, 2000, and Tseng and Zebregs, 2002), (ii) concentrate on a group of countries of the region (Wei, 1999, Mody Dasgupta et al., 1999 and Jackson and Markowski, 1995) (iii) or compare the attractiveness of Asian countries to attract FDI with respect to other regions such as Latin America (Lucas, 1993, Goldberg and Klein, 1997 and Wezel, 2003).

Despite the diversity of the country-analyses, the empirical research presents several common conclusions with respect to the determinants of FDI. It seems that there is a consensus on what has been the keys of Asia's success to attract FDI: high trade openness and low political risk.

A large number of the studies on FDI in Asia find that several measures of trade openness are significant for all the specifications. For example, Jackson and Markowski (1995) find that the ratio of exports to GDP and low tariffs are significant determinants to explain FDI in South East Asian countries. Mody, Dasgupta et al. (1999), in a study of Japanese FDI in Asia based on a survey of 173 Japanese companies, find that export propensity is an important factor to explain interest of Japanese investors. Wezel (2003) also uses several instruments to measure trade openness and finds significant relationship with German FDI.

Furthermore, the empirical research on the determinants of FDI in Asia also underlines the importance of political stability and explains why the majority of the studies include some variables to measure either political risk in general or the quality of the local administration. For example, Mody Dasgupta et al. (1999) find that the

commitment of local authorities to friendly FDI regimes is significant for FDI. Wezel (2003) finds that the quality of the administration measured with some elements of the PRS ICGR political risk index is significant for German FDI. Wei (1999) also finds that corruption and red tape are two fundamental deterrents of FDI in China and India and concludes that FDI flows would be much higher if both countries had less official corruption and less restrictive FDI legislation.

However recent research also identifies a significant role for other factors such as infrastructure development and the quality of the labor force. For example Jackson and Markowski (1995), find that the level of telecom development is a significant determinant for FDI in South East Asia. Similarly, Fung (2000) and Cheng and Cheng and Kwan (2000) also conclude that the level of infrastructures is significant to explain US and Japanese FDI to China.

Some studies reveal that the quality of the labor force is also an important FDI determinant for Asia. The studies of Japanese FDI in Asia (Mody, Dasgupta et al., 1999) and China (Fung, 2000)[62] show that the quality of the labor force measured either using tertiary or secondary education enrollment is significant for Japanese investors. Furthermore, Wezel (2003) provides further –partial- evidence on the importance of the quality of labor force as his productivity adjusted cost of labor is significant for German FDI in Asia and leads him to conclude that German investments in the region are "efficiency-seeking FDI".

---

[62] Fung's study is one-country study but makes a cross-regional analysis of Japanese FDI in China and he reaches comparable conclusions to those of cross-country analysis of FDI in Asia (i.e. Mody, Dasgupta et al., 1999)

Therefore, the analysis of the empirical literature on the determinants of FDI in Asia says that there are two major determinants: trade openness and political risk linked to the quality of the institutions and administrations. Yet, infrastructure development and the quality of domestic labor force are two additional determinants that may also play an important role in FDI flowing to Asia. Therefore, we expect that the EBA for Asia will be robust for trade openness, political risk variables, and perhaps for proxies for infrastructure and quality of the labor force.

2.3. Eastern Europe and Central Asia (EECA)

During the 1990s, EECA underwent a profound economic and political transformation through the transition from socialism to capitalism. One of the pillars of the transition process of the former socialist economies was their integration into international markets. Gijón-Spalla (2004a) shows that subsequent arrival of FDI flows during the 1990s has made the EECA region one of the largest recipients of FDI flows, measured in terms of GDP, surpassing many traditional FDI destinations in Latin America and South East Asia.

Hence, it is not surprising that the empirical literature on FDI determinants has a paid attention to the analysis of the determinants of FDI in EECA. In this regard, the literature can be divided into two major streams [63], the first stream examines the

---

[63] See Beran and Estrin (2000: 4-6) for a detailed discussion on the literature review of this grouping of the relevant empirical research for FDI determinants in EECA countries.

138

determinants of FDI in the transition economies. Within this group, some studies have concentrated only on EECA countries (Lansbury, Oain et al., 1996, Garibaldi, Mora et al. 2001, Carstensen and Toubal, 2004, and Janicki and Wunnava, 2004), whereas others have analyzed the structural differences across countries from other regions (Wang and Swain, 1995).

The second stream analyzes in addition to the traditional FDI determinants, the repercussions of the accession process to the European Union (EU). In this second group, scholars have tried to determine whether the advent of the access to the European integration process had repercussions in FDI flows (Baldwin, 1994, Barrell and Pain, 1999, Bevan and Estrin, 2000 and Bandelj, 2002). The results of the different studies vary but, in general, they attribute a positive effect to the EU accession. For example Bevan and Estrin (2000) carry out a very extensive study of the determinants of FDI in 11 transition economies and show that candidate countries to EU accession received more FDI. In addition, the study also shows that the growth of FDI flows stimulated by the accession process, in turn, makes risk ratings improve in accession countries.

Despite the division of the empirical research into two groups, empirical results show that there are three common determinants in the literature of FDI in EECA: market size; labor cost; and political and economic stability. The market size variable, usually the level of real domestic GDP, has a positive and a significant relationship with FDI, and point to relevant market-seeking FDI in EECA countries (Wang and Swain, 1995,

Lansbury, Oain et al., 1996, Carstensen and Toubal, 2004, and Janicki and Wunnava, 2004).

Conversely, the labor cost variable has a negative and significant relationship with FDI and explains that FDI in EECA is also efficiency-seeking (Lansbury, Oain et al., 1996 Bevan and Estrin, 2000, and Janicki and Wunnava, 2004). We find one exception in Wang and Swain (1995)'s comparative analysis of the FDI to Hungary and China between 1978 and 1992. The regression results show that wage differential is significant in China but not in Hungary. However, the study may underestimate significance of wage for FDI in Hungary since the period covered by the study hardly includes the years of the transition to capitalism when Hungary was liberalizing its labor markets and FDI regimes.

Finally, political and economic stability usually has a positive and significant relationship with FDI in EECA (Bevan and Estrin, 2000, Bandelj, 2002, Carstensen and Toubal, 2004, and Janicki and Wunnava, 2004). Landsbury, Oain et al. (1996) is the only study claiming that this determinant is not significant. However, this study is limited two three countries (i.e. Czech Republic, Hungary and Poland) with comparables political and institutional infrastructure during a small period of time -3 years- that may limit the relevance of the results. Bevan and Estrin (2000) carry out the most comprehensive analysis of the role of political and economic stability for EECA and build a synthetic risk variable that proves highly significant to explain FDI in the 11 countries sample.

140

Therefore, the review of the literature of FDI determinants in EECA points to three main determinants that are significant to all the countries: market size, labor costs and political and economic stability. However, other empirical studies show that there may be other variables that may play a significant role such as the privatization process (Lansbury, Oain et al. 1996, and Carstensen and Toubal, 2004); or the accession to the EU. Yet, these variables have not been widely used in the literature and may require further research. In this respect, Bandelj published a very promising work where she demonstrates that social relations are more important than the EU enlargement to explain FDI in EECA (Bandelj, 2002).

2.4. Latin America

During the 1990s, Latin America embarked in a major economic reform program to tackle the regional economic crisis of the second half of the 1980s. This economic transformation brought back to Latin America the private capital flows that stopped to flow to the region after the 1982 debt crisis, making Latin America one of the favorite destinations of FDI to developing countries during the 1990s.

The analysis of FDI flows to Latin America has always interested researchers since Latin America has been one of the few developing regions that has received substantial amounts of FDI since the late nineteenth century[64]. Consequently, the 1990s wave of FDI flows has also interested the empirical researchers who have tried to

---

[64] See for example Cardoso (1992), Thorp (1998), and Bulmer Thomas (2003) and their historical studies on FDI flows to Latin America in the 19th and 20th.

141

uncover the links between the economic transformations of the 1990s and the growth of FDI flows.

Like in the case of EECA, empirical research on the FDI determinants to Latin America can be divided into two strands. The first one just analyzes the most relevant determinants of FDI in Latin American countries. In this group, some concentrate in single countries (Love and Lage-Hidalgo, 2000, and Ramirez, 2002), and others look at several countries in the same region (Shatz, 2001) or in different ones (Pistoresi, 2000, Trevino, Daniels et al., 2002, and Wezel, 2003).

The second strand of empirical research analyzes whether regional integration is an important determinant for Latin America. In this respect, researchers realized that some of the largest recipients of FDI in the region such as Argentina, Brazil, Mexico and Peru are members of regional integrations processes such as MERCOSUR, NAFTA or the Andean Community (i.e. AC) and have analyzed whether the regional integration process has affected the FDI flows to those countries (Nunnemkamp, 2001;Vial, 2001, Chudnovsky, Laplane et al. 2002, and Centro de Investigación Universidad del Pacífico, and Centro de Estudios sobre Desarrollo Economico, Universidad de los Andes, 2003, Levy-Yeyati, Stein et al., 2003)[65].

---

[65] Nunnenkamp (2001), Chudnosvsky, Laplane et al. (2002) study the relevance of MERCOSUR, Levy-Yeyati, Stein et al. that of Free Trade Area of Americas, and Vial (2001) and Centro de Investigacion Universidad del Pacifico and Centro de Estudios sobre Desarrollo Economico, Universidad de los Andes (2003) that of the Andean Community. Although it does not completely fit in this category, it is worth mentioning the work of Dussell, Galindo et al. (2003) who carry out a microeconomic analysis of the impact of NAFTA in FDI to Mexico.

142

The review of the empirical results of the two strands of the literature on FDI determinants in Latin America in the 1990s shows that two determinants are significant in the vast majority of the studies: domestic market size and political and economic stability[66]. All the studies surveyed in this literature review include a variable to measure to domestic markets and find this determinant always significant for FDI in the region. The only important difference between the studies is the type of proxy used to assess the role of market size. The majority of the studies use the level of GDP or absorption (Love and Lage-Hidalgo, 2000, Chudnovsky, Laplane et al. 2002, and Ramirez, 2002), while others show that the level of protection of the domestic market is more important than the overall size (Wezel, 2003). Similarly, non-formal studies based on business surveys on foreign direct investors in Latin America also point at the domestic market as one of the key variables to explain FDI in the region (Vial, 2001, Centro de Investigación Universidad del Pacífico and Centro de Estudios sobre Desarrollo Economico, Universidad de los Andes, 2003). Despite the different approaches, the empirical research clearly demonstrates the relevance of domestic market and market-seeking strategy in Latin America. This conclusion is supported by additional evidence provided by certain studies that include variables to proxy for the large privatization of Latin American public monopolies in the 1990s (Shatz, 2001 and Levy-Yeyati, Stein and Daude 2003). The privatization variable is usually significant and leads empirical research to conclude that the privatizations allowed foreign investors to enter domestic market in advantageous conditions.

---

[66] These results also coincide with some early pioneering works such as Nigh's (1986), who analyzed FDI in 8 Latin American countries during the 1970s and 1980s and found that political stability (i.e. domestic positive and negative political events), and size of the domestic market were the most significant determinants to explain FDI.

143

The other relevant determinant for FDI in Latin America is political and economic stability. Like in the case of market access, the literature has used several proxies to measure domestic stability. Some studies (Ramirez, 2002 and Wezel, 2003) find that global risk (i.e. a weighted average of economic, political and social factors) is the only relevant determinant, but the majority finds (Pistoresi, 2000, Chudnovsky, Laplane et al. 2002, and Levy-Yeyati, Stein et al., 2003) that only certain elements of political and economic stability are relevant. For example, Levy-Yeyati, Stein et al. (2003) find that institutional infrastructure is the relevant stability related variable for FDI. Similarly, other studies conclude that similar variables such as bureaucratic efficiency or the favorable FDI policies are significant (Pistoresi, 2000 and Chudnovsky, Laplane et al. 2002). Thus, the majority of the empirical findings conclude that domestic stability is also relevant for FDI in Latin America.

The last interesting aspect of this part of the review of the literature on FDI determinants deals with the importance of regional integration. The majority of the studies show that regional integration is not a significant variable for many Latin American countries. However the results vary according to the regional integration process and the country involved. For example, the study from the Centro de Investigación Universidad del Pacífico and Centro de Estudios sobre Desarrollo Economico (2003) illustrates that the Andean Community project does not have a significant role to explain FDI into the Community's member states. Similarly,

Chudnovsky Laplane et al. (2002) show that the effect of MERCOSUR is only significant for small member states.

Therefore, the survey of the literature on the determinants of FDI in Latin America shows that access to domestic market and political and economic stability are the most relevant determinants and questions whether the economic reforms of the 1990s have changed the perceptions of foreign investors on Latin America. In the pre-structural reform period, gaining access to the domestic market with acceptable political and economic stability conditions were the two most important aspects for foreign investors (Nigh, 1986). In the 1990s the same determinants seem to affect foreign investment decisions to the region.

III. THE ADJUSTED EBA FOR REGIONAL FDI DETERMINANTS

3.1. Sensitivity Analysis Technique: the Extreme Bound Analysis

Like in the previous paper, we use the Extreme Bound Analysis (EBA) (Leamer, 1983 and Leamer, 1985) to test the significance of the regional determinants of FDI in developing countries during the 1990s. In this respect, we follow the work of other authors that have used the same technique in the growth literature (Levine, 1992 and Sala-i-Martin, 1997) and FDI theory (Chakrabarti, 2001 and Wezel, 2003).

The rationale behind the use of EBA is the same as in the previous paper (Gijón-Spalla, 2004b). EBA helps to assess the sensitivity of prior findings in the empirical literature of FDI in developing countries by making small changes in the conditioning information set of the linear regressions used to explain the relationship between FDI and its determinants.

EBA is particularly useful for growth and FDI empirical literatures, two fields not supported by a widely accepted theory. The lack of an accepted theory leads empirical researchers to define a large array of models whose specifications work only in relatively constrained frameworks. In other words, the empirical analysis of the determinants of economic growth or FDI cannot offer a full specification of the variables that should remain constant when the relationships between the endogenous and exogenous variables are statistically tested. The diversity in the specification of the FDI models causes certain variables to have a significant role in explaining FDI under certain conditions but become insignificant under other specifications. EBA tests the robustness of any variable by altering the set of constrained information in linear regressions including this variable.

To test the significance of FDI determinants using the EBA, we will consider two types of variables in a regression: free and doubtful variables. Free variables are those that remain in any specification of the model due to their relevance in the empirical literature. In other words, free variables are those that are usually found significant in any regression analysis. Doubtful variables are those that are not always present in the

146

regressions and whose significance varies across models, although, researchers consider that they can play a significant role in explaining the dependent variable.

Therefore, we present a modified version of EBA[67], which examines the robustness of a doubtful variable, x, in a given equation $\omega = \beta_y y + \beta_x x + \beta_z z + \varepsilon$, where ω is the dependent variable, y is the set of free variables always included in the regression, and z is a subset of variables chosen from the pool of variables identified in previous empirical research. EBA varies the subset of z variables to find the largest range of coefficients for the doubtful variables. Then we define the extreme bounds for the x variable from the group of z variables that yields the most (least) significant coefficient plus (minus) two standard deviations, $\beta_z \pm 2\sigma_z$.

Therefore, the highest upper bound is equal to $\beta_{zh} + 2\sigma_{zh}$, where β_{zh} is the most significant coefficient for the x variable under consideration and $2\sigma_{zh}$ is two times its corresponding standard error. Conversely the lowest bound is equal to $\beta_{zl} - 2\sigma_{zl}$, where β_{zl} is the least significant coefficient for the x variable under consideration and $-2\sigma_{zl}$ is minus two times its corresponding standard error. If the significance of β_{zh} and β_{zl} is 95% or higher and the sign of $\beta_{zh} + 2\sigma_{zh}$ and $\beta_{zl} - 2\sigma_{zl}$ does not change, then the x variable is considered robust.

---

[67] We based our work on Levine and Renelt's modified EBA used and explained in Levine and Renelt (1992: 943-944)

However, the implementation of EBA for FDI determinants in developing countries requires some modifications to avoid several problems encountered by empirical research. Previous reviews on the determinants of FDI in cross-country regressions stress two important and common problems in the literature of FDI. The first problem is the lack of good variables to define the linkage between FDI and the recipient country's characteristics. For example, until recently, the empirical research has had problems quantifying variables that measure qualitative conditions such as political risk. The second problem is more specific to developing countries; it is the lack of data even for common and easily quantifiable variables. For example, researchers find it difficult to build a large sample on tariff and tax rates in developing countries due to the lack of data, which, in contrast, is available for developed economies.

These two problems challenge the feasibility of a sensible analysis of FDI determinants in developing countries. On the one hand, a loose definition of the variables may lead a misspecification of the models. For example, the use of some ill-defined risk variables in cross-country regressions can create multicollinearity. Multicollinearity can arise if the EBA includes variables such as financial risk index and the level of external indebtedness since external debt is one of the main components of financial risk.

Since multicollineary indicates weak data selection and not necessarily procedural errors[68], we establish a set of restriction in our EBA analysis. First, to analyze the fixed and doubtful variables, y and x, we only allow the procedure to choose four z variables. Therefore, the tests include six explanatory variables, a model specification common in

---

[68] See Levine and Renelt (1992:944)

148

the literature of FDI. Second when we analyze the variable of interest x, we exclude from the pool of z variables the variables that can also be used to measure a similar phenomenon. For example, when we test the relationship between FDI and a political risk index, we exclude the indexes of political instability, corruption and unemployment since these factors are embedded in the construction of the index. Third, the conditioning set of z variables is limited to nine variables that represent a "reasonable" set of z. We argue that a "reasonable set" fulfills two conditions: it includes variables widely used in the literature of FDI to developing countries, and, it provides sufficient data to carry the analysis. For example, a variable on wages could not be included due to the lack of wage data in developing countries.[69]

3.2. How the EBA Works

In the previous paragraphs we presented the arguments for the use of the EBA in the analysis of the regional determinants of FDI. In addition, we also introduced a modified version of EBA that adapts this technique to the analysis of the FDI determinants and avoids some potential problems with this analysis such as inappropriate selection of variables or "overparametrization" (Leamer (1985: 309-310 and 312)). In the next paragraphs we proceed to make a formal presentation of the model used and how the EBA technique works to test the robustness of the variables under consideration.

---

[69] Other variables have been included to assess the importance of domestic labor force.

149

First, for every region, we use ordinary least squares (OLS)[70][71] to estimate the

parameters. Therefore we define the following linear regression model $y = X\beta + \varepsilon_i$,

based on the following usual assumptions:

1)- X is an $n \, X \, K$ matrix with rank K

$$2) \, E[\varepsilon|X] = 0 \quad \text{or} \quad E \begin{bmatrix} \varepsilon_1|X \\ \varepsilon_2|X \\ \varepsilon_3|X \\ \vdots \\ \varepsilon_n|X \end{bmatrix} = 0$$

3) $E[\varepsilon\varepsilon'|X] = \sigma^2 I$

4)- X is a non-stochastic matrix

5)- $\varepsilon|X \sim N[0, \sigma^2 I]$

---

[70] For a longer explanation of the convenience of the OLS estimation in the EBA analysis see Leamer (1983 and 1985). Leamer (1983) makes a comparison between experimental and non-experimental research. Leamer concludes that any type of non-experimental analysis will, by definition, contain some bias expressed misspecification matrix M and will persist on "randomnized" experiments. Leamer considers that a good definition of the controls to minimize M may be more important to the sophisticated model specification that will not result in $M \neq 0$. Leamer (1983 and 1985) proposes "extreme bounds" sensitivity tests based on simple estimation techniques, such as OLS, to obtain sound econometric results.

[71] Levine and Renelt (1992), Sala-i-Martin (1997) and Chakrabarti (2001) also use OLS as estimation technique in their sensitivity analyses of the determinants of growth and FDI. Conversely, Wezel (2003:26-27) uses GLS to avoid potential bias due to the geographic proximity of the countries in his sample –10 countries from Latin America and South East Asia, which could break the assumption on the statistical independence between the cross-sections. Here, the GLS estimator is $b[X'V^{-1}X]^{-1}X'V^{-1}y$ with

$$V = \begin{bmatrix} \sigma_{11}I \dots \sigma_{1M}I \\ \sigma_{21}I \dots \sigma_{2M}I \\ \vdots \\ \sigma_{M1}I \dots \sigma_{MM}I \end{bmatrix}$$

150

Therefore the population regression is $E[y_i|x_i] = x_i'\beta$ and the estimate of $E[y_i|x_i]$

is denoted $\hat{y} = x_i'b$, where for any value of b the estimate of any ε_i is the residual

$$e_i = y_i - x'_i b^{72}$$

As explained in the previous section, the matrix X will contain three types of

variables: *y, x* and *z*. Based on the results of previous empirical research on the

determinants of FDI, for every *y* fixed variable, we choose, a set of *x* testable variables.

We regress the dependent variable on six variables: one or two fixed variables, *y*, one

doubtful variable *x*, and a set of 3 to 4 additional *z* variables drawn from a pool of 9 to 10

variables[73]. The *z* variables are variables widely included in the analysis of the

determinants of FDI, which usually yield inclusive results (i.e. insignificant). During the

EBA analysis, the *y* and *x* are kept fixed (i.e. are always included in the regression),

whereas the *z* variables are permuted in order to run all the regressions containing the *y*

and *x* variables and any combination, without repetition, of the set of *z* variables. In other

words, the EBA is specified to avoid the inclusion of the same variables in the x and z

sets. Therefore, when one of the *x* variables is tested, it is automatically excluded from

the *z* variable set. The following example shows how we generate the regressions for the

EBA with a set of 9 *z* variables.

---

[72] For a detailed explanation of the classical OLS technique please Greene (2001: 210-265)
[73] The number of y and z variables varies depending on whether the EBA is cross-country or cross-region. Sections IV and V specify the number of z variables for each EBA.

151

$$\xrightarrow[\ ]{y} \xrightarrow[\ ]{x} \xleftarrow{\hspace{4cm}z_i\hspace{4cm}}$$

$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z4} z_4$$

$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z5} z_5$$

$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z6} z_6$$

$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z7} z_7$$

$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z8} z_8$$

$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z3} z_3 + \beta_{z9} z_9$$

$$\Downarrow$$

$$\omega = \alpha + \beta_y y + \beta_x x + \beta_{z1} z_1 + \beta_{z2} z_2 + \beta_{z4} z_4 + \beta_{z5} z_5$$

$$\vdots$$

In order to complete the EBA, we calculate the extreme bounds for the x variable from the group of z variables that yields the largest (smallest) coefficient plus (minus) two standard deviations, $\beta_z \pm 2\sigma_z$. If the sign of the extreme bounds remains the same and the estimates of x at the extremes are also significant, the x variable is considered robust.

IV. EBA FOR FDI DETERMINANTS ACROSS COUNTRIES IN REGIONAL SAMPLES

4.1. Sample Adjustments

We divide the original 80-country-sample from Gijón-Spalla (2004b) into 8 different ones: Africa, Asia, Asia advanced, Eastern Europe and Central Asia (EECA), EECA accession countries, Latin America and the top 10 and 15 FDI recipient countries.

The first 6 samples correspond to the regional sub-samples while the other two additional samples are non-regional cross-country samples that include the top recipients

152

of FDI. We have included these latter 2 samples to be consistent with the analysis of stylized facts presented in the first paper of this research project (Gijón-Spalla, 2004a), where we compared the evolution of the private capital flows in these four developing regions with that of the top FDI recipients. Annex I presents the different countries included in each sample.

Furthermore, we maintain the same adjustments for inflation and capital flows values as in Gijón-Spalla (2004b) to eliminate some of the extreme values that could distort our regression results -see Section 3.2.1 and annexes I and II in Gijón-Spalla (2004b).

4.2.The Selection of Variables

4.2.1. Endogenous Variables

Given that the objective of this paper is to complete the EBA on the broad set of possible determinants of FDI in developing countries presented in Gijón-Spalla (2004b), we use three different measures of FDI flows as our dependent variable - FDI to GDP, FDI to KF and KF to GDP, to analyze the FDI determinants in our 8 samples. Like in Gijón-Spalla (2004b), we use three different dependent variables based on research by and Hausmann and Fernandez-Arias (2000) that considers that the relevance of FDI determinants can be better explained through the decomposition of the traditional FDI measure in cross-country analyses into two additional ones: FDI to KF and KF to GDP.

153

The data for the dependent variables have been collected from the World Bank's

World Development Indicators (WDI) and Global Development Finance (GDF)

Indicators. FDI corresponds to the net annual inflows of FDI in current US$ to a country.

Private capital flows are the summation of net annual FDI flows in current US$, net

annual portfolio equity flows in current US$ and net annual private non-guaranteed debt

flows current in US$[74]. GDP is gross domestic product in current US$. More detail on

data can be found in Gijón-Spalla (2004b).

4.2.2. Exogenous Variables for EBA Across Countries in Regional Samples

a)- Main Independent Variables

In this regional analysis, we use the same three independent variables as in the

EBA of Gijón-Spalla (2004b): we test the same 3 y fixed variables and 7 x testable

variables. The 3 y fixed variables included are: GDP per capita in US$ at PPP

(Purchasing Power Parity) exchanges rates[75], gross trade intensity (i.e. exports in goods

and services plus imports in goods and services divided by GDP) and a trade residual

obtained from a regression of gross trade intensity on the log of population, log of land,

---

[74] The short term private debt flows are not available in any significant database. The World Bank's Global Development Finance Indicators (GDF) cannot provide this data due to the lack of reporting in domestic economies. Short-term debt in GDF contains public, publicly guaranteed and private non-guaranteed debt flows. Since the public and publicly guaranteed flows are the largest share of short-term flows, we did NOT include them. See the notes in the GDF annual reports on short-term debt flows for more information. We also looked at the IMF/World General Data Dissemination System and found the same problems.
[75] The data on average GDP per capita in US$, purchasing parity adjusted is from the Penn World Table (PWT). See Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP), Oct 2002.http://pwt.econ.upenn.edu/

154

GDP per capita US$ at PPP exchanges rates[76]. The other 7 x testable variables are: (i) institutional stability/governance, an index based the governance components of the PRS ICRG political risk index; (ii) political stability, an index based the political stability components of the PRS ICRG political risk index; (iii) aggregate political risk, PRS ICRG political risk index; (iv) agglomeration effects, the number of telephones per employee; (v) duties, the percentage of trade taxes in fiscal revenues; (vi) human capital, the rate of enrolment in tertiary education; (vii) and returns of FDI[77]. We also use the same two proxies to measure agglomeration effects and human capital: number of telephone lines per employee, and the total enrolment in tertiary education. Table 1 lists the variables under consideration, the acronym used in the EBA analysis, and the data sources.

---

[76] See Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6. (opt. cit)
[77] See Gijón-Spalla (2004b) Section III "3.3.3. Endogenous variables" for a detailed explanation of the x variables.

155

Table 4.1. *y* and *x* Variables in the EBA for the Regional Determinants of FDI

Variables	Acronym	Data Source
y-variables		
GDP per capita in US$ at PPP	*Gdppen*	Penn Tables
Gross Trade	*Tinent1*	WDI
Trade residual	*Tinten2*	WDI and International Financial Statistics (IFS)
x- variables		
Institutional stability or governance	*Gov*	Political Risk Services (PRS), International Country Risk Group (ICRG)
Political stability	*Stab*	PRS, ICRG
Average political risk	*Polrk*	PRS, ICRG
Agglomeration effects	*Aggl*	WDI
Duties	*Duty*	International Monetary Fund (IMF), country reports
Human capital	*HK*	WDI
Returns	*Return*	GDF

It is important to note that we carry out a major adjustment with respect to Gijón-Spalla (2004b) in the trade residual variable. In this regard, the trade residual variable in Gijón-Spalla (2004b) was obtained from a sample of 80 developing countries, therefore these residuals cannot be used to the 6 separate samples taken into consideration the present study. Therefore, we calculate the trade residual (*tinten2*) for each of the six groups of countries. The regression results are presented in annex III.

b)- Other Variables

To continue with the consistency with Gijón-Spalla (2004b), we use the same subset of additional independent *z* variables that completes the 6 independent-variable model specification: governance *(gov)*, agglomeration *(aggl)*, **budget deficit** *(budget)*,

156

duties *(duty)*, human capital *(hk)*, **inflation** *(infl)*, **total labor force** *(lforce)*, **public debt**

(pbdbt), average political risk *(polrk)*, FDI returns *(return)*, and political stability *(stab)*.

The variables in bold are exclusively in the z category while the other are also included in

the x category. Therefore, if one variable is included in the x category, the EBA excludes

it from the z category.

4.3. Model Specification

Based on the previous sections, we carry out a set of EBA tests using 8 different

regional samples (i.e. Africa, Asia, Asia advanced, EECA, EECA accession, Latin

America, Top 10 recipient and Top 15 recipient). In every sample we pool the variables

of our sample for the period 1992-2000 and we obtain samples that have between 63 and

234 observations[78]. For every sample, we run EBA with three different dependent

variables, with the following functional forms: $\varpi = \beta_y y + \beta_x x + \beta_z z$, where ϖ equal to

FDI/GDP, *FDI/KF* or *KF/GDP*; y equal to *GDP per capita in US\$ PPP adjusted, tinten1*

or *tintent2*; x equal to *gov, aggl, duty, hk, polrk, return, stab*; and z *gov, aggl, **budget**,*

*duty, **infl**, hk, **lforce**, **pbdbt**, polrk, return, stab*. Furthermore, in order to avoid further

multicollinearity problems, we do not include more than one political risk variable at the

same time. Hence, when we test *gov*, we exclude *polrk* and *stab* and so forth. Similarly

we test one non-political risk x variables (i.e. *aggl, duty, hk, return*), we only include

---

[78] The number in each pool sample is the number of countries times 9, the number of years observed for each country.

157

polrk in the regressions. Consequently, we run 408 EBA tests that generated 241,920 regressions (see Annex II for further explanations).

4.4. Empirical Results

4.4.1.)- The determination of the y variables

We use the same y variables, i.e. GDP per capita in US$ PPP adjusted, and two measures of trade openness, as those used in Gijón-Spalla (2004b), in order to make a consistent comparison of the results obtained in both papers[79]. Yet, a significant difference with respect to Gijón-Spalla (2004b) is that we keep one of these y variables as a fixed variable regardless of its observed significance (or lack of significance). There are two reasons that support this decision: first, the relevant literature on EBA suggests that is possible to identify a y variable as long as is has been considered relevant in the majority of the empirical studies and without testing its significance (Levine and Renelt, 1992, Sala-i-Martin, 1997 and Chakrabarti, 2001). Second, we want to run same EBA than in Gijón-Spalla (2004b) to compare the results. Therefore, we implement the following rule to pick the y variable: if any of the y variables is significant, it will become the y variable; if none of the y variables is significant, we will pick the same y variable as in Gijón-Spalla (2004b).

---

[79] Nevertheless, the election of the same y variables implicitly endorses the theoretical assumptions presented in Gijón- (2004b) that presume a growth of vertical FDI during the 1990s (Dunning, 1998).

158

a)- GDP per Capita

GDP per capita in US$ PPP Adjusted fails the EBA for the three different dependent variables in the 8 samples of our study. Only in the case of Africa is the variable almost robust (i.e. all the coefficients of the determinants have the expected positive sign but are not 95% statistically significant). In that case, when we regress FDI/GDP and KF/GDP all the coefficients of GDP per capita are positive but not significant.

b)- Trade Openness

We tested the same two measures of trade openness, *tinten1* and *tinten2* as in Gijón-Spalla (2004b) in our 8 sub-samples. None of the trade openness measures are significant in the three alternative specifications, except in the African region. In three other samples (i.e. Asia, Latin America, Top 15 recipient countries) EBA tests produce "almost" robust results (i.e. all the coefficients of the determinants have the expected positive sign but are not 95% statistically significant). The table 2 below presents the results of EBA for Africa and shows that trade openness is robust determinant across countries in Africa for FDI/GDP and KF/GDP.

159

Table 4.2. Africa: the Only Region with Robust EBA Results for Trade Openness

Africa	FDI/GDP		KF to GDP	
Tested variable	High bound (*)	Low bound (*)	High bound (*)	Low bound (*)
(X+M)/GDP *(tintent1)*	0.0867 (8.43)	0.0058 (3.02)	0.0861 (8.28)	0.0007 (2.52)
Trade Residual *(tinten2)*	0.1016 (7.49)	0.0118 (2.68)	0.1087 (7.16)	0.0066 (1.96)

(*) Corresponding t-value for the coefficient in parenthesis

Therefore, the results of the EBA for trade openness in our 8 sub-samples differ with respect to those in Gijón-Spalla (2004b) where both trade openness measures are significant for the 80-country sample. The differences in the results can be attributed to the differences in the sample structure, since in Gijón-Spalla (2004b) the sample compares 80 different countries from all the existing developing regions.

In contrast, in the case of the regional samples we compare countries that are structurally similar and trade openness may not play a relevant role to explain the difference in FDI across the countries in that region. For example, the Asian and Latin American samples consist of countries with similar levels of trade openness, which reduce the capability of trade openness to play a significant role to explain the differences in FDI. Conversely, Africa is the largest sample and contains very different countries ranging from industrialized and resource-rich South Africa to non-industrialized and resource-scarce Mali. Therefore, the differences in trade openness have a greater possibility to explain the differences in the level of FDI.

160

Despite the lack of robust EBA results for trade openness, and based on our decision rule explained in the introductory paragraphs of this section, we shall keep trade openness, as the y variable for the EBA on the doubtful variables, x.

4.4.2) x-Variables Analysis

In this section we examine the robustness of the more "dubious" FDI determinants. In other words, those determinants that have been occasionally been important for the empirical research but that have failed to present consistent results. In our regional analysis, we include in this class of determinants: political risk, agglomeration effects, duties, human capital and returns of FDI[80]. For this group of variables we will use, two alternative fixed variables, the trade variable openness *tinten1* and *tinten2* for the reasons presented in the previous section.

In Annex IX we present a correlation matrix of the x variables for our 8 sub-samples. The correlation tables show that the two variables obtained from the same ICRG political risk index, political stability and governance quality, are highly correlated at around 75%. Thus, we make some adjustments to avoid possible multicollinearity problems and in every political variable test –i.e. political risk index, governance and political stability- we exclude the other similar variables[81].

---

[80] Trade openness is not included since we test its EBA robustness in section 4.3.2, however trade openness remains in the specifications as the fixed variable y.

[81] See section 3.1 for a longer explanation

161

For example, in the test of governance quality, we do not include the global

political risk or the political stability indexes. Since in this section we run a very large

number of sensitivity analyses –around 336[82], we present the data differently from Gijón-

Spalla (2004b). Instead of presenting all the EBA tests we only present the most relevant

ones or that that are robust and "near" robust results[83]. Furthermore, these results are

presented by regional sample to facilitate the regional comparisons. Table 3 below

summarizes the main findings that are further developed in the next sections.

Table 4.3. Robust Regional FDI Determinants Based on EBA

	Africa	Asia	Latin America	EECA	Top recipients
Agglomeration	Robust	--	--	--	Robust
Governance	--	Robust	Robust	--	Robust
Average Political Risk	--	Robust	Robust	--	Robust
Stability	--	Robust	--	Robust	
Returns	--	--	--	Robust	

a)- Africa

The African sample is the largest sample of this study with 26 countries and 234

observations (see Annex I for a list of countries). In the previous section, we saw that

---

[82] We run an EBA for every of the 7 x variables, for each of the 3 selected exogenous variables, FDI/GDP, FDI/KF and KF/GDP, for 2 y variables, *tinten1* and *tinten2* in our 8 samples, thus the total number of EBA is 7*3*2*8=336

[83] Near robust results are those EBA test that fail for a few specifications between 5 and 20 specifications and whose failed coefficient have a statistical significance equal or greater to 90%.

Near robust results are included because empirical research shows that EBA can be too strict in terms of identifying the significant x variables (Sala-i-Martin, 1997). Therefore, we include the near-robust results under the presumption that some significant determinants can fail the EBA.

162

Africa was the only region where trade openness was a relevant FDI determinant and

conclude that this factor is relevant for FDI across African countries.

In this section, the only other relevant determinant is agglomeration effects. The

data in tables 4 and 5 show that agglomeration is not as significant for FDI than for total

KF, since the relationship between FDI/GDP and trade openness is only robust for the

EBA with the trade residual (see first part of table 5). Nevertheless Tables 4 and 5

suggest that agglomeration also plays an important role for the determination of FDI

flows across African countries.

Table 4.4. EBA Results for Africa with (X+M)/GDP

Dependent: KF to GDP, Fixed: (X+M)/GDP					
x-variable			t-value	z-variables	Robustness
Agglomeration	High bound	0.0008	4.92	gdpppenn, budget, pdbt, polrk	**Yes**
(aggl)	Low bound	<0.0001	2.1	Infl, duty, lforce, polrk	

Table 4.5. EBA Results for Africa with Trade Residual

	Dependent: FDI to GDP, Fixed: Residual trade				
x-variable			t-value	z-variables	Robustness
Agglomeration	High bound	0.0006	3.82	gdppenn, budget, infl, lforce	**Yes***
(aggl)	Low bound	>-0.0001	1.78	duty, pdbt, lforce, polrk	
	Dependent: KF to GDP, Fixed Residual trade				
x-variable			t-value	z-variables	Robustness
Agglomeration	High bound	0.0008	4.89	gdppenn, budget, infl, lforce	**Yes**
(aggl)	Low bound	0.0001	2.81	duty, pdbt, lforce, polrk	

* Test fails 4 times

The lack of significance of other determinants such as political risk related determinants is also a relevant point of the EBA in the African region. It seems plausible that the lack of significance of political variables is due to the importance of political risk in the region. In other words, political risk is high in almost all African countries[84], therefore a foreign direct investor already discounts this factor when they decide to invest in the region and make their within region investment decisions based on other factors such as agglomeration effects.

b)- Asia

The sample of Asian countries includes some of the most important FDI recipients in the developing world, such as China, Malaysia, Thailand or India. For this

---

[84] For example, ICGR political risk index locates Africa at the bottom of its political risk rankings, the average percentile of African countries is 31% the lowest of the regions in this study.

164

reason we constructed two samples of Asian countries. The first sample contains 13

Asian countries from the original 80-country sample used in Gijón-Spalla (2004b). The

second one is a 7-country sample that contains the largest recipients of FDI in the

region[85]. In this section, we only present the EBA results for the first sample, which are

sufficient to explain the findings for both samples. The results are displayed in tables 6

and 7.

Tables 6 and 7 show that the only significant FDI determinants among Asian

countries are political related variables, i.e. governance, average political risk, and

political stability. Two of the three variables are significant with the two *y* fixed variables,

tinten1 and *tinten2*, whereas the third one, governance is only significant for *tinten2*.

---

[85] A complete list of Asian countries is displayed in Annex I. The Asian 7 top recipients countries are China, Malaysia, India, Indonesia, Philippines, Thailand and Vietnam.

Table 4.6. EBA Results for Asia with (X+M)/GDP

			t-value	z-variables	Robustness
	Dependent: FDI to GDP, Fixed: (X+M)/GDP				
x-variable			t-value	z-variables	Robustness
Political risk	High bound	0.0023	5.05	duty, pdbt, aggl, return	**Yes**
(polrk)	Low bound	0.0016	2.07	budget, hk, lforce, return	
Stability	High bound	0.0024	7.57	gdppenn, duty, pdbt, aggl	**Yes**
(stab)	Low bound	0.0008	4.5	gdppenn, budget, hk, lforce	
	Dependent: FDI to GDP, Fixed: (X+M)/GDP				
x-variable			t-value	z-variables	Robustness
Political risk	High bound	0.0035	4.98	duty, pdbt, aggl, return	**Yes**
(polrk)	Low bound	0.0001	2.11	budget, hk, lforce, return	
Stability	High bound	0.0034	5.75	gdppenn, duty, pdbt, aggl	**Yes**
(stab)	Low bound	0.0002	2.35	gdppenn, budget, hk, lforce	

166

Table 4.7. EBA Results for Asia with Trade Residual

			t-value	z-variables	Robustness
	Dependent: FDI to GDP, Fixed: Trade residual				
x-variable			t-value	z-variables	Robustness
Governance	High bound	0.0022	5.9	duty, pdbt, lforce, return	**Yes**
(gov)	Low bound	0.0018	2.93	gdppenn, budget, infl, hk	
Political risk	High bound	0.0024	6.89	duty, pdbt, lforce, return	**Yes**
(polrk)	Low bound	0.0007	3.85	gdppenn, budget, infl, hk	
Stability	High bound	0.0022	7.88	infl, duty, pdbt, hk	**Yes**
(stab)	Low bound	0.0011	5.9	gdppenn, infl, hk, lforce	
	Dependent: KF to GDP, Fixed: Trade residual				
x-variable			t-value	z-variables	Robustness
Governance	High bound	0.0361	5.7	duty, pdbt, lforce, aggl	**Yes**
(gov)	Low bound	0.0002	2.4	gdppenn, budget, infl, hk	
Political risk	High bound	0.0039	6.28	duty, pdbt, lforce, aggl	**Yes**
(polrk)	Low bound	0.0006	2.89	gdppenn, budget, infl, hk	
Stability	High bound	0.0033	6.3	infl, duty, pdbt, aggl	**Yes**
(stab)	Low bound	0.0008	3.56	gdppenn, budget, infl, lforce	

The results of the second Asian sample (i.e. Asian Advanced) are slightly different: the only determinant that remains significant is political stability, whereas governance and political risk are no longer significant. This result is not surprising as the majority of the countries in the second Asian sample is in the top developing-country

167

group in terms of governance.[86].The same applies to other non-robust variables such as

agglomeration, where this group of countries ranks at the top of the agglomeration

measure, telephone per employee.

c)- Latin America

Like in the Asian case, Latin America has some of the most important FDI

recipient countries in the developing world (e.g. Argentina, Brazil, Chile and Mexico).

The results of the EBA are presented in tables 8 and 9 (see Annex I for a country list).

The results show, like in the cross-country analysis in Asia, that political risk related

variables are also the only significant ones for FDI across the region. However, the

relevance of those variables is somehow reversed: across Asian countries, governance

was not significant, and political stability and average risk mattered, whereas across Latin

American countries governance and average political risk are significant, but not political

stability[87]. In addition, tables 8 and 9 show that the results are more robust for KF/GDP

than for FDI/GDP. The results for KF/GDP are significant with the two trade openness

specifications, while for FDI/GDP they are only significant with only one, *tinten2*.

---

[86] Based on the 80-country developing sample from Gijón-Spalla (2004b), these countries are around the top 75% percentile in terms of governance. Indonesia and Vietnam are the only two countries in the top 40% percentile.

[87] Latin America is in the average top 67% percentile in political stability and in the average top 50% percentile in governance whereas Asia is respectively in the average top 58% and average top 69%.

Table 4.8. EBA Results for Latin America with (X+M)/GDP

	Dependent: KF to GDP, Fixed: (X+M)/GDP				
x-variable			t-value	z-variables	Robustness
Governance	High bound	0.0020	4.55	duty, pdbt, lforce, return	Yes
(gov)	Low bound	0.0002	2.56	budget, infl, hk, aggl	
Political risk	High bound	0.0021	4.18	budget, pdbt, lforce, return	Yes
(polrk)	Low bound	0.0001	2.2	infl, duty, lforce, aggl	

Table 4.9. EBA results for Latin America with trade residual

	Dependent: FDI to GDP, Fixed: Trade Residual				
x-variable			t-value	z-variables	Robustness
Governance	High bound	0.0018	4.6	gdppenn, budget, pdbt, return	Yes*
(gov)	Low bound	>-0.0001	1.81	infl, hk, lforce, aggl	
Political risk	High bound	0.0019	4.2	gdppenn, budget, pdbt, return	Yes**
(polrk)	Low bound	>-0.0002	1.42	infl, hk, lforce, aggl	
	Dependent: KF to GDP, Fixed: Trade Residual				
x-variable			t-value	z-variables	Robustness
Governance	High bound	0.0023	5.21	gdppenn, duty, pdbt, return	Yes
(gov)	Low bound	0.0001	2.86	infl, hk, lforce, aggl	
Political risk	High bound	0.0024	4.71	gdppenn, duty, pdbt, return	Yes
(polrk)	Low bound	0.0001	2.46	infl, hk, lforce, aggl	

*Fails EBA only 4 times
**Test fails 10 times

169

Therefore, for investors who consider an investment across Latin American countries, governance is likely to be a key determinant. Political stability is not significant since all of the countries of the region are democracies and have quite stable political regimes with the exception of Colombia, Bolivia and some Central American countries[88]. Hence, political stability is no longer such an important factor for foreign investors in Latin America, but governance is.

d)- EECA

The EECA region sample contains the former soviet economies from Eastern Europe and Central Asia. We create two samples for EECA in order to explore for the differences in private capital flows across countries in each sample. The first sample includes 14 countries from the region, while the second one only includes those 10 countries that have joined or are in the process of joining the European Union[89]. This second group of countries has also received the largest amounts of foreign investment in the region. In tables 10 and 11, we present only the results for the first sample since the differences in the two cross-country samples can be explained without displaying additional data.

There are two significant results for the determination of foreign capital flows across EECA countries: the first one is the significance of FDI returns for FDI/GDP and

---

[88] We do not include Venezuela because the data cover up 2000 when the political situation was better than in the present.
[89] A complete list of EECA countries is displayed in Annex I. The EU accession countries are Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia.

170

KF/GDP. Returns are significant for KF/GDP with both trade openness variables, and not significant for FDI/ GDP. However, in the latter case, all the coefficients are positive and nearly 90% significant. The second relevant result is the significance of political stability for FDI/KF. The negative coefficient of the relationships implies that low political stability makes the share of FDI to KF grow. In other words, FDI becomes a more frequent source of foreign capital across EECA when political stability grows. This last result is similar to one of the major findings of Hausmann and Fernandez-Arias (2000), who find that FDI grows as a source of foreign private capital with higher political variables such as average political risk, governance and political stability.

Table 4.10. EBA Results for EECA with (X+M)/GDP

Dependent: FDI to GDP, Fixed: (X+M)/GDP					
X variable			t-value	*z* variables	Robustness
FDI returns	High bound	0.4149	3.6	gdppenn, duty, pdbt, lforce	**Yes***
(return)	Low bound	-0.0375	1.47	budget, duty, hk, polrk	
Dependent: KF to GDP, Fixed: (X+M)/GDP					
X variable			t-value	*z* variables	Robustness
FDI returns	High bound	0.6281	4.09	gdppenn, duty, pdbt, lforce	**Yes**
(return)	Low bound	-0.0001	1.96	budget, duty, hk, polrk	
Dependent: FDI to KF, Fixed: (X+M)/GDP					
X variable			t-value	*z* variables	Robustness
Stability	High bound	-0.0039	-3.22	infl, hk, lforce, aggl	**Yes**
(return)	Low bound	-0.0241	-6.46	gdpenn, pdbt, lforce, return	

***Test fails times 20 times but coefficient remain with the same (positive) sign

171

Table 4.11. EBA Results for EECA with Trade Residual

	Dependent: FDI to GDP, Fixed: Trade Residual				
X variable			t-value	z variables	Robustness
FDI returns *(return)*	High bound	0.4350	3.93	gdppenn, duty, pdbt, lforce	**Yes***
	Low bound	-0.0384	1.46	budget, duty, hk, polrk	
	Dependent: KF to GDP, Fixed: Trade Residual				
X variable			t-value	z variables	Robustness
FDI returns *(return)*	High bound	0.6774	4.51	gdppenn, duty, pdbt, lforce	**Yes**
	Low bound	0.0138	1.98	budget, duty, hk, polrk	
	Dependent: FDI to KF, Fixed: (X+M)/GDP				
X variable			t-value	z variables	Robustness
Stability *(stab)*	High bound	-0.00371	-3.15	budget, duty, pdbt, lforce	**Yes**
	Low bound	-0.01993	-6.36	infl, hk, lforce, aggl	

***Test fails more than 20 times but coefficients remain with the same (positive) sign*

The EBA results of the EU accession countries yield with more significant results. In this case, FDI returns are significant for KF/GDP and FDI/GDP, and political stability for FDI/KF.

These two samples are the only cases where the returns on FDI determinant are significant for the FDI and KF flowing across a developing region. This result suggests that foreign investment decision across EECA countries are taken in terms of profitability without any other special factors being taken into consideration, such as political risk[90].

---

[90] EECA countries have the highest rankings in political stability, governance, and the lowest average political risk of all developing countries.

172

In turn, the political stability determinant affects the type of foreign direct investment. Thus, it could explain the findings in the analysis of the stylized facts (Gijón-Spalla, 2004a), where EECA has become -in relative terms- the largest recipient of private capital flows among developing countries. In other words investors are attracted by high investment returns and pay less attention to other factors that seem to affect investment decisions in developing countries such as the level of political stability and governance.

e)- Top Recipients

The last group of samples in this study includes the top FDI recipients. Like for EECA and Asia, we have created two different samples: one including the top 15 recipients and another with the top 10 recipients. Like in the previous section, the results of the first sample are sufficient to explain the main findings in this section. Tables 12 and 13 display the most relevant EBA results for the top 15 recipients –see Annex I for a country list.

The EBA results show that agglomeration is a robust determinant for FDI/GDP with the two trade openness specifications, whereas governance and average political risk are only robust with the trade residual, but are almost robust for (X+M)/GDP. On the other hand, governance and average political risk are the only two significant determinants for the top 15 recipients.

173

Table 4.12. EBA Results for the Top 15 Recipients with (X+M)/GDP

			Dependent: FDI to GDP, Fixed: (X+M)/GDP		
x variable			t-value	z variables	Robustness
Agglomeration	High bound	0.0002	5.82	budget, hk, lforce, return	**Yes**
(aggl)	Low bound	0.00003	3.01	budget, infl, duty, pdbt	
			Dependent: KF to GDP, Fixed: (X+M)/GDP		
x variable			t-value	Z variables	Robustness
Governance	High bound	0.0017	4.11	duty, hk, lforce, aggl	**Yes**
(gov)	Low bound	0.0001	2.46	gdppenn, budget, infl, pdbt	
Political risk	High bound	0.0019	4.06	duty, hk, lforce, aggl	**Yes**
(polrk)	Low bound	0.0002	2.48	gdppenn, budget, infl, lforce	

174

Table 4.13. EBA Results for the Top 15 Recipients with Trade Residual

			t-value	z variables	Robustness
	Dependent: FDI to GDP, Fixed: Trade Residual				
x variable			t-value	z variables	Robustness
Governance	High bound	0.0012	5.06	pdbt, hk, lforce, aggl	**Yes**
(gov)	Low bound	0.00004	2.19	gdppenn, budget, infl, lforce	
Agglomeration	High bound	0.0002	5.05	duty, pdbt, polrk, return	**Yes**
(aggl)	Low bound	0.0001	2.26	budget, infl, duty, lforce	
Political risk	High bound	0.0013	5.07	pdbt, hk, lforce, aggl	**Yes**
(polrk)	Low bound	0.00003	2.12	gdppenn, infl, hk, lforce	
	Dependent: KF to GDP, Fixed: Trade Residual				
x variable			t-value	z variables	Robustness
Governance	High bound	0.0020	6.31	duty, hk, lforce, aggl	**Yes**
(gov)	Low bound	0.0004	3.35	gdppenn, budget, infl, hk	
Political risk	High bound	0.0023	6.3	duty, hk, lforce, aggl	**Yes**
(polrk)	Low bound	0.0004	3.25	gdppenn, budget, infl, lforce	

These results confirm the importance of governance for foreign investors in developing countries since foreign investment decisions to the first 15 recipient countries, who receive around 90% of the private capital flows in the developing world, are dependent on this factor. This finding coincides with other empirical work that underlines the importance of governance related issue for foreign investors (World Bank, 2001, World Bank, 2002 and World Bank, 2003). In addition the robustness of the agglomeration determinant supports the hypothesis of the growth of vertical FDI in developing countries (Dunning, 1998).

175

The EBA for the top 10 recipients differ from those of the top 15 since there are no robust determinants for any of the 3 exogenous variables, FDI/GDP, KF/GDP and FDI/KF. These results present some puzzling evidence. For instance, we expected the insignificance of political risk variables, since 8 of the top 10 recipients are in the top 80% percentile for political variables, suggesting that foreign investors do not consider political risk a key variable for investment among the top 10 FDI destinations. Furthermore, we did not expect the lack of robustness of other variables such as agglomeration or return. For example, we expected that agglomeration was a robust determinant of FDI, confirming Dunning (1998)'s findings on the growth of vertical FDI in developing countries. These results suggest the necessity to carry out a cross regional analysis to identify further characteristics of FDI determinants in developing countries. The next section concentrates on cross-regional FDI determinants differences.

V. EBA RESULTS FOR FDI DETERMINANTS ACROSS REGIONS:

5.1. Sample and Adjustments:

5.1.1. Sample

In this second analysis, we use the 80-country sample from Gijón-Spalla (2004b), in order to control differences in FDI determinants across regions. The results of this

second analysis also contribute to explain regional differences outlined in the stylized

facts of FDI flows presented in Gijón-Spalla (2004a).

5.1.2. Adjustments

In order to capture the regional differences in FDI determinants, in this part we

introduce several adjustments to the EBA tests carried out in Gijón-Spalla (2004b) and

section IV above. First, we define 7 different dummy regional (i.e. Africa, Asia, ECCA,

EECA EU accession, Latin America, Top 10 and Top 15 recipients)[91] variables as:

$$D_i \begin{cases} 1: \text{the country belongs to the region into consideration} \\ \\ 0: \text{otherwise} \end{cases}$$

Second, we interact each regional dummy with the five most "relevant robust"

variables in Gijón-Spalla (2004b) and section IV above (i.e. trade intensity, governance,

agglomeration, political stability, returns)[92]. Finally, we carry out an EBA for every

interacted term. Since we have 7 regional dummies and 5 x variables, we perform 35

EBA for each dependent variable. For example, in the case of Africa, we interact the

African dummy with trade intensity, governance, agglomeration, political stability and

return and we execute an EBA for each of the five interacted terms, where the doubtful x

---

[91] Unlike section IV, we do not consider the analysis of Asia advanced countries and we do not create a dummy variable for this group of countries.

[92] By "most relevance we mean those which are (i) robust in all type of specifications like trade openness, governance political stability and agglomeration and (ii) those robust in some specifications that support Hausmann and Hernandez-Arias (2000), like returns of FDI –see section 4.3 on the EBA results for EECA for further explanations.

177

variable is the interacted term. The EBA result tells whether the difference between the African region interacted term, and the benchmark group (i.e. the non-African countries) is robust.

In addition to the new adjustments to control for regional differences, we maintain the same adjustments as in for inflation and capital flows values as Gijón-Spalla (2004b) and in section IV above. We also include the same 11 independent variables but we make some changes to carry out these specific cross regional EBA tests (see the section 5.2.2).

5.2.The Selection of Variables

5.2.1. Exogenous Variables

Given that objective of this paper is to complete the EBA on the determinants of FDI in developing countries presented in Gijón-Spalla (2004b), we use three measures of dependent variable - FDI to GDP, FDI to KF and KF to GDP, as in Gijón-Spalla (2004b) and section IV above –see section 4.2.2 for a detailed explanation.

178

5.2.2. Exogenous Variables for EBA Across Regions in an 80-Country Sample:

a)- Main Independent Variables:

We use independent 12 variables: 11 are the same as in Gijón-Spalla (2004b) and section IV, plus the interactive term introduced to control for the regional differences. Given that we define seven different regions in our sample (i.e. Africa, Asia, ECCA, EECA accession, Latin America, Top 10 and Top 15 recipients), and we interact each regional dummy with the five relevant robust coefficients (i.e. trade intensity, governance, agglomeration, political stability, returns), we obtain 35 interactive terms.

Furthermore, we apply following rules to select the fixed variable(s), y, and the doubtful variable, x. First, we use only one fixed variable, y, trade openness residual or *tinten2* from Gijón-Spalla (2004b), the y variable that provides the most robust EBA results in Gijón-Spalla (2004b). We discard other possible candidates such as *tinten1* or *gdppenn* due to their lesser performance in EBA in Gijón-Spalla (2004b). Second, for any EBA test with an interactive variable, we consider the independent variable that has been interacted with a regional dummy an additional fixed variable, y[93]. For example, governance will be fixed for all tests involving the interaction of regional dummy with governance. Finally, the doubtful variable, x, tested in each EBA will be the corresponding interactive term. Table 14 illustrates the y and x variables, and the

---

[93] The use of more than one fixed variable is supported by (Leamer, 1983, Leamer 1985, Levine and Renelt, 1992, and Sala-i-Martin, 1997)

179

interaction term in each EBA and the four regional dummies.

Table 4.14. y-and x-Variables to Test Regional Determinants

	Original y-variable	Additional y-variable	x-variable
Trade openness	Trade openness *(tinten2)*	--	Dummy x tinten2 *(Dtinten2)*
Governance	Trade openness *(tinten2)*	Governance *(gov)*	Dummy x gov *(Dgov)*
Political Stability	Trade openness *(tinten2)*	Political stability *(stab)*	Dummy x stab *(Dstab)*
Agglomeration	Trade openness *(tinten2)*	Agglomeration *(aggl)*	Dummy x aggl *(Daggl)*
Returns on FDI	Trade openness *(tinten2)*	Returns on FDI *(return)*	Dummy x return *(Dreturn)*

5.3. Model Specification

We run EBA with three different dependent variables, with the following

functional forms: $\varpi = \beta_y y + \beta_x Dx + \beta_z z$ [94], where ϖ equal to *FDI/GDP, FDI/KF* or

KF/GDP; y equal to *tintent2* and, depending on the EBA, *gov, aggl, return or stab*; *Dx*,

the interactive term, is alternatively equal to *Dintent2, Dgov, Dstab, Daggl, Dreturn* ; and

z *gov, aggl, **budget, duty**, infl, hk, lforce, pdebt, polrk*[95], *return, stab*. Moreover, like in

Gijón-Spalla (2004b) and section IV above, the EBA is specified to avoid the inclusion of

the same variables in the x and z sets. Consequently, we run 105 EBA tests and generate

around 52,920 regressions (see Annex II section b for further explanations).

---

[94] Therefore we specify a model with a common intercept but we allow the slope to change due to regional factors.

[95] The z variables in bold style indicates that these variables are exclusively in the z category

5.4. Empirical Results

In this section, we present the most relevant results of the EBA on the interactive variables. The results are displayed by region and are not divided into y and x variables as in Gijón-Spalla (2004b) and section IV above, since none of the interactive variables is tested to determine whether it should considered a fixed variable y.

In every region, we compare the region with respect to the rest of the 80 developing country-sample. In other words, the benchmark group that gets "0" value in the interacted term is the one that consists of countries that do not belong to the region into consideration. Therefore, in every EBA, we compare African countries with non-African, Asian with non-Asian, EECA with non-EECA, the Top 15 recipients with the non-Top 15, and so forth.

5.4.1. Africa

None of the EBA tests with an interactive variable based on African region dummy is robust. Therefore we cannot find any FDI African determinant significantly different from any average coefficient.

181

5.4.2. Asia:

We find that EBA results are robust for 6 interactive variables involving an Asian

dummy (i.e. Asia), suggesting that Asian countries have distinct regional characteristics

with respect to other developing countries. Tables 15 to 18 show the robust results of the

interactive Asian variables.

Table 4.15. EBA Results for the Interaction of Asia and Trade Intensity

	Dependent: FDI to GDP, Fixed: Trade Residual			
x-variable		t-value	z-variables	Robustness
Asia X tinten2	High bound -0.0088	-2.71	duty, pbdbt, lforce, aggl	**Yes**
(Dinten2)	Low bound -0.0986	-5.48	gdppenn, budget, infl, pbdbt	
	Dependent: KF to GDP, Fixed: Trade Residual			
x-variable		t-value	z-variables	Robustness
Asia X tinten2	High bound -0.0077	-2.47	budget, infl, pbdbt, aggl	**Yes**
(Dinten2)	Low bound -0.1145	-5.48	Budget, infl, lforce, returns	

Table 15 suggests that the marginal effect of trade openness on FDI/GDP and

KF/GDP is less for Asia than for the other developing countries. In other words, greater

trade openness makes decreases FDI/GDP and KF/ GDP in Asia. This finding seems to

undermine the idea that Asia economies have attracted more FDI due to open trade

regime (Jun and Singh, 1995).

182

Table 4.16. EBA Results for the Interaction of Asia and Return

	Dependent: FDI to KF, Fixed: Trade Residual and Return				
x-variable			t-value	z-variables	Robustness
Asia X return	High bound	-0.5719	-2.94	gdppenn, duty, polrk	**Yes**
(Dreturn)	Low bound	-3.4154	-4.19	infl, pbdbt, lforce	
	Dependent: KF to GDP, Fixed: Trade Residual and Return				
x-variable			t-value	z-variables	Robustness
Asia X return	High bound	-0.00003	1.99	budget, infl, return	**Yes(*)**
(Dreturn)	Low bound	0.3078	3.84	duty, hk, lforce	

(*)Fails EBA one time

Table 16 suggests two different effects. First the negative and significant relationship between *Dreturn* and FDI/KF, suggests that a fall in returns on FDI makes the share of FDI to KF grow. In addition, the positive and significant relationship between *Dreturn* and KF/GDP implies that greater returns on FDI increase the amount of private capital flows. Therefore, in Asia is seems that greater returns bring more capital flows but since ratio of FDI/KF is inverse related to returns, it seems that greater returns bring more non-FDI capital flows and less FDI.

Table 4.17. EBA results for the Interaction of Asia and Governance

	Dependent: FDI to KF, Fixed: Trade Residual and Governance				
x-variable			t-value	z-variables	Robustness
Asia X governance	High bound	-0.0009	-3.02	gdppenn, duty, aggl	**Yes**
(Dgov)	Low bound	-0.0057	-4.83	pbdbt, hk, returns	

Table 17 presents a negative relationship between the interactive variable *Dgov* and FDI/GDP and suggests that, in Asia, a fall in governance increases the share of FDI

in capital flows. This finding seems to imply that lower levels of governance favors FDI

with respect to other types of private capital flows.

Table 4.18. EBA Results for the Interaction of Asia and Agglomeration

	Dependent: FDI to KF, Fixed: Trade Residual and Agglomeration				
x-variable			t-value	*z*-variables	Robustness
Asia X return *(Daggl)*	High bound	-0.0004	-2.67	gdppenn, duty, return pbdbt, hk, polrk	**Yes**
	Low bound	-0.0034	-4.3		

In Table 18 there is a negative and robust relationship between *Daggl* and FDI/KF. This relationship suggests that more agglomeration reduces the share of FDI in private capital flows in Asia.

5.4.3. EECA

We find that the EBA results are robust in two cases when we use the EECA interaction term, and four when we use the EECA accession one (i.e. EECAEU). In Tables 19 and 20, we display the results of the region with more robust results, EECAEU. The two EECA robust results are also robust for EECAEU.

Table 19 below shows a robust and positive relationship between *Dreturn* and KF/GDP and suggests that greater returns increase the FDI/GDP and KF/GDP in EECAEU.

184

Table 4.19. EBA Results for the Interaction of EECA Accession and Return

			t-value	z-variables	Robustness
	Dependent: FDI to KF, Fixed: Trade Residual and Return				
x-variable			t-value	z-variables	Robustness
EECAEU X Return *(Dreturn)*	High bound	0.5208	4.22	budget, pbdbt, lforce	**Yes(*)**
	Low bound	-0.0139	1.89	gdppenn, infl, pbdbt	
	Dependent: KF to GDP, Fixed: Trade residual and Returtnn				
x-variable			t-value	z-variables	Robustness
EECAEU X return *(Dreturn)*	High bound	0.0003	5.88	budget, infl, lforce	**Yes**
	Low bound	<0.0001	5.69	infl, hk, return	

(*)Fails EBA one time, but significance >90%

Table 20 displays a positive and robust relationship between *Daggl* and KF/GDP

and suggests that more agglomeration increases the amount of KF in EECAEU –same

results for EECA. This relationship and the fact that the EBA for FDI/GDP narrowly fails

the EBA –results not shown- may indicate that private foreign investment in EECAEU

and EECA tends to be vertical investment.

Table 4.20. EBA Results for the Interaction of EECA Accession and Agglomeration

			t-value	z-variables	Robustness
	Dependent: KF to GDP, Fixed: Trade Residual and Agglomeration				
x-variable			t-value	z-variables	Robustness
EECAEU X Agglomeration *(Daggl)*	High bound	0.0003	5.88	duty, lforce, polrk	**Yes**
	Low bound	<0.0001	5.69	budget, infl, pbdbt	

185

5.4.4. Latin America

We find only one robust EBA between among the Latin American interaction terms. Table 21 shows a robust and positive relationship between agglomeration, *Daggl*, and FDI/KF. Therefore, more agglomeration increases the share of FDI in private capital flows in Latin America.

Table 4.21. EBA Results for the Interaction of Latin America and Governance

	Dependent: FDI to GDP, Fixed: Trade Residual and and Governance				
x-variable			t-value	*z*-variables	Robustness
Latin America X Agglomeration *(Daggl)*	High bound	0.0021	3.81	budget, infl, lforce	**Yes**
	Low bound	0.0002	2.38	pbdbt, hk, aggl	

5.4.5. Top recipients

For the interactive terms for the top recipients, we find four EBA robust results for the top 15 recipient countries and two for the top 10. In tables 22 and 23, we show the results for the top 15 recipient countries, which also explain the robust results for the top 10.

Table 22 presents two robust relationships between the interaction term with governance, *Dgov*, and, respectively, FDI/KF and KF/GDP. The first relation is negative and suggests that lower levels of governance increase the share of FDI in capital flows in

186

the top 15 recipient countries. Conversely, the second relationship is positive and

indicates that greater governance increases the amount of private capital in the top 15

recipients[96].

Table 4.22. EBA Results for the Interaction of The Top 15 Recipients and Governance

			t-value	z-variables	Robustness
	Dependent: FDI to KF, Fixed: Trade Residual and Governance				
x-variable			t-value	z-variables	Robustness
Top15 X Governance *(Dgov)*	High bound	-0.00008	-2.09	gdppenn, infl, lforce	**Yes**
	Low bound	-0.0045	-3.65	budget, hk, returns	
	Dependent: KF to GDP, Fixed: Trade Residual and Governance				
x-variable			t-value	z-variables	Robustness
Top15 X Governance *(Dgov)*	High bound	0.0005	4.67	budget, pbdbt, lforce	**Yes(**)**
	Low bound	>-0.0001	1.6	Gdppenn, aggl, return	

(**) Fails 10 times, significance <90% for Top15 but EBA is fully robust for Top 10

Table 23 displays the robust results between the interactive term on returns,

Dreturn, and FDI/KF and KF/GDP. There is a negative relationship with FDI/KF, which

suggests that in the top 15 recipients, fewer returns increase the share of FDI in KF.

Conversely, the positive relationship between *Dreturn* and KF/GDP indicates that higher

returns increase the amount of KF in the top 15 recipients[97].

---

[96] In the case of the top 10 recipient countries, the only robust and positive relationship is with KF/GDP
[97] See footnote 36.

187

Table 4.23. EBA Results for the Interaction of the Top 15 Recipients and Return

	Dependent: FDI to GDP, Fixed: Trade Residual and Return			
x-variable		t-value	z-variables	Robustness
Top15 X return	High bound -0.2185	-2.37	gdppenn, hk, polrk	**Yes**
(Dreturn)	Low bound -3.0063	-3.73	budget, infl, lforce	
	Dependent: KF to GDP, Fixed: Trade Residual and Return			
x-variable		t-value	z-variables	Robustness
Top15 X return	High bound 0.3736	5.39	budget, infl, lforce	**Yes**
(Dreturn)	Low bound 0.0231	2.48	gdppenn, budget, polrk	

VI. CONCLUSIONS

This paper explores the linkages between FDI and proposed locational socio-economic determinants across countries within a region and across developing regions. Like in Gijón-Spalla (2004b) we use the EBA technique (Leamer, 1983 and Leamer, 1985) to test the sensitivity of FDI determinants. The cross-country and cross-regional EBA results show that the three significant types of determinants, trade openness, political risk variables and agglomeration in Gijón-Spalla (2004b) also play an important role at the regional level. In addition, the cross-regional analysis shows that returns are also a robust determinant of FDI. In the next paragraphs we summarize our results by region.

In Africa, trade intensity and agglomeration are robust FDI determinants across African countries. We did not find that Africa as a region had any different relationships

188

with the main determinants than benchmark group (i.e. the rest of the developing countries).

In Asia we find that governance, average political risk and political stability are robust determinants for FDI across Asian countries. The cross-country EBA also show that political stability is more significant than governance. Moreover, The cross-regional EBA for Asia show that trade openness, governance, agglomeration and returns are significant determinants for FDI in Asia. The results show that trade openness is negatively related to FDI, and the share of FDI in capital flows grows with less governance, agglomeration and returns.

In Latin America, governance and political stability are robust determinants for FDI across Latin American countries, whereby agglomeration is a robust determinant for FDI in Latin America and with respect to other regions.

In EECA, political stability and returns are robust determinants in the cross-country EBA. In particular, the results show that share of FDI to KF among EECA countries grows with political instability. On other hand, the results for the cross-regional EBA for EECA show that agglomeration and returns are robust determinants for FDI in EECA, suggesting that flows grow with more agglomeration and returns.

Finally, the cross-country EBA results for the top 10 recipients are not robust, while among the top 15 agglomeration, governance and average political risk are robust

189

FDI determinants. In the cross-regional EBA, we find that for the top 15 recipients governance and returns are significant: the share of FDI to capital flows grows with less governance and agglomeration, whereby for the top 10 recipients, the only a positive and robust relationships are between KF/GDP and, respectively governance and agglomeration.

Therefore, this paper confirms two important points in this research project. First, it corroborates, like in Gijón-Spalla (2004b) the relevance of institutional and physical infrastructure for FDI in developing countries. Second, the EBA results support some of the findings of Hausmann and Fernandez-Arias (2000) by defining a robust relationship between the growth of FDI over capital flows with negative socio-economic events such as less governance, political stability or agglomeration.

190

Annex 1: Country-samples for EBA

Africa	Asia	EECA	Latin America	Top 10 recipients	Top 15 recipients
Angola	Bangladesh	Bulgaria	Argentina	Argentina	Argentina
Botswana	Cambodia	Croatia	Bolivia	Brazil	Brazil
Burkina	China	Czech Rep.	Brazil	Chile	Chile
Cameroon	India	Estonia	Chile	China	China
Congo, D.R.	Indonesia	Georgia	Colombia	Czech Rep.	Colombia
Congo Rep	Malaysia	Hungary	Costa Rica	Malaysia	Czech
Ivory Coast	Mongolia	Kazakhstan	Dominican	Mexico	Hungary
Ethiopia	Pakistan	Latvia	Ecuador	Poland	India
Gabon	Papua New	Lithuania	Jamaica	Thailand	Malaysia
Gambia	Philippines	Poland	Mexico	Venezuela	Mexico
Kenya	Sri Lanka	Romania	Nicaragua		Peru
Madagascar	Thailand	Russia	Panama		Poland
Malawi	Vietnam	Slovakia	Paraguay		Russia
Mali		Ukraine	Peru		Thailand
Mozambique			Trinidad		Venezuela
Niger			Uruguay		
Nigeria			Venezuela		
Senegal					
Sierra Leone					
South Africa					
Sudan					
Tanzania					
Togo					
Uganda					
Zambia					
Zimbabwe					

Note: MENA is not included since it is not included in this analysis

191

Annex 2: Regressions in the EBA for regional determinants of FDI

2a)- Cross-country regressions:

For the every EBA analysis we tested the significance of three possible y

variables: (i) GDP per capita in US$ at PPP (Purchasing Power Parity) exchange rates;

(ii) Gross trade Intensity or total export plus imports divided by GDP; (iii) Adjusted trade

intensity or the residual of the regression of gross trade intensity on the log of population,

log of land, GDP per capita and a dummy for natural resources. Since we have 11

explanatory variables, we fix one of the 3 potential fixed variables in 6-variable multiple

regressions, the combinatory with no repetition yields 252 models per analysis (i.e.

$10!/[5!*5!] = 252$).

Next, once we find a fix variable we carry the EBA for the 7 testable variables x:

administrative risk *(gov)*; political stability *(stab)*; aggregate political risk *(polrk)*;

agglomeration effects *(aggl)*; Duties *(duty)*; human capital *(hk)*; and returns of FDI

(returns). Since we have 11 explanatory variables, and we have 1 y and 1 x variable that

remain fixed in each EBA test for the 6 testable variables, the combinatory with no

repetition in a 6 variables multiple regression yields 126 models per analysis (i.e.

$9!/[4!*5!] = 126$). However since we carry out the test with two different sets of y

variables (i.e. gross trade intensity and adjusted trade intensity), we run 126*2 =252

regressions

192

For each region we carry out the EBA with 3 different endogenous variables (i.e. FDI to GDP; FDI to KF; and KF to GDP), thus each EBA is performed 3 times. Then the total amount of models generated for each region is:

252*3*3+252*3*7 = 7,560 regressions per sample region

Given that we have 6 regional samples and 2 regional sub-samples, the total amount of regressions generated in this paper is 7,560*6 = 60,480 regressions. Furthermore, we run each regression at least 4 times to check for mistakes. Therefore the total amount of regressions run for this paper is 60,480*4=241,920 regressions.

2b)-Cross regional regressions

For the every region we carry out 5 EBA for each of the 3 exogenous variables. The EBA with trade openness has only one y variable, one x variable, *Dintent2*, and 10 z variables. Since we have 12 explanatory variables, the combinatory with no repetition in a 6 variables multiple regression and 3 non-iterative variables (i.e. *y* and *x*) yields 210 models per analysis. The other EBA has two *y* variables -*Dinten2*- and, *Dgov, Daggl, Dstab* or *Dreturn*, one x variable – *Dgov, Daggl, Dstab* or *Dreturn*- and 9 variables. Since we have 12 explanatory variables, the combinatory with no repetition in a 6 variables multiple regression and 3 non-iterative variables (i.e. 2 *y* and *x*) yields 84 models per analysis. Since we carry out the EBA with 3 different exogenous variables and in 7 samples we run

193

210*3*7+84*3*5*7= 13,230 regressions Furthermore, we run each regression at least 4 times to check for mistakes. Therefore the total amount of regressions run for this paper is 13,230*4=52,920 regressions.

Annex 3: Trade residual:

Annex 3A: Trade residual for Asia 13 countries

Sample: Bangladesh, Cambodia, China, India, Indonesia, Malaysia, Mongolia, Pakistan,

Papua New Guinee, Philippines, Sri Lanka, Thailand, Vietnam

Dependent Variable: TINTEN1
Method: Least Squares
Sample: 1 117
Included observations: 117
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.722909	0.302973	2.386049	0.0187
LNPOP	-0.166428	0.012270	-13.56374	0.0000
LNLAND	0.062834	0.014128	4.447551	0.0000
LNCGDP	0.340083	0.041411	8.212364	0.0000
NATRES	-0.242233	0.055138	-4.393181	0.0000

R-squared	0.739344	Mean dependent var	0.790456
Adjusted R-squared	0.730035	S.D. dependent var	0.453836
S.E. of regression	0.235805	Akaike info criterion	-0.009831
Sum squared resid	6.227629	Schwarz criterion	0.108211
Log likelihood	5.575120	F-statistic	79.42125

195

Sample: China, India, Indonesia, Malaysia, Philippines, Thailand, Vietnam

Dependent Variable: TINTEN1
Method: Least Squares
Sample: 1 63
Included observations: 63
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.312	0.871	7.244	1.136e-09
LNPOP	-0.546	0.081	-6.670	1.047e-08
LNLAND	0.323	0.074	4.328	6.008e-05
LNCGDP	0.056648	0.05390	1.05094	0.29764
NATRES	-0.2887	0.077734	-3.714	0.0004

R-squared	0.8112819	Mean dependent var		0.83984
Adjusted R-squared	0.7982	S.D. dependent var		0.52002
S.E. of regression	0.23356	Akaike info criterion		0.0053
Sum squared resid	3.164113	Schwarz criterion		0.175435
Log likelihood	4.83163	F-statistic		62.3331

196

Annex 3c: Trade residual for 26 African countries:

Sample: Angola, Botswana, Burkina Faso, Cameroon, Congo, D.R., Congo Rep, Ivory

Coast, Ethiopia, Gabon, Gambia, Kenya, Madagascar, Malawi, Mali, Mozambique,

Niger, Nigeria, Senegal, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Uganda,

Zambia Zimbabwe

Dependent Variable: TINTEN1
Method: Least Squares
Sample: 1 234
Included observations: 234
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.780546	0.342504	8.118289	0.0000
LNPOP	-0.103698	0.022755	-4.557110	0.0000
LNLAND	-0.046808	0.019406	-2.412076	0.0166
LNCGDP	0.020416	0.017593	1.160455	0.2471
NATRES	0.134704	0.035496	3.794937	0.0002

R-squared	0.330377	Mean dependent var	0.685184
Adjusted R-squared	0.318680	S.D. dependent var	0.317027
S.E. of regression	0.261681	Akaike info criterion	0.177751
Sum squared resid	15.68117	Schwarz criterion	0.251583
Log likelihood	-15.79691	F-statistic	28.24584

197

Annex 3d: Trade residual for 14 EECA countries

Sample: Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan,

Latvia, Lithuania, Poland, Romania, Russia, Slovakia, Ukraine

Dependent Variable: TINTEN1
Method: Least Squares
Sample: 1 126
Included observations: 126
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.443617	0.452416	3.190911	0.0018
LNPOP	-0.121430	0.105175	-1.154545	0.2506
LNLAND	0.007757	0.128160	0.060528	0.9518
LNCGDP	0.167790	0.044764	3.748362	0.0003
NATRES	-0.123764	0.374476	-0.330500	0.7416
R-squared	0.350604	Mean dependent var		0.854026
Adjusted R-squared	0.329136	S.D. dependent var		0.342909
S.E. of regression	0.280864	Akaike info criterion		0.336981
Sum squared resid	9.545033	Schwarz criterion		0.449532
Log likelihood	-16.22981	F-statistic		16.33174

198

Annex 3e: Trade residual for 10 EECA Accession countries

Sample: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland,

Romania, Slovakia

Dependent Variable: TINTEN1
Method: Least Squares
Sample: 1 90
Included observations: 90
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.718234	0.963702	3.858280	0.0002
LNPOP	0.051903	0.141601	0.366545	0.7149
LNLAND	-0.354276	0.179727	-1.971188	0.0520
LNCGDP	0.056092	0.123863	0.452854	0.6518
NATRES	-0.062267	0.085059	-0.732046	0.4662

R-squared	0.355964	Mean dependent var	0.945873
Adjusted R-squared	0.325656	S.D. dependent var	0.337075
S.E. of regression	0.276801	Akaike info criterion	0.322914
Sum squared resid	6.512578	Schwarz criterion	0.461792
Log likelihood	-9.531126	F-statistic	11.74505

199

Annex 3f: Trade residual for 17 Latin American countries

Sample: _Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Rep.,_

Ecuador, Jamaica, México, Nicaragua, Panama, Paraguay, Peru, Trinidad, Uruguay,

Venezuela

Dependent Variable: TINTEN1
Method: Least Squares
Sample: 1 153
Included observations: 153
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.956111	0.417414	9.477673	0.0000
LNPOP	-0.062238	0.043259	-1.438746	0.1523
LNLAND	-0.119322	0.021541	-5.539191	0.0000
LNCGDP	-0.089156	0.032662	-2.729660	0.0071
NATRES	-0.159992	0.050078	-3.194890	0.0017
R-squared	0.532673	Mean dependent var		0.687794
Adjusted R-squared	0.520042	S.D. dependent var		0.427257
S.E. of regression	0.295999	Akaike info criterion		0.435212
Sum squared resid	12.96708	Schwarz criterion		0.534246
Log likelihood	-28.29375	F-statistic		42.17363

200

Annex 3g: Trade residual for the Top 10 FDI recipients

Sample: Argentina, Brazil, Chile, China, Czech Republic, Malaysia, Mexico, Poland,

Thailand, Venezuela

Dependent Variable: TINTEN1
Method: Least Squares
Sample: 1 90
Included observations: 90
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.96158	4.148161	2.883587	0.0050
LNPOP	-0.362128	0.212616	-1.703202	0.0922
LNLAND	-0.053429	0.111276	-0.480144	0.6324
LNCGDP	-0.491355	0.222022	-2.213094	0.0296
NATRES	-0.575910	0.225605	-2.552733	0.0125

R-squared	0.499379	Mean dependent var	0.690372
Adjusted R-squared	0.475820	S.D. dependent var	0.503519
S.E. of regression	0.364549	Akaike info criterion	0.873644
Sum squared resid	11.29619	Schwarz criterion	1.012522
Log likelihood	-34.31396	F-statistic	21.19726

201

Sample: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Hungary, India,

Malaysia, Mexico, Peru, Poland, Russia, Thailand, Venezuela

Dependent Variable:
TINTEN1
Method: Least Squares
Sample: 1 135
Included observations: 135

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.413829	1.388597	-1.018171	0.3105
LNPOP	0.228282	0.070269	3.248684	0.0015
LNLAND	-0.298583	0.045097	-6.620943	0.0000
LNCGDP	0.262872	0.082484	3.186961	0.0018
NATRES	0.170638	0.094772	1.800505	0.0741

R-squared	0.416427	Mean dependent var	0.614909
Adjusted R-squared	0.398471	S.D. dependent var	0.455437
S.E. of regression	0.353229	Akaike info criterion	0.792935
Sum squared resid	16.22022	Schwarz criterion	0.900538
Log likelihood	-48.52312	F-statistic	23.19144

202

Annex 4: Regional Correlation Matrices

4a. Africa:

	Gov	Aggl	Budget	Duty	GDPPenn	HK	Infl	Lforce	Pbdbt	Aversk	Return	Stab	Tinten1	Tinten2
Gov	1.00	0.39	0.27	-0.28	0.48	0.35	-0.35	0.00	-0.47	0.99	-0.02	0.76	0.07	0.03
Aggl		1.00	0.18	-0.23	0.71	0.68	-0.13	0.07	-0.41	0.39	0.05	0.29	-0.02	-0.14
Budget			1.00	0.07	0.21	0.02	-0.18	0.07	-0.31	0.28	0.08	0.27	-0.12	-0.20
Duty				1.00	-0.39	-0.25	-0.03	0.02	0.13	-0.28	-0.12	-0.23	-0.15	-0.19
GDPPenn					1.00	0.81	-0.13	-0.11	-0.55	0.49	0.26	0.44	0.15	-0.08
HK						1.00	-0.08	0.03	-0.35	0.35	0.12	0.29	0.17	0.01
Infl							1.00	0.12	0.25	-0.34	0.03	-0.23	0.07	0.18
Lforce								1.00	0.03	-0.02	-0.17	-0.05	-0.25	0.28
Pbdbt									1.00	-0.46	-0.10	-0.31	0.25	0.43
Aversk										1.00	-0.02	0.85	0.09	0.06
Retrun											1.00	0.00	0.20	0.04
Stab												1.00	0.14	0.16
Tinten1													1.00	0.75
Tinten2														1.00

203

4b. Asia:

	Gov	Aggl	Budget	Duty	GDPPenn	HK	Infl	Lforce	Pbdbt	Aversk	Return	Stab	Tinten1	Tinten2
Gov	1.00	0.45	0.30	0.54	-0.49	0.23	-0.07	0.19	-0.28	0.99	0.17	0.70	0.49	0.21
Aggl		1.00	0.31	0.70	-0.62	0.66	-0.26	0.15	-0.41	0.45	0.12	0.36	0.49	0.20
Budget			1.00	0.39	-0.24	0.33	-0.16	0.09	-0.30	0.34	0.13	0.38	0.16	0.07
Duty				1.00	-0.55	0.53	-0.29	-0.18	-0.45	0.54	0.45	0.41	0.81	0.17
GDPPenn					1.00	-0.35	0.25	-0.26	0.26	-0.43	-0.15	-0.15	-0.34	-0.17
HK						1.00	-0.18	-0.20	-0.27	0.25	0.18	0.25	0.43	0.01
Infl							1.00	-0.07	0.38	-0.06	-0.16	-0.04	-0.13	-0.04
Lforce								1.00	-0.32	0.17	-0.20	0.06	-0.43	0.02
Pbdbt									1.00	-0.26	-0.36	-0.12	-0.08	0.31
Aversk										1.00	0.19	0.81	0.51	0.24
Retrun											1.00	0.21	0.49	-0.07
Stab												1.00	0.46	0.28
Tinten1													1.00	0.46
Tinten2														1.00

204

4c. Asia 9 countries:

	Gov	Aggl	Budget	Duty	GDPPenn	HK	Infl	Lforce	Pbdbt	Aversk	Return	Stab	Tinten1	Tinten2
Gov	1.00	0.31	0.34	-0.24	0.50	-0.05	-0.29	0.06	-0.45	0.98	0.31	0.70	0.37	0.20
Aggl		1.00	-0.05	-0.55	0.63	0.54	-0.52	-0.07	-0.42	0.32	0.33	0.29	0.49	0.37
Budget			1.00	-0.10	0.28	0.06	-0.14	-0.35	-0.29	0.33	0.28	0.20	0.15	-0.39
Duty				1.00	-0.42	0.07	0.18	-0.07	0.26	-0.22	-0.08	-0.09	-0.19	-0.12
GDPPenn					1.00	0.42	-0.54	-0.42	-0.44	0.52	0.73	0.47	0.84	0.20
HK						1.00	-0.35	-0.53	-0.24	-0.01	0.30	0.11	0.41	0.02
Infl							1.00	-0.01	0.68	-0.29	-0.54	-0.24	-0.30	-0.09
Lforce								1.00	-0.30	0.02	-0.29	-0.11	-0.59	0.09
Pbdbt									1.00	-0.40	-0.44	-0.18	-0.07	-0.08
Aversk										1.00	0.35	0.82	0.44	0.20
Retrun											1.00	0.40	0.64	0.06
Stab												1.00	0.53	0.17
Tinten1													1.00	0.43
Tinten2														1.00

205

4d. EECA

	Gov	Aggl	Budget	Duty	GDPPenn	HK	Infl	Lforce	Pbdbt	Aversk	Return	Stab	Tinten1	Tinten2
Gov	1.00	0.57	0.20	0.59	-0.30	-0.05	-0.37	-0.37	0.11	1.00	0.16	0.84	0.44	0.22
Aggl		1.00	0.21	0.50	-0.47	0.42	-0.30	-0.33	-0.13	0.55	0.20	0.35	0.59	0.30
Budget			1.00	0.25	-0.34	0.08	-0.16	-0.17	-0.35	0.20	0.23	0.13	0.24	0.07
Duty				1.00	-0.18	0.02	-0.20	-0.06	-0.04	0.60	0.04	0.54	0.57	0.38
GDPPenn					1.00	-0.04	0.36	0.62	0.43	-0.30	-0.23	-0.24	-0.54	-0.29
HK						1.00	-0.02	0.37	0.10	-0.08	0.26	-0.20	0.15	0.32
Infl							1.00	0.32	-0.09	-0.39	-0.05	-0.45	-0.39	-0.34
Lforce								1.00	0.15	-0.37	0.03	-0.34	-0.44	-0.04
Pbdbt									1.00	0.12	-0.19	0.17	-0.07	0.10
Aversk										1.00	0.13	0.88	0.44	0.23
Retrun											1.00	-0.03	0.05	-0.04
Stab												1.00	0.37	0.23
Tinten1													1.00	0.81
Tinten2														1.00

206

4f. EECA accession countries:

	Gov	Aggl	Budget	Duty	GDPPenn	HK	Infl	Lforce	Pbdbt	Aversk	Return	Stab	Tinten1	Tinten2
Gov	1.00	0.47	0.13	0.03	0.63	0.27	-0.38	0.28	0.26	0.99	0.07	0.79	0.30	0.37
Aggl		1.00	0.13	-0.46	0.47	0.71	-0.31	-0.27	-0.17	0.42	0.21	0.14	0.53	0.41
Budget			1.00	-0.36	0.20	0.11	-0.03	-0.04	-0.45	0.11	0.19	0.04	0.14	0.04
Duty				1.00	-0.28	-0.46	0.01	0.30	0.57	0.05	-0.30	0.17	-0.47	-0.37
GDPPenn					1.00	0.07	-0.29	-0.13	-0.07	0.64	-0.04	0.59	0.58	0.35
HK						1.00	-0.21	-0.01	0.02	0.24	0.33	0.02	0.35	0.46
Infl							1.00	-0.03	-0.12	-0.40	0.07	-0.40	-0.37	-0.45
Lforce								1.00	0.17	0.31	0.14	0.38	-0.59	-0.11
Pbdbt									1.00	0.28	-0.21	0.31	-0.05	0.13
Aversk										1.00	0.03	0.85	0.30	0.39
Retrun											1.00	-0.15	-0.01	0.01
Stab												1.00	0.21	0.39
Tinten1													1.00	0.80
Tinten2														1.00

4g. Latin America:

	Gov	Aggl	Budget	Duty	GDPPenn	HK	Infl	Lforce	Pbdbt	Aversk	Return	Stab	Tinten1	Tinten2
Gov	1.00	0.25	0.10	-0.08	0.40	0.13	-0.30	-0.15	-0.20	0.99	0.06	0.70	-0.02	-0.11
Aggl		1.00	-0.17	-0.30	0.42	0.46	-0.20	0.39	-0.38	0.26	-0.06	0.25	-0.47	-0.03
Budget			1.00	0.26	0.07	0.11	-0.06	-0.41	-0.03	0.09	0.21	0.00	0.31	0.25
Duty				1.00	-0.40	-0.08	-0.10	-0.31	0.18	-0.11	0.67	-0.22	0.31	0.01
GDPPenn					1.00	0.32	-0.16	0.21	-0.46	0.43	-0.17	0.46	-0.23	-0.02
HK						1.00	-0.07	-0.13	-0.26	0.12	-0.09	0.08	-0.26	0.04
Infl							1.00	0.06	0.01	-0.29	-0.16	-0.20	-0.21	-0.13
Lforce								1.00	-0.18	-0.12	-0.09	0.06	-0.41	0.10
Pbdbt									1.00	-0.24	-0.06	-0.32	0.15	-0.12
Aversk										1.00	0.06	0.80	0.00	-0.07
Retrun											1.00	0.03	0.28	0.15
Stab												1.00	0.07	0.12
Tinten1													1.00	0.67
Tinten2														1.00

208

4h. Top 10 recipients:

	Gov	Aggl	Budget	Duty	GDPPenn	HK	Infl	Lforce	Pbdbt	Aversk	Return	Stab	Tinten1	Tinten2
Gov	1.00	-0.15	0.33	0.01	0.39	0.34	-0.35	-0.09	-0.23	0.99	-0.13	0.57	0.30	-0.12
Aggl		1.00	-0.15	-0.39	0.37	0.36	-0.20	-0.20	-0.16	-0.11	-0.08	0.16	-0.22	0.16
Budget			1.00	0.34	0.12	0.04	-0.15	-0.15	-0.24	0.33	0.15	0.20	0.23	-0.01
Duty				1.00	-0.53	-0.32	-0.12	0.25	-0.08	-0.05	0.31	-0.35	0.20	0.20
GDPPenn					1.00	0.52	-0.20	-0.64	-0.05	0.46	-0.14	0.62	0.31	0.02
HK						1.00	-0.02	-0.55	0.28	0.36	-0.16	0.34	-0.15	-0.34
Infl							1.00	-0.12	0.58	-0.35	-0.03	-0.21	-0.21	-0.20
Lforce								1.00	-0.27	-0.12	-0.25	-0.28	-0.23	0.02
Pbdbt									1.00	-0.21	0.14	-0.03	-0.07	-0.27
Aversk										1.00	-0.12	0.67	0.30	-0.13
Retrun											1.00	-0.06	0.35	0.40
Stab												1.00	0.16	-0.17
Tinten1													1.00	0.71
Tinten2														1.00

209

4i. Top 15 recipients:

	Gov	Aggl	Budget	Duty	GDPPenn	HK	Infl	Lforce	Pbdbt	Aversk	Return	Stab	Tinten1	Tinten2
Gov	1.00	0.07	0.24	-0.21	0.44	0.08	-0.27	-0.06	-0.19	0.99	-0.04	0.74	0.43	-0.03
Aggl		1.00	0.05	-0.53	0.38	0.24	-0.19	-0.29	-0.26	0.11	0.07	0.25	-0.05	-0.10
Budget			1.00	0.11	0.10	0.00	-0.26	-0.09	-0.22	0.24	0.27	0.20	0.20	0.10
Duty				1.00	-0.62	-0.31	0.23	0.41	0.00	-0.27	0.07	-0.47	-0.10	0.18
GDPPenn					1.00	0.53	0.00	-0.60	-0.07	0.50	-0.12	0.64	0.46	0.07
HK						1.00	0.22	-0.52	0.32	0.09	-0.18	0.10	0.00	-0.11
Infl							1.00	-0.04	0.15	-0.28	-0.16	-0.26	-0.12	0.04
Lforce								1.00	-0.25	-0.09	-0.18	-0.19	-0.26	0.06
Pbdbt									1.00	-0.20	-0.08	-0.21	-0.06	-0.11
Aversk										1.00	-0.03	0.82	0.44	-0.04
Retrun											1.00	0.06	0.20	0.28
Stab												1.00	0.37	-0.07
Tinten1													1.00	0.76
Tinten2														1.00

CHAPTER V: SUMMARY AND CONCLUSIONS

In this research project we explain why FDI became the most important source of foreign private capital in developing countries during the 1990s. In order to provide a comprehensive answer we answer three separate questions in three different papers. The first question analyzes what happened to the different types of foreign private capital flows in developing countries since 1990.

The analysis of the stylized facts in section II reaches several conclusions in answering the first question. First, around 1990, capital account liberalization and legal reforms enabled the arrival of large amounts of private capital flows to developing countries. Second, there was a great dispersion of the flows across regions and types of capital: Africa and MENA almost exclusively received FDI, whereas Latin America, Asia EECA and the top 10 recipient countries had a more diversified portfolio of private foreign capital. Third, income and institutional infrastructure are essential to explain the dispersion of capital flows across regions and types flows. In other words, low income and institutionally weak countries receive less capital flows. Moreover, the small amounts of capital flows that reach low income and institutionally weak countries are mostly FDI. The opposite is true for countries with higher income and institutionally stronger. Fourth, with the onset of the financial crises during the second half of 1990s, there was an important turnaround in the typology of private capital flowing to developing countries: FDI became the almost the exclusive source of private capital for all developing countries. Finally, we conclude that the growing importance of FDI shows

211

that financial liberalization is a necessary but not a sufficient condition to have access to a diversified portfolio of foreign private capital.

The second question addresses, in section III of this research project, the domestic factors that have attracted FDI to developing countries. We use an 80 developing-country sample to carry out a sensitivity analysis of the determinants of FDI. The sensitivity analysis is based on the Extreme Bound Analysis technique and the decomposition of the standard dependent variable in FDI linear regression analyses, FDI to GDP into two other ratios: FDI to KF and KF to GDP. We find that trade openness, political risk, governance and agglomeration effects are significant determinants for FDI to GDP and KF to GDP. In addition, we find that some of these results coincide with the findings of the analysis of the stylized facts where political related variables (e.g. governance and political stability), seem to play an important role in the determination of FDI flows. Lastly, the significance of the political related variables indicates the necessity of considering these variables in any analysis on the determination of FDI flows to developing countries.

Finally, question three explores the differences in FDI determinants across countries and regions. In section IV, we carry out several sensitivity analyses across countries by dividing our original 80-country sample into 8 regional sub-samples but we keep the original 80-country sample to execute the cross regional sensitivity analyses. The cross-country and cross-regional analyses show that trade openness, governance, political stability and agglomeration are significant FDI determinants. In addition, the cross-regional sensitivity analysis shows that the returns on FDI determinant is also

212

significant to explain FDI. Finally, the cross-regional EBAs also demonstrate that FDI is related to negative events: it shows that the share of FDI in total capital flows grows with less (or worse) infrastructure, political instability and worse governance. These findings question whether the arrival of large amounts of FDI is a sign economic and institutional development.

Therefore, the three questions analyzed in this research project provide several important explanations to understand the significance of FDI flows in developing countries. First, liberalization in the early 1990s opened the doors to private capital flows but the volatility of the 1990s financial crises made FDI the best foreign investment strategy in developing countries. Second, FDI in developing countries has relied significantly on trade openness and physical (i.e. agglomeration) and institutional infrastructure. Third, the importance of physical infrastructure and trade openness suggests that vertical FDI is becoming a relevant FDI strategy in developing countries.

Fourth, the significance of the relationships between the share of FDI to capital flows and negative domestic events such as weak institutional infrastructure confirm that FDI is a "second best option" for foreign investors who prefer to have ownership of investment projects in less than optimal investment environments. This conclusion certifies the findings of Hausmann and Fernandez-Arias (2000) on whether receiving large amounts of FDI is a sign of a well-managed country. Finally, the significance of the returns on FDI determinant in advanced developing economies (e.g. EECA) is an indication that foreign investors prioritize profitably to any other factors involved in

213

investment decisions: once host country progress in economic and political terms, profitability is the rule. In other words, the cross-regional results suggest that international investment decisions are ruled by the same parameters as for domestic investment.

Future research should develop the findings of this research projects in several ways. First, researchers should carry out alternative econometric measures to test the sensitivity of FDI determinants in developing countries. Based on the decomposition of the dependent variable, FDI/GDP, researchers ought to consider alternatives to the extreme bound analysis technique, which is sometimes viewed as an excessively strict test (Sala-i-Martin, 1997). Second, researchers should consider the re-examination of the findings in this project with the emerging literature on new measures of institutional quality (Hausmann, Pritchett et al., 2004) to verify if these improved measures of institutional infrastructure are robust determinants of FDI in developing countries.

From a policy point of view, the research project shows that developing countries may have to live for some time with FDI as the almost exclusive source of foreign private capital. The evidence shows that the best way to continue to attract FDI is through better physical and institutional infrastructure. In turn, the importance of infrastructure should also make countries aware of the importance for international investors of vertical-FDI strategies to developing countries. Countries should promote policies to improve their competitiveness and their insertion in international markets. Finally, the improvements of institutional infrastructure derived from the accession to sound regional integration

214

processes seem to play an important role to attract foreign investment. For example,

many EECA countries underwent important institutional changes to join the European

Union, those changes reassured foreign investors and made EECA one of the most

successful host developing regions in terms of private capital flows during the 1990s.

BIBLIOGRAPHY

Agarwal, J. P. (1980). "Determinants of FDI: A Survey." <u>Weltwirstschafttlitches Archiv</u> 116: 739-70.

Alburquerque, R. (2003). "The Composition of International Capital Flows: Risk Sharing Through Foreign Direct Investment." <u>Journal of International Economics</u> 61(2): 353-83.

Asiedu, E. (2002). "On the Determinants of Foreign Direct Investment to Developing Countries: is Africa different?" <u>World Development</u> 30(1): 107-19.

_____ (2003). <u>Foreign Direct Investment to Africa Different: The Role of Government Policy, Governance and Political Instability</u>. Conference 2003, United Nations University World Institute for Development Economic Research.

Bajpai, N. and Sachs, J. D. (2000). "Foreign Direct Investment in India: Issues and Problems." Harvard Institute For International Development, <u>Development Discussion Papers</u> (759).

Balassa, B. (1985). "Exports, policy choices, and economic growth in developing countries after the 1973 oil shock." <u>Journal of Development Economics</u> 18: 23-35.

Baldwin, R. E. (1994). "Effects of trade and foreign direct investment on employment and relative wages." Organization for Economic Co-Operation and Development, <u>Economic Studies</u> 23: 7-54.

Bandelj, N. (2002). "Embedded Economies: Social Relations as Determinants of Foreign Direct Investment in Central and Eastern Europe." <u>Social Forces</u> 81(2): 409-44.

Barrell, R. and Pain, N. (1999). "Domestic Institutions, Agglomerations and Foreign Direct Investment in Europe." <u>European Economic Review</u> 43: 925-34.

Basu, A., Srinivasan, K., et al. (2002). "Foreign Direct Investment in Africa: some Case Studies". International Monetary Fund, <u>IMF Working Paper</u> 02(61).

Bekaert, G. and Harvey, C. R. (2000). "Foreign Speculators and Emerging Equity Markets." <u>Journal of Finance</u> 55(2): 565-613.

_____ (2002). "Research in Emerging Markets Finance: Looking to the Future." <u>Emerging Markets Review</u> 3(4): 429-48.

_____ (2003). "Emerging markets finance." Journal of Empirical Finance 10: 3-55.

Bekaert, G., Harvey, C. R., et al. (2001). "The dynamics of Emerging Markets Equity Flows". <u>Duke University Working Paper</u> 39.

Bevan, A. A. and Estrin, S. (2000). "The Determination of Foreign Direct Investment in Transition Economies." London Business School, Center for New and Emerging Markets, <u>Discussion Paper Series</u> (9).

Bordo, M. D., Eichengreen, B., et al. (1999). "Is Globalization Today Really Different than Globalization a Hundred Years Ago?" National Bureau of Economic Research, <u>Working Paper</u> (7195).

Bosworth, B. and Collins, S. M. (1999). "Capital flows to Developing Economies: Implications for Saving and Investment." Brookings Papers for Economic Activity 1999(1) 143-80.

Bubnova, N. (2000) "Governance Impact in Private Investment" The World Bank, Technical Paper (488).

Bulmer-Thomas, V. (2003). The Economic History of Latin America Since Independence. (Cambridge: Cambridge University Press)

Calvo, G. (1998). "Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops." Journal of Applied Economics 1(1): 35-54.

Calvo, G., Leiderman, L., et al. (1992). "Capital Inflows and Real Exchange Rate Appreciation in Latin America: the Role of External Factors". International Monetary Fund, IMF Working Paper 92(62).

Calvo, S., Reinhart, C. M., et al. (1996). "Capital Flows to Latin America: is There Evidence of Contagion Effects?" The World Bank, Working Paper (1619).

Campos, N. F., Kinoshita, Y., et al. (2003). "Why Does FDI Go Where it Goes: New Evidence from the Transition Economies". International Monetary Fund, IMF Working Paper 03(228).

Cardoso, E. and Helwege, A. (1992). Latin America's Economy: Diversity, Trends, and Conflicts (Cambridge: MIT Press).

Carlson, M. A., Hernández, L., et al. (2002). "Determinants and Repercussions of the Composition of Capital Inflows". Board of the Federal Reserve System, International Finance Discussion Papers (717).

Carstensen, K. and Toubal, F. (2004). "Foreign Direct Investment in Central and Eastern European Countries: a Dynamic Panel Analysis." Journal of Comparative Economics 32(1): 3-22.

Caves, R. E. (1996). Multinational Enterprise and Economic Analysis. (Cambridge: Cambridge University Press).

Centro de Investigación Universidad del Pacifico-Universidad del Pacifico, and Centro de Estudios sobre Desarrollo Económico-Universidad de los Andes (2003). Visión Microcómica de los Impactos de la Integración Regional en las Inversiones Inter e Intrarregionales: El caso de la CAN. (Buenos Aires: Instituto para la Integración de América Latina y el Caribe).

Chakrabarti, A. (2001). "The Determinants of Foreign Direct Investment: Sensitivity Analyses of Cross-country Regressions." Kyklos 54(1): 89-114.

Cheng, L. K. and Kwan, Y. K. (2000). "What are the Determinants of the Location of Foreign Direct Investment: the Chinese Experience." Journal of International Economics 51(2): 379-400.

Chong, A., Izquierdo, A., et al. (2003). "Corporate Governance and Private Capital Flows to Latin America." Inter-American Development Bank, Research Department Working Papers (482).

Chudnovsky, D., Laplane, M., et al. (2002). Integración Regional e Inversión Extranjera Directa: el Caso del MERCOSUR. (Buenos Aires: Instituto para la Integración de América Latina y el Caribe).

Chuhan, P., Claessens, S., et al. (1998). "Equity and Bond Flows to Latin America and Asia: the Role of Global and Country Factors." Journal of Development Economics 55: 439-63.

Claessens, S., Dooley, M. P., et al. (1995). "Portfolio Capital Flows: Hot or Cold?" The World Bank, Economic Review 9: 153-74.

Claessens, S., Klingebiel, D., et al. (2002). "Explaining the Migration of Stocks from Exchanges in Emerging Economies to International Centers" The World Bank, Working Paper (2816).

Dees, S. (1998). "Foreign Direct Investment in China: Determinants and Effects." Economics of Planning (31): 175-94.

Dunning, J. H. (1971). The Multinational Enterprise. (New York: Praeger).

Dunning, J. H. (1988). "Electric paradigm of international production: a restatement and some possible extensions." Journal of International Business Studies 19: 1-31.

Dunning, J. H. (1998). "Location and the multinational enterprise: a neglected factor?" Journal of International Business Studies 29(1): 45-66.

Dussel-Peters, E., Galindo-Paliza, L. M., et al. (2003). Condiciones y Efectos de la Inversión Extranjera Directa y del Proceso de Integración Regional en México Durante los Años Noventa: Una Perspectiva Microeconómica. (Buenos Aires: Instituto para la Integración de América Latina y el Caribe).

Economic Commission for Latin America and the Caribbean. (2000). Foreign Direct Investment in Latin America and the Caribbean: 2000 Report. (Santiago de Chile: United Nations Publications).

_____(2001). Foreign Direct Investment in Latin America and the Caribbean: 2001 Report. (Santiago de Chile: United Nations Publications).

Edison, H. J. and Warnock, F. E. (2001). "A Simple Measure of Intensity of Capital Controls." Board of the Federal Reserve System, International Finance Discussion Paper (708).

_____ (2003). "Cross-board Listings, Capital Controls, and Equity Flows to Emerging Markets." Board of the Federal Reserve System, International Finance Discussion Paper (770).

Edwards, S. (1987). "The Order of Liberalization of the Current and Capital Accounts of the Balance of Payments." National Bureau of Economic Research, Working Paper (1507).

_____ (1992). "Openness, Trade Liberalization and Growth in Developing Countries." Institute for Policy Reform. IPR Working Paper 35: 1-76.

218

_____ (1998). "Capital Flows, Real Exchange Rates, and Capital Controls: Some Latin American Experiences." National Bureau of Economic Research, <u>Working Paper</u> (6800).

Eichengreen, B. J. (2001). "Capital Account Liberalization: What Do Cross-country Studies Tell Us?" <u>World Bank Economic Review</u> 15(3): 341-65.

Eichengreen, B. J. and Fishlow, A. (1998). "Contending With Capital Flows: What Is Different About the 1990s?" in <u>Capital Flows and Financial Crises</u>. (Kahler, M. Ithaca, NY: Cornell University Press).

Eid, F. and Paua, F. (2002). "Foreign Direct Investment in the Arab World". <u>Arab Competitive Report 2001-2002</u>. (Geneva: World Economic Forum) 108-19.

Ethier, W. J. (1986). "Multinational Firm." <u>Quarterly Journal of Economics</u> 101: 805-33.

Feenstra, R. C. and Hanson, G. H. (1997). "Foreign Direct Investment and Relative Wages: Evidence from Mexico's Maquiladoras." <u>Journal of International Economics</u> 42: 371-93.

Fernandez-Arias, E. (1996). "The New Wave of Private Capital Inflows: Push or Pull?" <u>Journal of Development Economics</u> 48: 389-418.

_____ (2000). "The New Wave of Private Capital Inflows: Sea Change or Tide?" Inter-American Development Bank, <u>Research Department Working Paper</u> (415).

Fernandez-Arias, E. and Hausmann, R. (2000). "Is FDI a Safer Way of Financing?" Inter-American Development Bank, <u>Research Department Working Paper</u> (416).

Fujita, M. (2002). "FDI in the League of Arab States: Some Recent Statistics and a Brief Overview of the Current Legal Framework for Investment." <u>The Arab Bank Review</u> 3(2): 16-19.

Fung, K. C. (2000). "Determinants of U.S. and Japanese Foreign Direct Investment in China." University of California, Santa Cruz. Department of Economics. <u>UCSC Working Paper Series</u> (456).

Garibaldi, P., Mora, N., et al. (2001). "What Moves Capital to Transition Economies?" International Monetary Fund, <u>IMF Working Paper</u> 02(64).

Gastanaga, V. M., Nugent, J. B., et al. (1998). "Host Country Reforms and FDI Inflows: How Much Difference Do They Make?" <u>World Development</u> 26: 1299-314.

Gijón-Spalla, J. G. (2004a). "<u>Stylized Facts of the Evolution of Foreign Private Capital Flows in Developing Countries between 1990 and 2002: the Major Role of Foreign Direct Investment Flows.</u>" (Ph.D. diss., The Johns Hopkins University).

_____ (2004b). "<u>Sensivity Analysis of Cross-Country FDI Determinants in Cross-country Linear Regressions in Developing Countries: Evidence from 80-Countrry Sample.</u>" (Ph.D. diss., The Johns Hopkins University).

_____ (2004c). "<u>Sensitivity Analyses of Regional FDI Determinants in Cross-Country and Cross-Regional Linear Regressions.</u>" (Ph.D. diss., The Johns Hopkins University).

219

Goetzmann, W. N. and Jorion, P. (1997). "Re-emerging Markets." Journal of Financial and Quantitative Analysis 34(1): 1-42.

Goldberg, L. S. and Klein, M. W. (1997). "Foreign Direct Investment, Trade and Real Exchange rate Linkages in Southeast Asia and Latin America." National Bureau of Economic Research, Working Paper (6344).

Grais, W., Kantur, Z., et al. (2003). "The Changing Financial Landscape: Opportunities and Challenges for the Middle East and North Africa". The World Bank, Policy Research Working Paper (3050).

Greene, W. H. (2000) "Econometric Analysis" (New Jersey, Ed. Prentice-Hall)

Harrison, A. and Revenga, A. (1995). "The effects of trade policy reform: what do we really know?" National Bureau of Economic Research, Working Paper (5225).

Harms, P. and Lutz, M. (2003). "Aid, Governance and Private Foreign Investment: Some Puzzling Findings and Possible Explanation." Hamburg Institute of International Economics Discussion Paper (426).

Hausmann, R. and Fernandez-Arias, E. (2000). "Foreign Direct Investment: Good Cholesterol?" Inter-American Development Bank, Research Department Working Paper (417).

Hausmann, R., Pritchett, L. et al. (2004). "Growth Accelerations". National Bureau of Economic Research, Working Paper (10566).

Henry, P. B. (2000). "Stock Market Liberalization, Economic Reform, and Emerging Market Equity Prices." Journal of Finance 55(2): 529-64.

Inter American Development Bank. (2002). IPES 2002 Beyond Borders: The New Regionalism in Latin America. (Washington, DC: Inter-American Development Bank).

International Monetary Fund. (1997). World Economic Outlook, May 1997. (Washington, D.C: International Monetary Fund).

_____ (2003). Foreign Direct Investment in Emerging Countries. (Washington, DC: International Monetary Fund).

Ishii, S., Habermeier, K. F., et al. (2002). Capital Account Liberalization and Financial Sector Stability. (Washington, DC: International Monetary Fund).

Jackson, S. and Markowski, S. (1995). "The Attractiveness of Countries to Foreign Direct Investment: Implications for Asia-Pacific Region." Journal of World Trade 29: 129-80.

Janicki, H. P. and Wunnava, P. V. (2004). "Determinants of Foreign Direct Investment: Empirical Evidence from EU Accession Candidates." Applied Economics 36(5): 505-09.

Jaspersen, F. Z., Aylward, A. H., et al. (2000). "Risk and Private Investment: Africa Compared to Other Developoing Areas" in Investment and Risk in Africa. Collier, P. and Patillo, C. (New York, NY: St. Martin Press).

220

Kaminsky, G. L. and Schmukler, S. L. (2003). "Short-run Pain, Long-run Gain: the Effects of Financial Liberalization." National Bureau of Economic Research, Working Paper (9787).

Kaufmann, D., Kraay, A., et al. (1999). "Aggregating Governance Indicators". The World Bank, Policy Research Working Papers (2195).

Klein, M., Aaron, C., et al. (2001). "Foreign Direct Investment and Poverty Reduction". The World Bank, Working Paper Series (2613).

Klingen, C., Weder, B., et al. (2004). "How Private Creditors Fared in Emerging Debt Markets, 1970-2000". International Monetary Fund, IMF Working Paper 04(13).

Kogut, B. and Zander, U. (1993). "Knowledge of the Firm and the Evolutionary Theory of the Multinational Corporation." Journal of International Business Studies 24(4): 625-45.

Krkoska, L. (2001). "Foreign Direct Investment Financing of Capital Formation in Central and Eastern Europe." European Bank for Reconstruction and Development, EBRD Working Paper Series (67).

Laeven, L. (2001). "Financial Liberalization and Financing Constraints: Evidence From Panel Data on Emerging Countries." The World Bank, Working Paper (2467).

Lansbury, M., Oain, N., et al. (1996). "Foreign Direct Investment in Central Europe Since 1990: An Econometric Model." National Institute Economic Review (May 1996): 104-13.

Laporta Rafael, F. Lopez de Silvanes and A. Shielfer (1998) "Law and Finance" Journal of Political Economy 106(6): 1113-51.

Leamer, E. (1983). "Let's Take the Con Out of Econometrics." American Economic Review 73: 31-43.

_____ (1985). "Sensitivity Analyses Would Help." American Economic Review 75: 308-13.

Lecraw, D. J. (1991). "Factors Influencing FDI by TNCs in Host Developing Countries: A Preliminary Report" in Multinational enterprises in less developed countries. Buckley, P. J. and Clegg, J. (New York, NY: St. Martin's Press): 163-80.

Lehmann, A. (2002). "Foreign direct investment in emerging markets : income, repatriations and financial vulnerabilities". International Monetary Fund, IMF Working Paper 02(47).

Lehmann, A., Mody, A., et al. (2004). "International dividend repatriations". International Monetary Fund, IMF Working Paper 04(5).

Levine, R. and Renelt, D. (1992). "A Sensitivity Analysis of Cross-Country Growth Regressions." The American Economic Review 82(4): 942-63.

Levy-Yeyati, E., Stein, E. H., et al. (2003). "Regional Integration and the Location of FDI." Inter-American Development Bank, Research Department Working Paper (492).

_____ (2003). "The FTAA and the Location of FDI." Inter-American Development Bank, Research Department Working Paper (491).

Lim, E.-G. (2001). "Determinants of, and Relation Between, Foreign Direct Investment and Growth: a Summary of the Recent Literature". International Monetary Fund, IMF Working Paper 01(175).

Lipschitz, L., Lane, T. D., et al. (2002). "Capital Flows to Transition Economies: Master or Servant?" International Monetary Fund, IMF Working Paper 02(11).

Loree, D. W. and Guisinger, S. E. (1995). "Policy and Non-policy Determinants of U.S. Equity Foreign Direct Investment." Journal of International Business Studies 26(2): 281-99.

Love, J. H. and Lage-Hidalgo, F. (2000). "Analyzing the Determinants of US Direct Investment in Mexico." Applied Economics 32(10): 1259-67.

Lucas, R. E. B. (1993). "On the Determinants of Direct Foreign Investment: Evidence from East and Southeast Asia." World Development 21: 391-406.

Mauro, P., Sussman, N., et al. (2002). "Emerging Market Spreads: Then Versus Now." Quarterly Journal of Economics 117(2): 695-733.

McGuire, P. and Schrijvers, M. A. (2003). "Common Factors in Emerging Markets Spreads." Bank of International Settlements (BIS) Quarterly Review December 2003: 65-78.

McKinsey Global Institute. (2003). New Horizons: Multinational Company Investment in Developing Economies. (San Francisco: McKinsey & Company Inc.)

Mishra, D., Mody, A., et al. (2001). "Private Capital Flows and Growth." Finance and Development, 38(2).

Mody, A., Dasgupta, S., et al. (1999). "Japanese Multinationals in Asia: Drivers and Attractors." Oxford Development Studies 27(2): 149-64.

Montiel, P. and Reinhart, C. M. (2001). "The Dynamics of Capital Movements to Emerging Economies During the 1990s" in Short-term Capital Movements and Economic Crises Griffith-Jones, S. and Montes, M. (Oxford: Oxford University Press).

Morisset, J. (2000). "Foreign Direct Investment in Africa: Policies Also Matter". The World Bank, Policy Research Working Paper (2481).

Nigh, D. (1986). "Political Events and the Foreign Direct Investment Decision: An Empirical Examination." Managerial and Decision Economics 7(2): 99-106.

Noorbakhsh, F., Paloni, A., et al. (2001). "Human Capital and FDI Inflows to Developing Countries: New Empirical Evidence." World Development 29(9): 1593-610.

Nunnemkamp, P. (2001). "European FDI Strategies in MERCOSUR countries." Kiel Institute for World Economics, Kiel Working Papers (1047).

Perry, G. and Fiess, N. (2003). "Financing the Private Sector". Presentation at <u>World Bank's Seventh Meeting LAC Meets the Market</u>, Washington, D.C. http://wbln0018.worldbank.org/LAC/lacinfoclient.nsf/1daa461032291238852568 31005ce0eb/c4fa76437b2a7c5585256de100782132/$FILE/LMM%20VIIth.pdf (accessed October 22, 2004)

Pfeffermann, G. P. and Andrea, M. (1992). "Trends in Private Investment in Developing Countries, 1992 Edition." <u>IFC Discussion Paper</u> 14: 46-47.

Pfeffermann, G. P., V., Kisunko, et al. (1999). "Trends in Private Investment in Developoing Countries and Perceived Obstacles to Doing Business, Statistics 1970-1997, 10th Edition." <u>IFC Discussion Paper</u> (37).

Pigato, M. (2001). "The Foreign Direct Investment Environment in Africa". The World Bank, <u>Africa Region Working Paper Series</u> (15).

Pistoresi, B. (2000). "Investmenti Diretti Esteri e Fattori di Localizzazione: l'America Latina e il Sud Est Asiatico" <u>Rivista Di Politica Economica</u> 90(2): 27-44.

Prasad, E., Rogoff, K. S., et al. (2003). <u>Effects of Financial Globalization on Developing Countries: Some Empirical Evidence</u>. (Washington, D.C.: International Monetary Fund)

Pritchett, L. (1996). "Measuring Outward Orientation in LDCs: Can It Be Done?" <u>Journal of Development Economics</u> 49: 307-35.

Ramirez, M. D. (2002). "Foreign Direct Investment in Mexico during the 1990s: An Empirical Assessment." <u>Eastern Economic Journal</u> 28(3): 409-23.

Ritchie, B. K. (2002). "Foreign Direct Investment and Intellectual Capital Formation in South Asia." Organization of Economic Development and Cooperation, <u>Technical Paper</u> (194).

Rodrik, D. and Velasco, A. (1999). "Short-term capital flows." National Bureau of Economic Research, <u>Working Paper</u> (7364).

Rogoff, K. S., Reinhart, C. M., et al. (2003). "FDI to Africa: the Role of Price Stability and Currency Instability". International Monetary Fund, <u>IMF Working Paper</u> 03(10).

Root, F. R. and Ahmed, A. A. (1979). "Empirical Determinants of Manufacturing Direct Foreign Investment in Developing Countries." <u>Economic Development and Cultural Change</u> 27(4): 751-67.

Rugman, A. M. (1981). <u>Inside the Multinationals: the Economics of Internal Markets</u>. (New York: Columbia University Press).

Sachs, J., Tornell, A., et al. (1996). "The Mexican Peso Crisis: Sudden Death or Death Foretold?" National Bureau of Economic Research, <u>Working Paper</u> (5563)

Sala-i-Martin, X. (1997). "I just Ran Two Million Regressions." <u>American Economic Review</u> 87(2): 178-83.

Schmukler, S. (2004). "Financial Globalization: Gain and Pain for Developing Countries." <u>Atlanta Fed Economic Review</u> 89(2): 39-66.

Schneider, F. and Frey, B. S. (1985). "Economic and Political Determinants of Foreign Direct Investment." World Development 13: 161-75.

Shatz, H. J. (2001). "Expanding Foreign Direct Investment in the Andean Countries." Harvard University Center for International Development, Development Discussion Papers (64).

Shatz, H. J., Venables, A. (2000). "The Geography of International Investment". The World Bank, Policy Research Working Paper (2338).

Shiells, C. R. (2003). "FDI and the Investment Climate in the CIS Countries". International Monetary Fund, IMF Policy Discussion Paper 03(05).

Singh, H., Jun, K. W. (1995). "Some New Evidence on Determinants of Foreign Direct Investment in Developing Countries". The World Bank, Working Paper (1531)

Smarzynska, B., Wei H.J. (2000). "Corruption and Composition of Foreign Direct Investment: Firm Level Evidence" National Bureau of Economic Research, Working Paper (7969).

Stein, E. and Daude, C. (2001). "Institutions, Integration, and location of Foreign Direct Investment". Paper presented at Annual Meeting of the Boards of Governors the Inter-American Development Bank, Washington D.C.

Stulz, R. M. (1999). "Globalization of Equity Markets and the Cost of Capital." National Bureau of Economic Research, Working Paper (7021).

Taylor, C. T. (2000). "The Impact of Host Country Government Policy on US Multinational Investment Decisions." World Economy 23(5): 635-47.

Thorp, R. (1998). Progress, Poverty and Exclusion: an Economic History of Latin America in the 20th Century (Washington, D.C.: Inter-American Development Bank distributed by The Johns Hopkins University Press).

Trevino, L. J., Daniels, J. D., et al. (2002). "Market Reform and FDI in Latin America: an Empirical Investigation." Transnational Corporations II(1): 28-48.

Tsai, P.-L. (1994). "Determinants of foreign Direct Investment and its Impact on Economic Growth." Journal of Economic Development 19: 137-63.

Tseng, W., Zebregs, H., et al. (2002). "Foreign Direct Investment in China: some Lessons from other Countries". International Monetary Fund, IMF Working Paper 02(3).

Turner, A. G., Golub, S. S., et al. (1997). "Towards a System of Multilateral Unit Labor Cost-based Competitiveness Indicators for Advanced, Developing, and Transition Countries". International Monetary Fund, IMF Working Paper 97(151).

UNCTAD (1997). World Investment Report 1997: Transnational Corporations, Market Structure and Competition Policy. (Geneva: United Nations Publications).

_____ (1998). World Investment Report 1998: Trends and Determinants. (Geneva: United Nations Publications).

_____ (1999). World Investment Report 1999: FDI and the Challenge of Development. (Geneva: United Nations Publications).

_____ (2000). <u>Bilateral Investment Treaties 1959-1999</u>. (New York: United Nations Publications).

_____ (2000). <u>World Investment Report 2000: Cross-border M & A and Development</u>. (Geneva: United Nations Publications).

_____ (2001). <u>World Investment Report 2001: Promoting Linkages</u>. (Geneva: United Nations Publications).

_____ (2002). <u>World Investment Report 2002: Transnational Corporations and Export Competitiveness</u>. (Geneva: United Nations Publications).

_____ (2003). <u>World Investment Report 2003: FDI Policies for Development: National and International Perspectives</u>. (Geneva: United Nations Publications).

Vial, J. (2001). "Inversión Extranjera en los Países Andinos." Harvard University Center for International Development, <u>CDI Working Paper.</u>

Wang, Z. Q. and Swain, N. J. (1995). "The Determinants of Foreign Direct Investment in Transforming Economies: Empirical Evidence From Hungary and China." <u>Weltwirtschaftliches Archiv</u> 131(2): 359-82.

Wei, S.-J. (1999). "Does Corruption Relieve Foreign Investors of the Burden of Taxes and Capital Controls?" The World Bank, <u>Policy Research Working Paper</u> (2209).

Wezel, T. (2003). "Determinants of German Foreign Direct Investment in Latin America and Asian Emerging Markets in the 1990s." <u>Economic Research Center of the Deustche Bundesbank Discussion Papers Series</u> 03(11).

Wheeler, D. and Mody, A. (1992). "International investment location decisions: the case of U.S. firms." <u>Journal of International Economics</u> 33: 57-76.

Woodward, D. P. and Rolfe, R. J. (1993). "Location of Export-oriented Foreign Direct Investment in the Caribbean Basin." <u>Journal of International Business Studies</u> 24(1): 121-44.

World Bank (1997). "<u>Global Development Finance 1997</u>". (Washington, D.C.: The World Bank).

_____ (1999). "<u>Global Development Finance 1999</u>". (Washington, D.C.: The World Bank).

_____ (2000). "<u>Global Development Finance 2000</u>". (Washington, D.C.: The World Bank).

_____ (2001). "<u>Global Development Finance 2001: Building Coalitions for Effective Development Finance</u>". (Washington, D.C.: The World Bank).

_____ (2002). "<u>Global Development Finance 2002: Financing the Poorest Countries</u>". (Washington, D.C.: The World Bank).

_____ (2003). "<u>Global Development Finance 2003: Striving for Stability in Developing Countries</u>". (Washington, D.C.: World Bank).

CURRICULUM VITAE: JOSÉ G. GIJÓN-SPALLA

Nationality: Spanish and French
Place and Date of Birth: Madrid (Spain), March 12, 1969

EDUCATION

Ph.D. in International Economics   **2001 – Sept. 2004**
Johns Hopkins University
School of Advanced International Studies (SAIS)   **Washington, DC**
▪ Dissertation topic: "Sensitivity Analyses of Developing Countries' Foreign Direct Investment Determinants in Cross-Country Linear Regressions", **graduated with distinction**
▪ Fully sponsored by Johns Hopkins University, SAIS Ph.D. Merit Fellowship
▪ Simultaneously completed course work for Masters of Arts in Applied Economics at Johns Hopkins University, Krieger School of Arts and Sciences as a non-degree student (Spring 2004)

Master of Arts in International Affairs   **1998 - 2000**
Johns Hopkins University
SAIS   **Bologna, Italy/Washington, DC**
▪ Concentrations: Int'l Finance, Int'l Economics and Latin American Studies,
▪ Recipient of SAIS Bologna Center Merit Fellowship for European Students

Master in Auditing   **September 1993 – June 1994**
Escuela de economía
Colegio de Economistas   **Madrid Spain**
▪ Diploma in high accounting: equivalent theoretical examination of *"Censor Auditor de Cuentas"* Spanish Charter Public Accountant (CPA)

B.S. ("Licenciatura") in Economics and Business   **1988 - 1993**
ICADE, Universidad Pontificia Comillas ("E-2")   **Madrid, Spain**
▪ Specialization in Accounting and Finance

French Lycée, Madrid   **June 1987**
▪ French "Baccalauréat" and Spanish "Selectividad", equivalent to "A" levels equivalents

PROFESSIONAL EXPERIENCE

FULL-TIME EXPERIENCE:

Professorial Lecturer, International Economics Program   **Since October 2002**
Johns Hopkins University
SAIS   **Washington, DC**
▪ Designed and Taught "Introduction to Financial Accounting"

Professorial Lecturer, Western Hemisphere Program   **Since September 2001**
Johns Hopkins University
SAIS   **Washington, DC Bologna/Italy**
▪ Designed and Taught "Political and Economic Development in Latin American"

Director of Finance   **May 2000 – February 2001**
Viamericas Corporation, www.viamericas.com   **Washington, DC**
A start-up to establish web-based system to assist the remittance by immigrant population in US to Latin America
▪ Incepted audit and budget control departments in the company
▪ Successfully raised $2 million by developing sound business plan and financial models
▪ Determined the strategic direction of the firm with CEO / negotiated daily with venture capitalists

Principal Policy Advisory/ Research & Development Specialist   **April 1997 – Oct.1998**
Directorate General of Industry
European Commission   **Brussels, Belgium**
▪ Principally designed European Industrial Research Strategic Plan with total value of $12 billion
▪ Prepared policy briefings for the Director General and European Commissioner of Industry

226

Junior Associate   **January 1995 – March 1997**
Fund Analyst / Assistant Controller   **July 1993 – January 1995**
Mercapital, www.mercapital.com   **Madrid, Spain**
The leading Spanish private equity firm
▪ Prepared sector, competitiveness & performance analyses of potential investments ($10-30 million)
▪ Designed and implemented valuation modeling of investment projects
▪ Collaborated with auditors and tax experts during project feasibility assessments

CONSULTANCY PROJECTS:

Consultant   **August-October 2004**
World Bank Group, *Head Strategist Office*   **Washington, D.C.**
▪ Prepared assignment "Medium-term analysis of private capital flows in developing countries"

Consultant   **June 1999-August 1999**
Eco-Axis, *The leading Argentine economic MERCOSUR consulting firm* **B.Aires, Argentina**
▪ Prepared consulting assignment "The Research and Development Policies in MERCOSUR and the European Union: Competitiveness and Integration Analysis"

OTHER EXPERIENCE:

Visiting Professor
Master in International Commerce (MACI)   **Since May 2002**
Ecole Superieure de Commerce de Bordeaux   **Bordeaux, France**
▪ Designed and Taught "Regional Integration and Foreign Direct Investment in Latin America"

Visiting Professor, Master of International Relations **August September 2002**
Asia Europe Institute, University of Malaya   **Kuala Lumpur, Malaysia**
▪ Designed and Taught "Introductory Macroeconomics"

Teaching Assistant, Economics Department   **1999 - 2002**
Johns Hopkins University, SAIS Washington, DC
▪ Lectured & Graded Macroeconomics, Int'l Monetary Theory, Int'l Monetary Systems, Econometrics
▪ Teaching assistant of Professor W. Max Corden
▪ Selected among the top 5% students at Johns Hopkins University, SAIS and unofficially named "Most popular TA"

PUBLICATIONS AND RESEARCH:

"El Salvador y Centro América ante el desafío del CAFTA", conference organized by Diario Expansión (June, 2004)
"Bolivia: un país atrapado por la gestión energética", Diario Expansion (May, 2004)
"The Economic and Political Crisis in Argentina", Intellibridge Corp., Washington, DC (September 2001)
"Mercosur & the European Union Research Policies: Competitiveness & Integration Issues", Mercosur Journal, Buenos Aires, Argentina; (September 1999)

LANGUAGE, COMPUTER SKILLS & OTHER RELEVANT INFORMATION:

Languages: Spanish (native), French (native), English (proficient), Italian (fluent), Portuguese (working knowledge)

Media Collaborations: Guest at Jim Lehrer's News Hour a Public Broadcasting Service (PBS), US public TV station prime time news, Guest at CBS-Market Watch financial news media channel, Article collaborations Diario Expansión top Spanish business and economic newspaper

227