ORGANIZED CRIME, FOREIGN INVESTMENT AND ECONOMIC GROWTH: THE LATIN AMERICAN CASE

SILVIA GÓMEZ SOLER*

ABSTRACT

Latin America has been seen over the years as a violent region. Organized crime has been a major factor contributing to that perception. Crime not only makes daily life more dangerous for citizens of a country, but can even challenge the viability of governments. Crime fighting efforts drain state resources, threaten the delivery of public services, and might have a negative influence on institutional stability and business environment. The purpose of this paper is to extend the empirical framework of Bengoa and Sánchez-Robles (2002) to cover the relationship between organized crime, foreign direct investment (FDI) and growth. Although the relationship between organized crime and FDI is not widely discussed in the literature, it can be argued that there is a very important channel through which this relationship may exist: institutional instability of states and viability of governments. The paper finds that there is no significant correlation between organized crime and FDI flows. The results also show that there is a negative relationship between FDI and growth. The relationship between FDI and growth was explored cautiously because the economic literature suggests that

* The author is a Lecturer at the Department of Economics, Pontificia Universidad Javeriana, Bogotá. This paper was researched and written at the School of International Service, American University, Washington, D.C., where she was Teaching and Research Assistant from January, 2011 to June, 2012. E-mail:sg8590a@american.edu. Submitted: July 1, 2012; accepted: September 7, 2012.

there is a two-way causal link between these two variables. That possible source of endogeneity in the analysis is addressed econometrically in this paper using the Two Stage Least Squares (2SLS) technique. The use of 2SLS was not originally considered by Bengoa and Sánchez-Robles (2002), and therefore it is an additional contribution of this paper to the literature.

Key Words: Organized crime, foreign direct investment, economic growth, Latin America

JEL **Classifications:** F21, F36, O40

RESUMEN

Crimen organizado, inversión extranjera directa y crecimiento económico: El caso de América Latina

Durante muchos años, América Latina ha sido considerada como una región con problemas de violencia. El crimen organizado ha sido un factor importante que ha contribuido a tal percepción. El crimen no sólo hace que el día a día de los ciudadanos de un país sea más peligroso, sino que también puede comprometer la viabilidad de los gobiernos. Los esfuerzos realizados para luchar contra el crimen organizado absorben una parte significativa de los recursos del Estado, amenazan la provisión de servicios públicos, y pueden llegar a tener un efecto negativo sobre la estabilidad institucional y el clima de negocios. Este trabajo busca extender la estrategia empírica de Bengoa y Sanchez-Robles (2002) para analizar la relación entre el crimen organizado, la inversión extranjera directa (IED) y el crecimiento económico. Aunque la relación entre el crimen organizado y la IED no ha sido discutida ampliamente en la literatura, es posible argumentar que hay un canal muy importante por medio del cual tal relación podría existir: inestabilidad institucional de los estados y viabilidad de los gobiernos. Este trabajo encuentra que no hay una correlación significativa entre el crimen organizado y los flujos de IED. Los resultados también muestran que existe una relación negativa entre la IED y el crecimiento económico. La relación entre la IED y el crecimiento fue explorada con cautela porque la literatura económica sugiere que existe una relación causal de dos vías entre estas dos variables. Esta posible fuente de endogeneidad se aborda econométricamente utilizando la técnica Mínimos Cuadrados Ordi-

narios en Dos Etapas (2SLS). El uso de 2SLS no fue considerada inicialmente por Bengoa y Sanchez-Robles (2002), y por tanto es una contribución adicional de este trabajo a la literatura.

Palabras clave: Crimen organizado, inversión extranjera directa, crecimiento económico, América Latina.

Clasificaciones JEL: F21, F36, O40

I. INTRODUCTION

For many years, Latin America has been seen as a violent region. Organized crime has been a major factor contributing to that perception. The fact that some countries from the area are major producers of drugs or are routes for the international drug traffic cartels has important implications for organized crime, and has increased the concern over the negative repercussions of this phenomenon on institutional stability and business environment and, thus, on regional growth (Soares and Naritomi, 2010). Pion-Berlin and Trikunas (2011) highlight that high levels of criminal violence not only make daily life more dangerous for citizens of a country, but can even challenge the viability of governments. In fact, crime fighting efforts drain state resources and threaten the delivery of other public services.

Some years ago, Bengoa and Sanchez-Robles (2002) explored the interplay between economic freedom, foreign direct investment (FDI) and economic growth using panel data analysis for a sample of 18 Latin American countries. The purpose of the present paper is to extend the empirical framework of Bengoa and Sanchez-Robles (2002) to cover the relationship between organized crime, FDI and growth. Since organized crime has an important impact on institutional stability and business environment, it makes sense to analyze the interplay between these variables.

The literature on the relationship between crime and FDI is not very abundant. In fact, only one paper directly examines this relationship in Latin America. Manrique (2006) analyzes the relationship in the region between organized crime and FDI. According to his research, organized crime intimidates civil society, and the social and economic costs of insecurity affect foreign investment, as infra-

structure is destroyed and additional security services are needed. Daniele and Mariani (2010) also contribute to the analysis, but using the Italian case. They examine the geography of organized crime in Italy and estimate its impact on the distribution of FDI inflows at the provincial level using different kinds of crime data. The results show that the correlation between organized crime and FDI inflows into the Italian provinces is negative and significant.

Although the relationship between organized crime and FDI is not widely discussed in the literature, I argue that there is a very important channel through which this relationship may exist: institutional instability of states and viability of governments.

Pion-Berlin and Trinkunas (2011) find that the real risk to both individual and national security can be found in violent, well-organized nonstate actors. These actors include youth gangs, transnational criminal-trafficking organizations, and terrorists. Pion-Berlin and Trinkunas see these groups are very violent, well armed, and well funded. As part of their illegal activities, they are ready to compete with each other for control over drugs and contraband. According to Bagley (2004), patterns of patrimonial rule, clientelism, and bureaucratic corruption in Latin America have encouraged organized crime groups to use tactics of bribery, blackmail and intimidation to maintain their illicit businesses. In fact, as Buscaglia and van Dijk (2003) argue, organized crime is more than an isolated criminal phenomenon; there are links between the political, socio-economic, criminal justice and legal domains.

Buscaglia and van Dijk (2003) find that the levels of organized crime and corruption in the public sector are primarily determined by the quality of core public state institutions, such as the police, prosecution and the courts. According to them, this relationship holds for countries at all levels of development. Additionally, they highlight that, other than these institutional determinants, high levels of organized crime and corruption are linked to low levels of human development, generating a vicious circle of poverty exploited and compounded by organized crime. In fact, Buscaglia and van Dijk show that organized crime and corruption prosper in an environment of bad governance.

Nagle (2002) points out that organized crime was part of the fabric of Latin American governments for most of the twentieth century. Despite efforts to combat it, transnational criminal activities are thriving in the hemisphere. In fact, the fragility of the rule of law in Latin America has allowed organized criminal

enterprises to take root. Buscaglia and van Dijk (2003) also highlight that poverty and unemployment do not just provide a greater supply of potential illegal labor for organized criminal activities, but they also create a favorable environment for criminals to exploit the social fabric of countries as a foundation for organized crime. This is indeed a significant problem in Latin America, where the levels of poverty and unemployment are high.

One conclusion of the analysis that follows is that there is no significant correlation between organized crime and FDI flows. The results also show that there is a negative relationship between FDI and growth. This finding, however, was explored cautiously because the economic literature suggests that there is a two-way causal link between FDI and growth. That possible source of endogeneity in the analysis is addressed econometrically in this paper using the Two Stage Least Squares (2SLS) technique. The use of 2SLS was not originally considered by Bengoa and Sanchez-Robles (2002), so one contribution of this paper is to fill that gap.

The paper is organized as follows: in section II a review of the literature is presented; the conceptual framework is presented in section III; in section IV the model specification is introduced; the data is presented in section V; econometric strategy and results are presented in section VI; and section VII concludes.

II. REVIEW OF THE LITERATURE

There are a number of studies on the determinants of FDI in the Latin American case. These studies have pointed out the importance of variables like market size, macroeconomic stability and capital liberalization as determinants of FDI. Yet, as mentioned earlier, only one directly examines the relationship in Latin America (Manrique, 2006). What follows is a brief review of the literature on the determinants of FDI in Latin America and its relationship to growth. This overview is relevant because it provides a discussion of the variables that should be included in the econometric model specified below. The literature examined is limited to the Latin American case, given the focus of the paper. For a general survey of the determinants of FDI and the relationship between FDI and economic growth the reader should refer to Nunnenkamp and Spatz (2002), Borensztein, Lee and De Gregorio (1998), and Agarwal (1980).

A. Determinants of Foreign Direct Investment in Latin America

Montero (2008) uses panel data for fifteen countries to study the determinants of FDI in Latin America. He argues that foreign investors view current account surpluses or low deficits as credible signs of a commitment to good macroeconomic management. Additionally, he finds that infringements of political and civil rights and the relative level of political terror are not consistent predictors of FDI.

Biglaiser and DeRouen (2006) study the effects of different economic reforms for attracting FDI, using a panel-corrected standard error procedure. In contrast to Montero, they argue that attempts to minimize expropriation risk enhance foreign investor interest. Additionally, they find that good governance is an important factor in attracting FDI. However, according to Biglaiser and DeRouen (2006), most economic reforms, including international capital liberalization, tax reform and privatization, have a limited effect on FDI.

Fukumi and Nishijima (2010) use panel data for 19 countries in Latin America and the Caribbean to show the relationship between FDI and institutional quality. They use the average of three indexes (law and order, bureaucratic efficiency and corruption) to create an index of institutional quality. Fukumi and Nishijima (2010) find that FDI could improve the quality of institutions, while better institutions could attract more FDI into the region. They show that factors such as the improvement of macroeconomic performance, liberalization and institutional reform attract investors. Their results indicate that an increase in FDI inflows, accompanied by easing of capital controls, can play a crucial role in improving institutional quality. They conclude that the region is in urgent need of institutional reform.

In sum, the papers mentioned above highlight the importance of including variables related to macroeconomic performance and institutional background in the specification used to analyze the determinants of FDI.

B. Foreign Direct Investment and Growth in Latin America

Using a panel data econometric approach, Zhang (2001) studies eleven economies in Latin America and East Asia to show that the extent to which FDI enhances growth depends on country-specific characteristics. He uses Granger causality

tests to establish the causal relationship between FDI and GDP. In fact, Zhang shows that there are significant differences between East Asia and Latin America when their patterns of FDI growth are compared. The country-specific characteristics that Zhang highlights are education, macroeconomic stability, liberalization of the trade regime, and incentives for export-oriented FDI.

Mengistu and Adams (2007) use a cross-section dataset of 88 developing countries to show that FDI is positively and significantly correlated with economic growth. Additionally, they show that a country's institutional infrastructure is positively and significantly correlated with economic growth. In this paper a political risk measure is taken as a proxy of institutional or governance infrastructure. In the same line of analysis as Mengistu and Adams (2007), Hsiao and Chen (2003) had previously explored the importance of institutions and urbanization in the study of the relationship between FDI and economic growth. They use a panel of 23 developing countries covering a time period between 1976 and 1997 to analyze the factors that determine FDI. Their results show that economic growth, predictable behavior, trustworthiness and commitment of governing institutions, infrastructural development of cities, and lower tax rates are important factors in attracting FDI. Additionally, Hsiao and Chen find a feedback relation between FDI and economic growth.

Sylwester (2005) explores how FDI affects economic growth in 29 less developed countries using cross section data for the period 1970-1989. Using proxies for economic openness, political instability, and schooling as control variables, he finds a positive relation between FDI and economic growth and no evidence that FDI raises income inequality. His main argument is that finding ways to attract FDI can promote growth without skewing income distributions.

Contrary to the other papers referenced in this review, Tsai (1994) does not find any strong effects of FDI on growth in a sample of LDCs taken from the 1970s and 1980s. He argues that ignoring the simultaneity between determinants and consequences of FDI is very likely to lead to unreliable results. Therefore, he uses a simultaneous equation model with economic growth and FDI per capita as dependent variables.

The pioneering work of Bhagwati (1978) should also be considered. Bhagwati (1973) examined how a restrictive or open trade regime can set limits to the gains from FDI. The Bhagwati hypothesis states that gains from FDI are probably much lower or even negative under an import substitution regime, compared to those under a policy regime that promotes trade (Bhagwati, 1978, 1994). An additional

contribution of our article to the literature is the use of the Index of Economic Freedom as an explanatory variable, which is a more appropriate way of incorporating trade regimes into the analysis, instead of including a trade regime dummy, as is usually done. The inclusion of the Index of Economic Freedom as an explanatory variable will be discussed in section IV.

Finally, it is important to mention the work of De Mello (1997), who surveys the latest contributions in the literature on FDI and growth in developing countries. De Mello argues that the impact of FDI on growth can be manifold and vary a great deal between technologically advanced and developing countries. The impact of FDI on growth in the recipient economy depends on the scope of efficiency spillovers to domestic firms, by which FDI leads to increasing returns in domestic production. De Mello is an indispensable reference for those interested in a more complete perspective of the literature in this area.

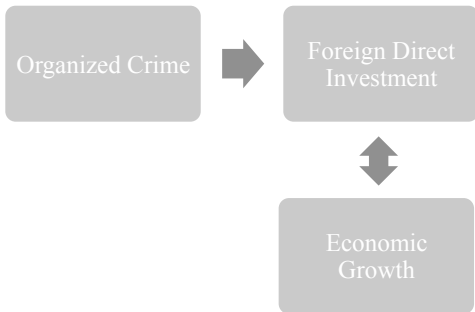
In sum, the papers reviewed above highlight the importance of including variables related to macroeconomic performance, trade regimes, institutional background, and educational levels in the specification used to determine the relationship between FDI and growth.

III. CONCEPTUAL FRAMEWORK

Following Manrique (2006), it is argued here that organized crime, through its effects on the social and economic costs of insecurity, affects foreign investment. Organized crime is associated with high social costs because it destroys infrastructure and raises the need for additional security services, thus affecting the flow of FDI. Therefore, there is a one-way relationship between organized crime and FDI. Organized crime may have a direct influence on economic growth as well. In what follows, this possible direct relationship is not explored because it goes beyond the scope of this paper; it remains a topic for future research.

Economic theory has pointed to a causal relationship between economic growth and FDI that can run in either direction (Tsai 1994). In one direction, FDI can be attracted by host country economic growth if the host country offers a sizeable consumer market. FDI serves as a substitute for commodity trade and leads to greater economies of scale and cost efficiency in the host country. In the other direction, FDI can contribute to host country economic growth through increases in its capital stock, via the introduction of complementary inputs, technology

FIGURE 1



transfer and skill acquisition, or increasing competition in local industry (Dhakal et. al, 2007).

IV. MODEL SPECIFICATION

In this empirical exercise, two different models are used to analyze the interplay between organized crime, FDI and economic growth. One model estimates the determinants of FDI and the other determines the relationship between FDI and economic growth. In what follows the economic rationale of these two models will be discussed.

A. Determinants of Foreign Direct Investment

Following Montero (2008), the following FDI function will be estimated:

$$(FDI)_{it} = f[(LGDP)_{it-1}, REX_{it}, DS_{it}, AIRT_{it}, GED_{it}, CR_{it}, EF_{it}, OC_{it}, O_{it}] + \varepsilon_{it} \qquad (1)$$

Where,
FDI is the ratio of FDI inflows to real GDP (constant 2000 US$);
LGDP is the lagged log of real GDP (constant 2000 US$);
REX is the real exchange rate;
DS is the ratio of debt service payments to exports of goods and services;

AIRT is air transport freight costs relative to country size;

GED is government expenditures on education as a percentage of GNI (constant 2000 US$);

CR is credit channeled by the banking system to the private sector as a percentage of GDP;

EF is the economic freedom index calculated by the Fraser Institute;

OC is a proxy for organized crime; and

CO is a proxy for corruption.

B. Economic Rationale for the Foreign Direct Investment Model

This section presents the economic rationale for the variables included in the model. The focus of this paper is on the empirical relationship between organized crime and FDI. Therefore, the variable that takes up most of our attention is organized crime.

It is not easy, however, to quantify organized crime. Data are often lacking and the number of observations tends to under-report the effective dimension of the problem. Notwithstanding these limitations, the variable organized crime (OC) is quantified using survey data from the World Economic Forum's Executive Opinion Survey about the costs to businesses of organized crime. Examples of these costs include mafia-oriented racketeering and extortion. Business executives are asked in surveys the question of whether organized crime imposes significant costs on businesses, using a scale from 1 to 7, where a score of 1 indicates significant (higher) costs to businesses. This variable is a good proxy for organized crime in this case.

Organized crime has an important negative impact on institutional stability and business environment. Therefore, it follows that when companies perceive high costs associated with organized crime, the levels of FDI should be lower. For these reasons, the coefficient of this variable is expected to be negative. However, though it is a good proxy for organized crime, the perception of firms has some limitations. Opinion surveys capture perceptions of business executives and are not necessarily representative of the broader population. Also the results of surveys may be influenced by prevailing trends in economic conditions and by recent events (Inter American Development Bank, 2011). It is impossible to control for these limitations, but they should be considered for possible policy implications.

The lagged log of real GDP (LGDP) is used as a proxy for Latin America's potential market size because foreign investors make their investment decisions based on expectations generated, in part, by the level of real GDP in the preceding year. This variable was lagged to avoid the simultaneity problem that may arise when using it as a regressor (Ramirez, 2010). Its coefficient is expected to be positive.

The real exchange rate is included in the model because it relates economic policy and international competitiveness. According to Ramirez (2010), a real appreciation of the domestic currency should increase the profitability of these sectors and, *ceteris paribus*, induce FDI flows to them. A real depreciation of the domestic currency reduces the (dollar) value of the profits and dividends sent back to the host company, thereby reducing the real rate of the investment. The variable is lagged because the decision to invest in a foreign country takes time due to implementation and institutional and legal delays (Ramirez 2010). The coefficient of this variable is expected to be negative.

The debt service payments to exports ratio (DS) is included as a measure country risk. The higher the ratio, the greater the probability that a balance of payments crisis will emerge which would hinder FDI flows to the country (Ramirez 2010). The coefficient of this variable is expected to be negative.

Air transport freight costs in relation to country size (AIRT) are included in the model. The hypothesis is that countries with better infrastructure are more attractive to foreign investors because they tend to have lower transportation costs. The coefficient of this variable is expected to be positive.

Government expenditures on education as a percentage of GNI (GED) are included as a proxy for human capital. It would have been preferable to use the secondary or tertiary enrollment ratio, but these variables were not available for every year of this study. The rationale for using this variable is that the higher the level of education, the more attractive it is to foreign investors both from a cost standpoint (lower unit labor costs) and a demand-side perspective (greater purchasing power and more informed consumers) (Ramirez 2010). The coefficient of this variable is expected to be positive.

The credit flows from the banking system to the private sector as a percentage of GDP (CR) is expected to have a positive impact on foreign direct investment flows (positive coefficient). The credit constraint can be problematic in terms of financing the construction of new plants, machinery, and equipment (Ramirez 2010).

The variable corruption (CO) is quantified using survey data from the World Economic Forum's Executive Opinion Survey about the costs of corruption for

businesses. When firms expect high costs associated with corruption, the levels of FDI should be lower. The coefficient of this variable is expected to be negative.

The Index of Economic Freedom (EF) is a composite index, designed by the Heritage Foundation, which ranges from 0 to 100. Values for this index, as well as its documentation, are included in the Governance Indicators Database of the Inter American Development Bank (2011). The Index of Economic Freedom (EF) is based on an aggregation of ten equally weighted component measures of freedom: business freedom, trade freedom, monetary freedom, freedom from government, fiscal freedom, property rights, investment freedom, financial freedom, freedom from corruption and labor freedom (Inter American Development Bank, 2011). This variable can help us assess whether the countries in the sample have conditions consistent with economic liberalization that are perceived as incentives for business activity, and are thus attractive to investors. The coefficient of this variable is expected to be positive.

C. FDI and Growth

Tsai (1994) finds that not only can the inflow of FDI affect the host country's economic growth, but economic growth can in turn affect the direction and volume of FDI. This suggests that the simultaneity between the determinants and the consequences of FDI should not be dismissed. A model that fails to capture the interdependence of the determinants and the consequences of FDI is flawed. According to Tsai, ordinary least squares (OLS) estimates of a single regression equation are very likely to be biased and inconsistent. Zhang (2001) finds that «countries with fast economic growth, not only generating more demand for FDI but also providing better opportunities for making profits, attract greater FDI [...] On the other hand, FDI inflows may foster economic growth of host countries through positive direct effects.» Considering the potentially biased results that this bidirectional causality might generate in an OLS estimation, a Two Stage Least Squares (2SLS) methodology will be used in this paper.

Following Barro (1996) we use the following growth equation:

$$G_{it} = \beta_0 + \beta_1 In\, y_{i,\,72} + \beta_2 POP_{i,\,t} + \beta_3 SCH_{i,\,72} + \beta_4 INV_{i,\,t} + \beta_5\, FDI_{i,\,t} + \beta_6\, RULE_{i,\,t} + \varepsilon_{it} \quad (2)$$

Where,
G_{it} is real GDP per capita growth of country *i*;
$In\ y_{i,\ 72}$ is the initial level of real GDP per capita (1972);
$POP_{i,\ t}$ is population growth;
$SCH_{i,\ 72}$ is the initial level of secondary school enrollment (1972);
$INV_{i,\ t}$ is the ratio of gross domestic investment to GDP;
$RULE_{i,\ t}$ is the rule of law index; and
$FDI_{i,\ t}$ is the ratio of FDI inflows to GDP.

V. THE DATA

The country panel data drew on information from the Inter American Development Bank's Governance Indicators base (DataGov), the ECLAC Databases and Statistics Website, and the World Bank's World Development Indicators (WDI). The variables included were discussed in detail in the previous section. Table 1 shows the sources of these variables and provides a brief description of each. The sample includes data for nineteen Latin American countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela. The panel includes yearly data from 2002 to 2008. There are a total of 143 observations covering those years.

Table 2 provides summary statistics of the variables included in the econometric models. A key feature of this dataset is that very few observations are missing. For example, observations about infrastructure (AIRT) are lacking for some countries (Dominican Republic, Guatemala, Honduras, Nicaragua, and Paraguay). In the case of the real exchange rate (REX), the only country not included is Argentina.

The variable organized crime (OC) is key to the analysis. As mentioned before, this variable is quantified using survey data of the costs of organized crime to businesses, such as the costs associated with mafia-related racketeering and extortion. Business executives were asked whether organized crime imposes significant costs on businesses, using a scale from 1 to 7, where a score of 1 means significant (higher) costs to businesses. As can be seen, Guatemala has the lowest average index of costs associated with organized crime (2.389), meaning that, on average, it is the country with the highest costs to businesses. This observation should not be surprising if we consider that in Guatemala the number of gangs and drug

TABLE 1
Description of the Variables and their Sources

Variable Name	Description	Source
FDI	Ratio of FDI inflows to real GDP (constant 2000 US$)	World Development Indicators (WDI)
LGDP	Lagged log of real GDP (constant 2000 US$)	World Development Indicators (WDI)
REX	Real exchange rate	World Development Indicators (WDI)
DS	Ratio of debt service payments to exports of goods and services	World Development Indicators (WDI)
GED	Government expenditures on education as a percentage of GNI (constant 2000 US$)	World Development Indicators (WDI)
CR	Credit channeled by the banking system to the private sector as a percentage of GDP	World Development Indicators (WDI)
EF	Economic freedom index	IDB Governance Indicators base (DataGov)
OC	Proxy for organized crime	IDB Governance Indicators base (DataGov)
CO	Proxy for corruption	IDB Governance Indicators base (DataGov)
AIRT	Air transport freight costs in relation to country size (multiplied times 1000 for ease of interpretation)	World Development Indicators (WDI)
G	Real GDP per capita growth of country	World Development Indicators (WDI)
POP	Population growth	World Development Indicators (WDI)
y	Real GDP per capita	World Development Indicators (WDI)
SCH	Initial level of secondary school Enrollment (1972)	ECLAC Databases and Statistics
RULE	Rule of law index (DataGov)	IDB Governance Indicators base
INV	Ratio of gross domestic investment to GDP	World Development Indicators (WDI)

TABLE 2

Descriptive statistics

	Argentina		Bolivia		Brazil		Chile		Colombia		Costa Rica	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
FDI	2.225	0.654	2.572	2.863	2.278	0.587	6.657	1.631	3.523	1.621	5.024	1.474
LGDP	26.477	0.183	23.015	0.115	27.339	0.104	25.236	0.114	25.521	0.131	23.703	0.146
REX	.	.	108.536	8.555	98.957	24.156	104.991	4.932	94.771	13.983	101.887	5.805
DS	22.246	10.968	16.981	6.091	43.054	18.566	21,985	6.387	34.472	12.271	8.919	1.691
GED	4.403	0.467	5.478	0.872	4.341	0.530	3.656	0.160	3.724	0.440	4.484	0.754
CR	37.515	12.808	55.703	7.330	85.180	11.246	90.315	5.997	51.058	9.212	46.671	6.308
EF	55.582	4.137	62.823	2.481	57.470	5.861	58.584	2.216	78.453	1.442	65.888	1.250
OC	4.111	0.434	2.689	0.488	4.378	0.286	3.711	0.344	5.967	0.235	4.800	0.354
CO	2.756	0.194	3.778	0.139	2.600	0.287	3.678	0.211	7.178	0.254	4.756	0.469
AIRT	0.428	0.064	0.134	0.072	1.855	0.168	15.351	1.390	10.279	4.800	2.017	0.182
G	4.626	6.676	2.282	1.204	2.744	2.602	2.726	2.312	2.813	1.764	2.767	3.031
POP	0.890	0.025	1.758	0.150	1.081	0.183	1.026	0.074	1.507	0.070	1.686	0.174
y	8.797	0.000	6.832	0.000	7.595	0.000	7.697	0.000	7.305	0.000	7.771	0.000
SCH	47.589	0.000	32.936	0.000	33.197	0.000	55.308	0.000	27.622	0.000	31.793	0.000
RULE	-0.694	0.150	-0.829	0.323	-0.346	0.080	1.251	0.025	-0.656	0.207	0.516	0.102
INV	20.166	4.114	14.859	2.007	16.899	1.237	20.714	1.643	20.620	2.332	20.271	1.794

TABLE 2 (continuación)
Descriptive statistics

	Dominican Republic		Ecuador		El Salvador		Guatemala		Honduras		Jamaica	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
FDI	3.856	1.065	1.543	1.146	1.134	1.106	1.507	0.597	5.497	1.343	6.094	2.389
LGDP	24.112	0.162	23.740	0.135	23.417	0.074	23.849	0.104	22.906	0.138	23.014	0.049
REX	106.427	14.933	64.412	2.754	101.566	1.908	79.750	6.303	95.892	5.194	107.146	6.434
DS	10.130	1.544	31.410	9.597	18.966	4.122	16,256	3.634	6.690	1.667	22.897	5.183
GED	1.877	0.000	1.376	0.000	2.865	0.288	2.209	0.686	3.546	0.000	5.080	0.788
CR	37.051	3.580	18.902	3.026	44.799	1.354	35.027	4.395	44.238	7.849	55.842	4.290
EF	56.779	2.528	51.761	3.029	70.880	1.440	59.916	1.611	57.496	2.747	65.594	2.032
OC	4.389	0.440	3.922	0.563	2.767	0.620	2.389	0.333	3.344	0.508	2.689	0.426
CO	3.011	0.136	2.278	0.172	3.889	0.271	2.722	0.427	2.444	0.124	3.411	0.276
AIRT	.	.	0.020	0.005	0.821	0.282	.	.	.	.	2.331	1.577
G	4.243	3.665	2.909	2.389	1.602	2.395	0.902	1.636	2.169	2.637	0.839	2.032
POP	1.433	0.070	1.576	0.114	0.415	0.071	2.478	0.018	2.002	0.013	0.408	0.091
y	7.068	0.000	6.833	0.000	7.529	0.000	7.132	0.000	6.791	0.000	8.118	0.000
SCH	21.497	0.000	28.033	0.000	23.338	0.000	9.619	0.000	15.865	0.000	47.301	0.000
RULE	-0.587	0.086	-0.998	0.253	-0.607	0.124	-1.121	0.074	-0.480	0.039	-0.449	0.148
INV	16.839	1.865	22.961	1.296	15.410	1.279	18.056	1.799	26.174	4.319	26.005	2.277

	Mexico		Nicaragua		Panama		Paraguay		Peru		Uruguay		Venezuela	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
FDI	2.555	0.656	6.368	1.644	7.764	3.731	1.212	0.737	3.890	1.168	4.352	1.848	0.595	1.100
LGDP	27.178	0.072	22.241	0.091	23.420	0.202	22.820	0.101	24.928	0.174	23.883	0.130	25.616	0.175
REX	107.633	8.101	108.087	2.372	109.061	4.443	101.936	10.769	100.176	2.824	127.764	15.959	119.708	23.422
DS	19.304	4.722	12.156	3.831	13.147	6.269	9.305	3.447	21.423	8.594	33.500	23.217	14.256	9.132
GED	4.900	0.217	2.965	0.000	4.199	0.410	3.940	0.404	2.625	0.176	2.304	0.000	3.934	0.451
CR	36.811	4.698	77.721	11.003	88.507	2.426	23.127	5.539	18.449	2.538	44.485	24.636	15.857	4.913
EF	64.958	2.350	58.707	3.912	65.053	1.225	57.232	3.347	63.341	3.104	68.399	1.806	44.511	5.334
OC	3.133	0.278	4.667	0.296	4.767	0.357	3.700	0.430	4.089	0.326	6.144	0.305	3.200	0.255
CO	3.456	0.181	2.589	0.078	3.433	0.194	2.122	0.319	3.544	0.124	6.344	0.500	2.167	0.212
AIRT	0.236	0.060	.	.	0.412	0.098	.	.	0.134	0.046	0.041	0.037	0.006	0.012
G	0.815	3.441	1.607	2.118	5.129	3.219	2.415	5.141	5.119	2.875	3.922	5.079	1.559	9.090
POP	1.253	0.024	1.301	0.040	1.719	0.096	1.872	0.090	1.145	0.100	0.161	0.186	1.690	0.084
y	8.157	0.000	7.172	0.000	7.914	0.000	6.654	0.000	7.638	0.000	8.374	0.000	8.749	0.000
SCH	22.819	0.000	18.800	0.000	45.617	0.000	16.784	0.000	39.960	0.000	61.776	0.000	37.912	0.000
RULE	-0.778	0.089	-0.137	0.033	-1.079	0.074	-0,674	0.122	0.567	0.095	-0.877	0.060	-1.413	0.177
INV	20.249	1.354	27.984	2.539	19.561	4.569	17.754	1.368	20.722	3.241	16.827	3.030	20.327	2.809

traffickers has increased in a remarkable way (International Crisis Group, 2011). According to the International Crisis Group, «while traffickers contribute to the crime wave in border regions and along drug corridors, youth gangs terrorize neighborhoods in Guatemala City». On the other hand, Uruguay has the highest average index (6.144). This means that, on average, Uruguay has the lowest perceived costs for business executives associated with organized crime. The descriptive statistics seem to capture a trend: Central American countries have been the main targets of organized crime over recent years, whereas countries in the southern part of the continent have been less prone to such phenomena.

Another relevant variable because of its particular behavior is Foreign Direct Investment (net inflows as % of GDP). More specifically, it is interesting to study the case of Bolivia. As shown in Table 2, the average FDI in Bolivia for the period 2002-2008 was 2.57, and its standard deviation was 2.86. The coefficient of variation is particularly high. Barja (2007) observes that, between 2000 and 2004, when there was an economic downturn, social unrest and wide questioning of the current economic model, FDI became somewhat volatile, with a tendency to decrease. This trend has continued up to the present.

VI. ECONOMETRIC RESULTS

In this exercise panel data is used to understand the relationship between organized crime and FDI and between FDI and economic growth. Panel data provides both a spatial and temporal dimension to the analysis. According to Yaffee (2003), the combination of time series with cross-section analysis can enhance the quality and quantity of data in ways that would not be possible by only using one of these two dimensions.

A. Econometric Approach – Determinants of Foreign Direct Investment

In the first part of this section, fixed-effect and random-effect models are estimated to study the determinants of FDI. A fixed effect model assumes differences in intercepts across groups or time periods. According to Yaffee (2003), in this model the slope is constant but intercepts differ according to the cross-section, in this case, the country. Although there are no significant temporal effects, there

are significant differences among countries in this type of model. While the intercept in this case differs from country to country, it may or may not differ over time. According to Torres (2007), a fixed-effect model assumes that something within the individual may impact or bias the predictor or outcome variables. Thus, it becomes necessary to control for this. The model removes the effect of time-invariant characteristics from the predictor variables so that it is possible to assess the net effect of the predictor.

The equation for the fixed-effect model is:

$$FDI_{it} = \alpha_1 + \beta_1 (LGDP)_{it-1} + \beta_2 REX_{it} + \beta_3 DS_{it} + \beta_4 RAIL_{it} + \beta_5 GED_{it} + \beta_6 CR_{it} + \beta_7 EF_{it} + \beta_8 OC_{it} + \beta_9 CO_{it} + \varepsilon_{it} \quad (3)$$

Where,
α_1 is the unknown intercept for each country, and
ε_{it} is the error term.

On the other hand, a random-effect model explores differences in error variances. The rationale behind a random-effect model is that, unlike the fixed-effect model, the variation across countries is assumed to be random and uncorrelated with the predictor or independent variables (Torres, 2007). This model should be used if there are reasons to believe that differences across countries have some influence on FDI. The random outcome is a function of a mean value plus a random error.

The equation for the random-effect model is:

$$FDI_{it} = \alpha + \beta_1 (LGDP)_{it-1} + \beta_2 REX_{it} + \beta_3 DS_{it} + \beta_4 RAIL_{it} + \beta_5 GED_{it} + \beta_6 CR_{it} + \beta_7 EF_{it} + \beta_8 OC_{it} + \beta_9 CO_{it} + u_{it} + \varepsilon_{it} \quad (4)$$

Where,
α is the intercept,
u_{it} is the between country error, and
ε_{it} is the within country error term.

The Hausman test is used to identify which model is appropriate in this case (Yaffee, 2003).

1. Determinants of Foreign Direct Investment: Results

The results of the econometric analysis are summarized in Table 3. Three different specifications were estimated, (1), (2) and (3). According to the Hausman test, the model should be estimated using fixed effects. The results with random effects are also shown in the table in columns (1b), (2b) and (3b).

It is possible that there are heteroskedasticity problems that may result from groupwise differences. According to Yaffee (2003), the use of a White heteroskedasticity consistent covariance estimator with ordinary least squares estimation in fixed effects models can yield standard errors robust to unequal variance along the predicted line. Heteroskedasticity can be assessed with a White or a Breusch-Pagan test. The use of computational tools, in this case STATA, allows us to perform robust estimations and handle groupwise heteroskedasticity.

The organized crime variable is significant at a 90% level in regressions (2b) and (3b). In these two regressions the model was estimated with random effects. These results are not very conclusive because, as mentioned earlier, according to the Hausman test the model should be estimated with fixed effects. The coefficient obtained from this regression is positive. However, the expected sign was negative. This result seems contradictory because one would expect that, if companies anticipate high costs associated with organized crime, the levels of FDI would be lower. However, the organized crime variable is not significant in any of the regressions that were run using fixed effects. According to these results, the presence of organized crime is not a significant determinant of flows of FDI to Latin American countries.

Another finding is that the lagged log of real GDP (LGDP), the credit channeled by the banking system to the private sector as a percentage of GDP (CR) and the ratio of debt service payments to exports of goods and services (DS) are important determinants of FDI flows in Latin America. LGDP has a positive and very significant (at a 99% level) effect on FDI flows in regressions (2) and (3). This variable is used as a proxy for Latin America's potential market size and, as expected, the observed coefficient is positive. The bigger the potential market size, the more likely a country is to receive flows of FDI. CR has a negative and very significant (at a 99% and 95% level, respectively) effect on FDI flows in regressions (2) and (3). This result contradicts the expected coefficient, which should have been positive. It could be argued that this result reflects the possibility that credit in Latin America is not being adequately used for financing production related activities, like the construction of new plants, machinery, and equipment. The debt service

TABLE 3

Organized Crime and Foreign Direct Investment in Latin America

	1	1b	2	2b	3	3b
Intercept	-102.6199 (51.9934)**	6.0557 -9.7801	-93.13967 (36.59113)***	5.352673 -8.209368	-94.1241 (36.41009)***	5.9516 -7.919138
LGDP	4.36095 (2.087218)**	-0.3765 -0.3621748	4.0464 (1.523036)***	-0.32525 -0.3195701	4.0401 (1.517937)***	-0.3436 -0.3085154
REX	-0.02272 -0.0237389	-0.0104 -0.0183542	-0.0166 -0.0175883	-0.01239 -0.0147276	-0.0152 -0.0017273	-0.0110 -0.0145714
DS	0.03192 -0.0222866	0.0094 -0.0195564	0.0318 (0.0184006)*	0.00985 -0.0170037	0.0315 (0,0183277)*	0.0084 -0.0168684
GED	0.26613 (0.4733271)*	0.4429 -0.3589409	0.2529 -0.3568488	0.28086 -0.2864962	0.2234 -0.350101	0.2531 -0.2783892
AIRT	246.61430 -436.4375	487.11003 -399.8995				
CR	-0.04555 -0.0258355	-0.0019 -0.017838	-0.0476 (0.0194978)***	-0.00045 -0.0145145	-0.0456 (0.0189692)**	0.0019 -0.0142474
EF	0.05187 -0.089928	0.0777 -0.0620833	0.0215 -0.0608179	0.07689 (0.0496551)*	0.0243 -0.0603173	0.0652 -0.0451805
OC	0.02114 -0.5604627	0.6136 -0.4522137	0.2969 -0.4119231	0.59773 (0.3372347)*	0.2613 -0.4035073	0.5283 (0,3099652)*
CO	-0.37085 -0.8021031	-0.3468 -0.449709	-0.2753 -0.5864716	-0.20037 -0.36089		
R^2 Within	0.1189	0.0106	0.1431	0.0327	0.1415	0.0274
R^2 Between	0.1666	0.4469	0.1461	0.2342	0.1323	0.2426
R^2 Overall	0.0754	0.2389	0.0745	0.1517	0.0671	0.1561
Hausman Text	10.52	10.52	25.78	25.78	28.81	28.81
pvalue	0.1042*	0.1042*	0.0011***	0.0011***	0.0002***	0.0002***
Number of Observations	102	102	143	143	143	143
Number of Groups	13	13	18	18	18	18
Type of Estimation	Fixed Effects	Random Effects	Fixed Effects	Random Effects Fixed	Effects Random Effects	

Dependent Variable is the Ratio of Foreign Direct Investment Inflows to GDP

Std. Err. under coefficients Significance levels: * = 10%, ** = 5%, *** = 1%

payments to exports ratio variable (DS), has a positive and significant (at a 90% level) effect on FDI flows in regressions (2) and (3). As mentioned previously, this variable is included to measure country risk; the higher the ratio, the greater the probability that a balance of payments crisis will emerge which would likely hinder FDI flows to the country. The coefficient of this variable was expected to be negative. However, the results show a different story. It could be argued that investors are risk-loving and are willing to invest under risky conditions if there are expectations of really high returns. This possibility could be explored in more detail in future research.

The estimations made by Bengoa and Sanchez-Robles (2002) show that the index of economic freedom has a positive and very significant effect on capital flows. However, the results presented in Table 2 contradict their findings. Economic freedom is only significant at 90% in specification (2b). Furthermore, according to the Hausman test this specification (random effects) is not adequate. The results of these two exercises may differ because of two factors that are worth mentioning. First, the time period considered by Bengoa and Sanchez-Robles (2002) is much longer (1970 to 1999) than the time period considered in this paper (2002 to 2010), and the years studied don't overlap. For these reasons, our results may be capturing different time-specific effects. Also, we consider here more control variables than Bengoa and Sanchez-Robles (2002).

B. Econometric Approach – Relationship between Foreign Direct Investment and Economic Growth

An important source of endogeneity is reverse causality.[1] As mentioned previously, in this empirical exercise reverse causality poses a problem because it is possible that not only FDI has an impact on growth, but at the same time growth has an impact on FDI. The use of conventional methods to estimate this model can lead to biased results. To address this problem and identify the effect of FDI on growth, a Two Stage Least Squares (2SLS) regression was used.

[1] Endogeneity occurs because an independent variable included in the model is potentially a choice variable, correlated with unobservables (error term).

The goal of 2SLS in this case is to find a proxy for FDI that will not be correlated with the error term. We call this proxy $\widehat{FDI}$. The purpose of the first stage of the two stage strategy is to generate the proxy; the purpose of the second stage is to substitute the proxy for FDI and estimate the resulting equation with a pooled regression.

1. Relationship between Foreign Direct Investment and Economic Growth: Results

The results of the econometric analysis are summarized in Table 4. The Sargan test shows that the null hypothesis (i.e., that the instruments are uncorrelated with the error term) cannot be rejected, and suggests that the specification of the equation is adequate. However, it is important to state that the Sargan test does not test the validity of the model per se. Rather, the test considers whether the overidentifying conditions are correct. Additionally, both the Anderson and Cragg-Donald Wald statistics suggest that we can reject the null hypothesis of underidentification, which means that the reduced-form equation is identified in that the excluded instruments are correlated with the endogenous regressor.

In the 2SLS regression, the variable that quantifies the flows of FDI has a negative and significant (at a 90% level) effect on growth, casting doubt on the overall general benefit of FDI inflows. This result confirms theories that predict that FDI will hurt resource allocation, and actually slows growth in the presence of preexisting trade, price, financial, and other distortions (Boyd and Smith 1992). There are important policy implications arising from this result. Developing countries in Latin America may need to reconsider the extensive use of subsidies, incentives and exemptions to attract FDI. But before taking any policy actions it is important to examine in more detail the specific case of the particular country, as the results of this empirical exercise are based on a cross section of countries.

Other variables included as controls are also significant. The initial level of secondary school enrollment (SCH), population growth (POP) and the ratio of gross domestic investment to GDP (INV) have a positive and significant effect on growth. This means that higher levels of education and gross domestic investment lead to higher economic growth. Economic theory supports these results.

TABLE 4
Foreign Direct Investment and Growth in Latin America

	2SLS
Intercept	-1.21311 (6.53372)
$\widehat{FDI}$	-0.42829 (0.2640)*
POP	1.31870 (0.7919)*
ln y	-0.69200 (0.8626)
SCH	0.12233 (0.0520)**
RULE	-0.06518 (0.5911)
INV	0.24232 (0.12850)**
Underidentification test (Anderson canon. corr. LM statistic): Chi-sq(9) P-val =	39.452 0.000
Weak identification test (Cragg-Donald Wald F statistic): Stock-Yogo weak ID test critical values: 5% maximal IV relative bias Sargan statistic (overidentification test of all instruments): Chi-sq(8) P-val =	6.097 20.53 11.015 0.2008
Std. Err. under coefficients (Significance levels: * = 10%, ** = 5%, *** = 1%).	

VII. CONCLUSIONS

Organized crime has been a major factor contributing to the perception that Latin America is a violent region. The purpose of this paper is to extend the empirical framework of Bengoa and Sanchez-Robles (2002) to cover the relationship between organized crime, foreign direct investment and economic growth. Since

organized crime has an important impact on institutional stability and business environment, it makes sense to analyze the interplay between these variables.

This paper finds that there is not a significant correlation between organized crime and FDI flows when the model is estimated with fixed effects. However, the organized crime variable is significant at a 90% level in regressions estimated with random effects. This shows that results are not conclusive, because as mentioned earlier, according to the Hausman test the model should be estimated with fixed effects. The coefficient obtained with a fixed effect-regression is positive. However, the expected sign was negative. This result seems contradictory because one would expect that if investors perceive high costs associated with organized crime, the levels of FDI would be lower. However, the organized crime variable is not significant in any of the regressions that were run using fixed effects. According to these results, organized crime is not a significant determinant of flows of FDI to Latin American countries.

The results also show that there is a negative relationship between FDI and economic growth. The relationship between FDI and growth was explored cautiously because the economic literature suggests that there is a two-way causal link between these two variables. That possible source of endogeneity in the analysis was addressed econometrically using the Two Stage Least Squares (2SLS) technique.

A problem encountered in this empirical exercise was the limited availability of information on the costs of organized crime. The information for this variable is only available from 2002 to 2008. It is worth exploring the relationship between FDI and organized crime again when a longer series of data becomes available. The 2SLS technique may also be problematic because it is often difficult to find instruments that are both good at predicting the variable in question, and yet are not determinants of the dependent variable. Consequently, it is possible that the 2SLS estimates are not robust to the choice of instrument. This issue was thoroughly explored in this paper using different tests. Results show that the instruments used are adequate. The issues analyzed in this empirical exercise are of great relevance to all countries in Latin America. Therefore researchers should be encouraged to consider the limitations mentioned above, and try to address them in the future.

Finally, one contribution of this paper is the exploration of a new methodology to understand the relationship between crime and FDI. The literature on this topic today is very limited. It should also be explored further in future research.

REFERENCES

Agarwal, Jamuna (1980), «Determinants of foreign direct investment: A survey», *Review of World Economics* (Weltwirtschaftliches Archiv), Springer, Vol. 116(4).

Bhagwati, Jagdish N. (1978), «Anatomy and Consequences of Exchange Control Regimes»,

Studies in International Economic Relations, New York: NBER.

Bhagwati, Jagdish N. (1994), «Free trade: old and new challenges», *Economic Journal*, 104 (423), pp.231-246.

Bagley, Bruce (2004), «Globalisation and Latin American and Caribbean Organised Crime», *Global Crime*, 6:1.

Barja, Gover (2007), «Bolivia: Country Study», *Southern Perspectives on Reform of the International Development Structure.*

Barro, Robert (1996), «Determinants of Economic Growth: A Cross Country Empirical Study», NBER Working Paper Series, Working Paper 5698.

Bengoa, Marta, and Blanca Sanchez-Robles (2002), «Foreign Direct Investment, Economic_Freedom and Growth: New Evidence from Latin America», *European Journal of Political Economy,* Vol. 19.

Biglaiser, Glen, and Karl DeRouen (2006), «Economic Reforms and Inflows of Foreign Direct_Investment in Latin America», *Latin American Research Review*, Vol. 41, No. 1.

Borensztein, E., J., De Gregorio, J., and J-W Lee (1998), «How does foreign direct investment_affect economic growth?», *Journal of International Economics*, Elsevier, Vol. 45(1).

Boyd, John, and Bruce Smith (1992), «Intermediation and the Equilibrium Allocation of_Investment Capital: Implications for Economic Development», *Journal of Monetary Economics*, Vol. 30.

Buscaglia, Edgardo, and Jan van Dijk (2003), «Controlling Organized Crime and Corruption in the_Public Sector», Latin American and Caribbean Law and Economics Association.

Daniele, Vittorio, and Ugo Marani (2010), «Organized Crime and Foreign Direct Investment: The Italian Case», CESIFO Working Paper No. 2416, December.

De Mello, Luiz (1997), «Foreign Direct Investment in Developing Countries and Growth: A_Selective Survey», *The Journal of Development Studies*, Vol. 34, No. 1.

Dhakal, A., Rahman, S., Upadhyaya, K. (2007), «Foreign direct investment and economic growth_in Asia», *Indian Journal of Economics and Business*, June.

ECLAC, Economic Commission for Latin America and the Caribbean (2011), Statistical Information. Available at: http://www.eclac.org/estadisticas

Fukumi, Atsushi and Shoji Nishijima. Institutional quality and foreign direct investment in Latin America and the Caribbean. Routledge. Applied Economics No. 42, 2010. 1857–1864.

Hsiao, Cheng (2003), *Analysis of Panel Data*, Cambridge University Press.

Hsiao, Cheng, and Yan Shen (2003), «Foreign Direct Investment and Economic Growth: The_Importance of Institutions and Urbanization», *Economic Development and Cultural Change*, Vol. 51, No. 4.

Inter American Development Bank (2011). Governance Indicators Database. Available at: http://www.iadb.org/datagob

International Crisis Group (2011), «Guatemala: Drug Trafficking and Violence». Available at: http://www.crisisgroup.org/en/regions/latin-america-caribbean/guatemala/139-guatemala-drug-trafficking-and-violence.aspx

Manrique, Luis Esteban (2006), *A Parallel Power: Organized Crime in Latin America*, Real Instituto Elcano, Madrid

Mengistu, Berhanu, and Samuel Adams (2007), «Foreign Direct Investment, Governance and_Economic Development in Developing Countries», *The Journal of Social, Political, and Economic Studies*, Vol. 32, No. 2.

Montero, Alfred (2008), «Macroeconomic Deeds, Not Reform Words: The Determinants of Foreign Direct Investment in Latin America», *Latin American Research Review*, Vol. 43, No. 1.

Nagle, Luz Estella (2002), «The Challenges of Fighting Global Organized Crime in Latin_America», *Fordham International Law Journal*, Vol. 26, Issue 6, Article 5.

Nunnenkamp, Peter, and Julius Spatz (2002), «Determinants of FDI in Developing Countries: Has_Globalization Changed the Rules of the Game?», Kiel Institute of World Economics.

Pion-Berlin, David, and Harold Trikunas (2011), «Latin America's Growing Security Gap», *Journal of Democracy*, Vol. 22, Number 1, January.

Ramirez, Miguel (2010), «Economic and Institutional Determinants of FDI Flows to Latin_America: A Panel Study», Trinity College Working Paper 10-03, Hartford, CT.

Soares, Rodrigo, and Joana Naritomi (2010), «Understanding High Crime Rates in Latin America», in Rafael Di Tella, Sebastian Edwards and Ernesto Schargrodsky, editors, *The Economics of Crime: Lessons for and from Latin America*, The University of Chicago Press, Chicago

Sylwester, Kevin (2005), «Foreign Direct Investment, Growth and Income Inequality in Less Developed Countries», *International Review of Applied Economics*, Vol. 19, No. 3.

The World Bank, World Development Indicators. Available at: http://data.worldbank.org/data-catalog/world-development-indicators

Torres, Oscar (2007), «Panel Data Analysis: Fixed and Random Effects», Data and Statistical Services, Princeton University. Available at: http://www.princeton.edu/~otorres/Panel101.pdf

Tsai, Pan-Long (1994), «Determinants of Foreign Direct Investment and Its Impact on Economic Growth», *Journal of Economic Development*, Vol. 19, No. 1.

Yaffee, Robert (2003), «A Primer for Panel Data Analysis», Connect - Information Technology at New York University. Available at: http://www.nyu.edu/its/pubs/connect/fall03/pdfs/yaffee_primer.pdf

Zhang, Kevin (2001), «Does Foreign Direct Investment Promote Economic Growth? Evidence from East Asia and Latin America», *Contemporary Economic Policy*, Vol. 19, No. 2.