

# GOVERNANCE AND FOREIGN DIRECT INVESTMENT IN LATIN AMERICA: A PANEL GRAVITY MODEL APPROACH\*

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It is widely argued that good governance is an important determinant of foreign direct investment (FDI). With the exception of studies of corruption, however, empirical research on the link between governance and FDI is limited, particularly in the context of Latin America. Moreover, recent studies by Bellos and Subasat (2012a and 2012b) suggest that poor governance is a source of attraction rather than a hurdle for multinational companies in selected transition countries. By employing a panel data gravity model, this article aims to verify these unusual and interesting results in the context of selected Latin American countries. Our results confirm that the FDI enhancement role of poor governance exists not only in the transition countries but also in Latin America.

**JEL classification:** D73, F23, P20, C23

**Keywords:** Governance, FDI, Latin America, panel gravity model

## 1. INTRODUCTION

Dunning (2002) argued that institutional factors such as good governance and economic freedom are becoming increasingly important determinants of foreign direct investment (FDI) as the motives of multinational companies (MNCs) have shifted from market- and resource-seeking to efficiency-seeking. This implies that the traditional determinants of FDI such as natural resources, low labor costs and good infrastructure are now becoming relatively less important while less traditional determinants such as governance and economic freedom are becoming more important (Loree and Guisinger, 1995; Noorbakhsh, Paloni and Youssef, 2001; Addison and Heshmati, 2003; Becchetti and Hasan, 2004). Except corruption, the empirical investigation of the link between governance and FDI is limited, with few papers supporting the widespread view that good governance encourages FDI (Globerman

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and Shapiro, 2003; Biglaiser and DeRouen, 2006; Gani, 2007; Staats & Biglaiser, 2012). The recent empirical work by Bellos and Subasat (2012a), however, suggests that corruption attracts MNCs to selected transition countries, rather than dissuading them from entering. Bellos and Subasat (2012b) investigated the link between good governance and FDI in the same transition countries and found similar results. Apart from democratic accountability, all other governance variables were negatively associated with FDI, revealing FDI-enhancing aspects of poor governance.

This article aims to verify these interesting results in the context of Latin America. This is a worthwhile exercise for four reasons. First, the literature on the relationship between good governance and FDI in the context of Latin America is very limited and has not yet been tested with the use of a panel data gravity model. Second, given that the results of Bellos and Subasat (2012a and 2012b) fundamentally contradict most of the pertinent literature, confirming these findings in the context of other regions such as Latin America is imperative. Third, we employ governance variables in target and source countries in order to take both push and pull factors into account. For example, a low level of corruption in target countries may be a source of attraction for the MNCs but a high level of corruption in the source countries may be a source of repulsion. Fourth, it has been argued by Cuervo-Cazurra (2008) that such unusual results could potentially be due to problems that are quite specific to transition countries. In this view, the transition from socialism to capitalism led to the dismantling of old institutions while new ones had not been fully developed, creating an institutional gap. Under these circumstances, poor governance could have a positive influence on FDI as it could allow firms to circumvent poorly designed regulations. An obvious way to assess this claim is to estimate similar regressions for non-transition countries. Our results confirm that the FDI enhancement role of poor governance exists not only in the transition countries but also in Latin America.

## 2. THEORY AND LITERATURE SURVEY

Governance is defined as “the traditions and institutions by which the authority in a country is exercised” (Kaufman, Kraay and Zoido-Lobaton, 1999). Good governance implies “independent judiciary and legislation, fair and transparent laws with impartial enforcement, reliable public financial information, and high public trust” (Li, 2005).

The dominant view is that countries with good governance tend to receive more FDI (World Bank, 2002; Globerman and Shapiro, 2002; Globerman, Shapiro and Tang, 2004; La Porta *et al.*, 1998; Gani, 2007) because investments cannot be protected in an environment of poor governance (Globerman and Shapiro, 2003) and poor governance increases costs and uncertainty (Cuervo-Cazurra, 2008).

Low levels of bureaucratic quality, for example, are associated with excessive regulation, arbitrary interpretation of rules, red tape, unskilled personnel and a lack of transparency which can generate rent-seeking activities. High levels of bureaucratic quality may act as a shock absorber as they minimize risks associated with drastic policy reversals when governments change (PRS Group, 2009). Law and order become a concern for MNCs when courts fail to enforce contracts, rules are applied arbitrarily and governments influence court decisions for political reasons (Drabek and Payne, 1999). The lack of law and order can lead to corruption (Johnson and Dahlström, 2004). According to Jensen (2003), democratic accountability is important for MNCs for two reasons. First, democratic accountability reduces the likelihood of undesirable policies such as nationalization and expropriation. Second, in democratic countries leaders are held accountable not only by their voters but also by businesses. Government misbehavior can lead to business retaliation in the form of the refusal to invest in the future; this encourages governments to maintain more consistent policies towards MNCs. The “sand the wheels” view suggests that corruption deters MNCs as it indicates the malfunctioning of government. Corruption increases direct costs in the form of bribery and bureaucracy potentially creating artificial bottlenecks to create conditions for rent seeking activities.

Regulatory quality refers to the ability of the state to implement sound economic policies and regulations that permit and promote private sector development. Poor regulatory quality, therefore, can forbid and hinder private sector development and deter FDI. Regulatory quality, in essence, is very similar to economic freedom, which is often confused with good governance (Kapuria-Foreman, 2007; Caetano and Caleiro, 2009). While some interventionist economic policies (such as import controls) may lead to poor governance (such as corruption), good governance and economic freedom are clearly distinct concepts since a well-governed country might implement interventionist economic policies and an economically liberal country might be poorly governed (Subasat and Bellos, 2011). While we do not consider regulatory quality an integral part of good governance, we include it in our analysis since it is

relevant to the “grease the wheels” view of corruption, which argues that corruption can attract more FDI by compensating for poor governance and poorly designed regulations (Lien, 1986; Banerjee, 1997; Aidt, 2003; Meon and Sekkat, 2005; Wang, 2009). In this view, corruption can reduce the problems resulting from low quality of governance and poorly designed regulations by accelerating bureaucratic processes and overcoming tiresome bureaucratic regulations. The “grease the wheels” view, however, is challenged by Kaufman and Wei (1999), who suggested that the cost of corruption in terms of waste of money and time outweighs any potential benefits.

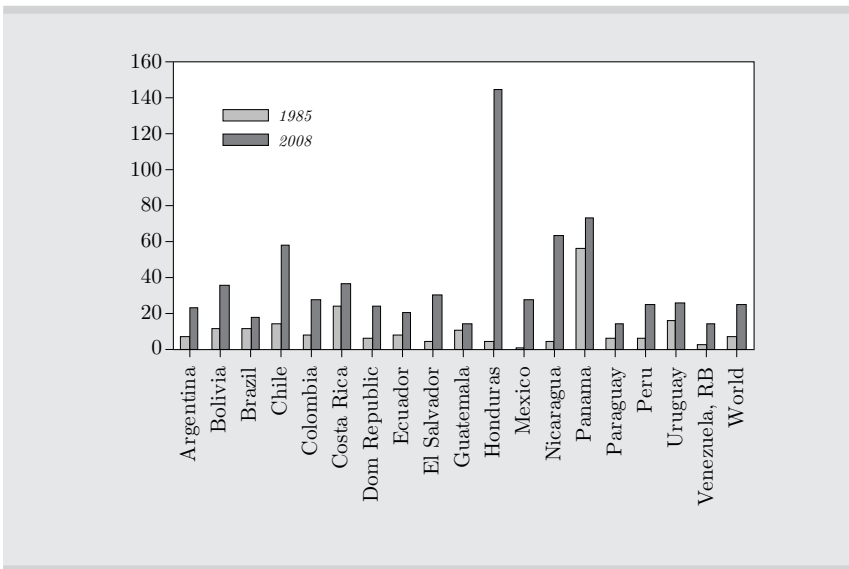
An OECD (2002) report suggests that as long as good governance conditions prevail, no special incentives are needed to attract FDI. This view, however, is disputed by Wheeler and Mody (1992), Hines (1995), Habib and Zurawicky (2002), Li and Filer (2004), Li (2005), Henisz 2000 and Moskalev (2007) and Zhu (2007). Li (2005), for example, argued that poor governance does not necessarily mean the lack of protection. Firms strategically adjust to the local environment and use their private relationships to protect their business. This relation-based system counterweighs the lack of a rule-based governance system and governs economic transactions. In an environment of poor governance, MNCs strategically adjust to the local business climate and pay bribes in order to obtain business contracts (Zhu, 2007). Poor governance may also offer enhanced investment opportunities for MNCs. In an environment of poor governance rent-seeking activities are pursued not only by politicians and policy makers but also by large MNCs. Relation-based systems are often controlled by powerful rulers who tend to favor big business (Li, 2005). Large MNCs with considerable sources to finance rent-seeking activities can easily take advantage of this fertile ground. Furthermore, MNCs may not simply adjust to the local environment but also actively shape it to achieve favorable conditions. Rather than passively responding to the local conditions, they may have proactive policies that involve lobbying as well as illegal activities such as corrupting policy makers and influencing the legal system. Good governance may also have inconsistent impact on FDI. Li and Resnick (2003), for example, found that democratic institutions had both deterrent and enhancing impacts on FDI. Those aspects of democratic institutions that are related to the protection and enforcement of property rights provided a significant boost to FDI but the aspects that weaken the oligopolistic position of MNCs were a significant deterrent. The overall impact, therefore, was determined by the relative strength of these two conflicting strands.

Only a few articles have empirically investigated the link between FDI and governance in the context of Latin America. Wezel (2003) studied the determinants of German FDI in Latin America and emerging Asian markets in the 1990s. The author created an aggregate index of political risk based on six measures (bureaucracy quality, corruption, investment profile, law and order, government stability and internal conflict) and argued that political risk is indeed detrimental to the investments of German enterprises. Using panel data from 1980 to 1996 for 15 Latin American countries, Biglaiser and DeRouen (2006) focused on the role of macroeconomic reforms and governance on inward FDI. Their empirical analysis showed that apart from trade and domestic financial reforms, macroeconomic reforms are unlikely to attract FDI. In terms of governance, while regime type (democratic or authoritarian) and corruption have no meaningful impact on FDI, the enforcement of property rights, which minimizes expropriation risk, enhances FDI. Campos and Kinoshita (2008) tested the impact of structural reforms and institutional quality on FDI in transition and Latin American countries by employing a panel data model between 1989 and 2004. They used two governance variables, bureaucratic quality and the rule of law, in their model. Their results revealed that bureaucratic quality has a positive and significant coefficient when all Latin American and transition countries are included in their estimations. When separate regressions are estimated for each region, however, the coefficients become insignificant. The rule of Law variable has a positive but insignificant coefficient when all Latin American and transition countries are included in the estimations. It becomes significant for Latin America but remains insignificant for the transition countries when separate regressions are estimated. In another study, Amal, Thiago and Raboch (2010) tested the impact of macroeconomic and institutional factors on FDI in Latin America by using a panel data model between 1996 and 2008. Amongst the six institutional variables (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption) only political stability had a positive and significant coefficient and government effectiveness had a negative and significant coefficient. The other variables had insignificant coefficients. Based on panel data analysis and their own survey of US CEOs, Staats and Biglaiser (2012) found that judicial strength and rule of law are important determinants of FDI in 17 Latin American countries.

### 3. GOVERNANCE AND FDI IN LATIN AMERICAN COUNTRIES

While between 1985 and 2010 Latin America's global share of inward FDI stock fluctuated between 5.0 and 6.9%, Figure 1 shows that inward FDI stock as a percentage of GDP increased significantly. In 2008, many of these countries had higher FDI/GDP ratios than the world average.

Figure 1. Change in inward FDI stock as % of GDP



Source: UNCTAD, Data Extract Service (2010).

Regarding the governance variables, while these countries improved their bureaucratic quality and democratic accountability considerably, the improvement in law and order was marginal and corruption deteriorated in most countries. Bureaucratic quality on average increased from 1.2 to 1.9 points, law and order marginally increased from 2.5 to 2.6 points, democratic accountability increased significantly from 3.2 to 4.7 points and corruption declined from 2.9 to 2.3 points. Apart from corruption, therefore, the Latin American countries in our sample experienced an overall improvement in their governance variables during the same time period. Venezuela is the only country that experienced deterioration in all the governance variables. Apart from Venezuela, all countries experienced a significant improvement

in their Democratic Accountability. Out of 18 countries in our sample, 14 countries improved their Bureaucratic Quality, 9 improved their Law and Order and only 8 improved Corruption.

Figure 2: Change in governance indicators

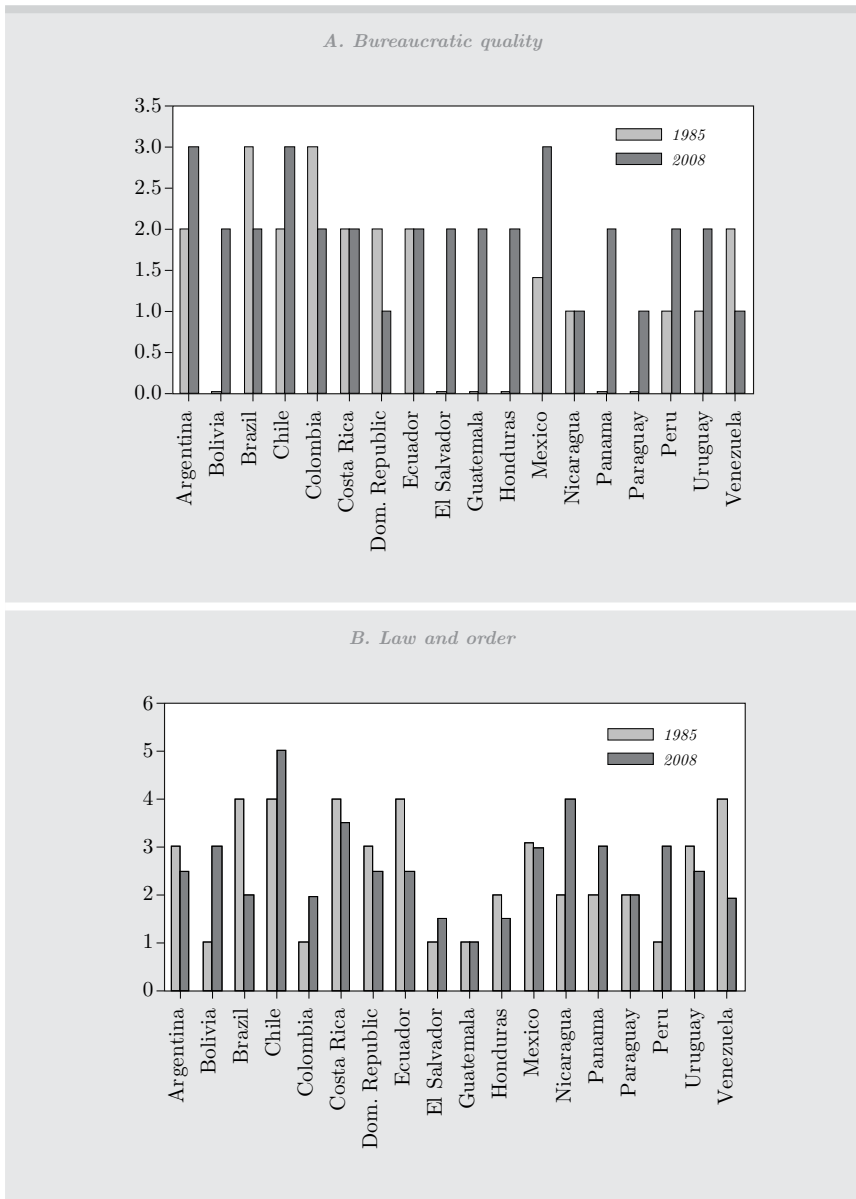
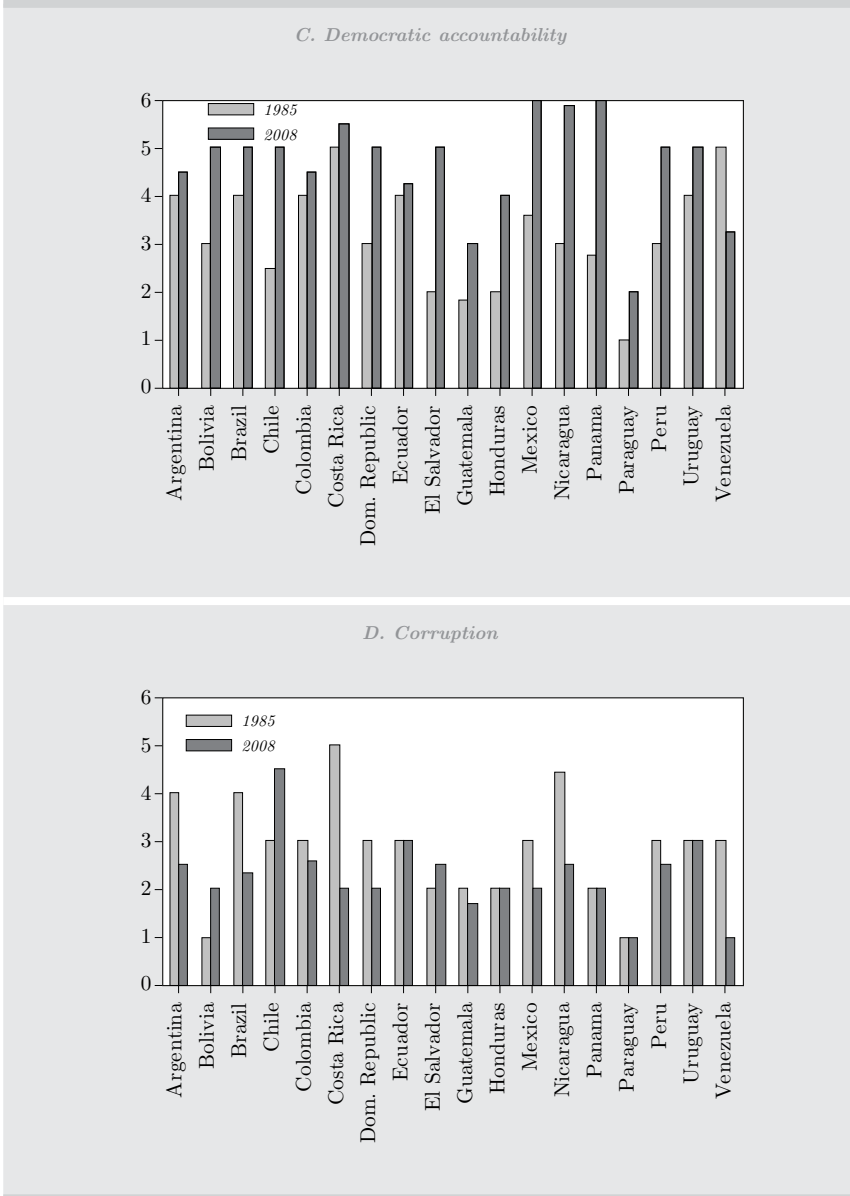


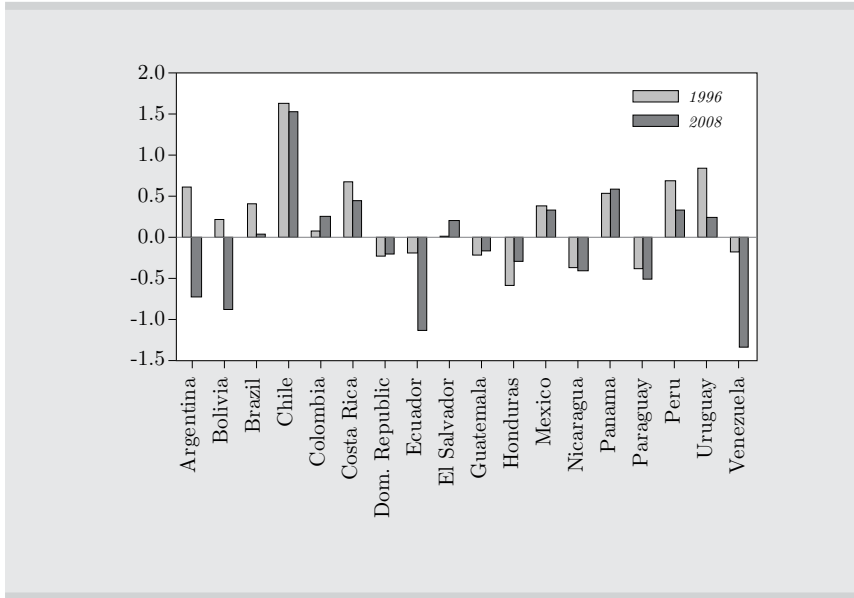
Figure 2. (continued)



Source: International Country Risk Guide, PRS Group.

Note: Law and Order, Democratic Accountability and Control of Corruption are scaled from 0 to 6. Bureaucratic Quality is scaled from 0 to 4. Higher values indicate better governance.



**Figure 3. Change in regulatory quality**

Source: The World Bank Group/ WGI project.

Note: Regulatory quality is scaled from -2.5 to 2.5. Higher values indicate better regulatory quality.

Regulatory quality deteriorated in most countries and on average declined from 0.22 to -0.09 points. The most significant deterioration occurred in Argentina, Venezuela and Bolivia, whereas Honduras, El Salvador and Colombia experienced modest improvements.

#### 4. THE GRAVITY MODEL

We employ a similar panel data gravity model to Bellos and Subasat (2012a and 2012b) as our main purpose is to verify their results in the context of 18 Latin American countries in the period 1985-2004. We develop their model by employing governance variables in target and source countries in order to take both push and pull factors into account. We also employ a number of new control variables in our model. Gravity models are commonly used to investigate FDI flows from source to host economies (Eaton and Tamura, 1994; Brainard, 1997; Blonigen and Davies, 2004; Egger and Pfaffermayr, 2004; Blonigen *et al.*, 2007; Baltagi *et al.*, 2007; Guerin, 2006). The model aims to measure FDI potential between the source and target countries by using two main components: the relative market sizes of the two

economies and the geographic distance between their main economic centers. Given the core gravity variables that explain the “natural” pattern of bilateral FDI potential of the source and target countries, other variables can be added into the model to assess their relative impact. The model takes the following form:

$$\text{FDI}_{STt} = \beta_0 + \beta_1 \text{GDP}_{St} + \beta_2 \text{GDP}_{Tt} + \beta_3 \text{DISTANCE}_{ST} \\ + \beta_4 \text{GOV}_{T,St} + \beta_5 \text{CONT}_{T,St}$$

Where  $\text{FDI}_{STt}$  is the bilateral FDI stock from source to target country in current U.S. dollars (UNCTAD, 2010). We use FDI stocks because stocks are more stable than flows.  $\text{GDP}_{St}$  and  $\text{GDP}_{Tt}$  are the GDPs of the source and target countries in current U.S. dollars (World Bank, 2012).  $\text{DISTANCE}_{ST}$  is the geographic distance between the source and target country, which proxies transportation and information costs (CEPII). While the importance of distance for FDI is not as clear as it is for trade, it has been identified as a significant FDI determinant (Egger and Pfaffermayr, 2004; Guerin 2006; Hattari and Rajan, 2008; Egger, 2008; Davies and Guillin, 2011). Transport cost, for example, is clearly a more important issue for trade than FDI. The significance of distance for FDI, however, may be linked to information costs which go beyond the ordinary technical information but include issues such as contacting local services, officials, chambers and stakeholders. These require physical presence in the host countries, which increases direct costs with increased distance. Additionally, MNCs may also wish to increase trade between the host and home countries, such as importing inputs from the home country and exporting outputs to the host country. Major FDI source countries tend to invest more in countries that are within their geographical proximity. We expect a positive correlation between GDPs and FDI, and a negative correlation between distance and FDI.

$\text{GOV}_{T,St}$  represents the governance indicators in target and source countries and refers to four alternative governance indicators. Bureaucratic quality represents the strength and expertise of a bureaucracy to perform independently of political influence and without drastic changes in policy or interruptions in public services when governments change. Law and order is a combined index of law, assessing the strength and impartiality of the legal system, and of order, displaying the popular observance of the law. Democratic accountability reflects the

responsiveness of a government to its people. Governments, even in democratic countries, can ignore the wishes of the people they represent. Less responsive governments will likely change peacefully in a democratic country but violently in a non-democratic one. Control of corruption accounts for bribes, excessive patronage and nepotism. Regulatory quality captures perceptions of the ability of a government to adopt and implement policies that enhance private sector development. Law and order, democratic accountability and corruption are scaled from 0 to 6. Bureaucratic quality is scaled from 0 to 4. Regulatory quality is scaled from -2.5 to 2.5. High values indicate improved governance. If good governance in target countries encourages more inward FDI, a positive sign on the coefficients should be expected. Likewise, if good governance in source countries encourages MNCs to invest domestically rather than investing abroad (outward FDI), a negative sign on the coefficients should be expected. Governance indicators are taken from the PRS Group International Country Risk Guide.<sup>1</sup> Regulatory quality is taken from the World Bank World Governance Indicators (2012). Governance variables are largely based on subjective measures, which is a well-documented problem.<sup>2</sup> The results, therefore, should be interpreted with caution.

$CONT_{T,S,t}$  refers to the control variables that are added to reduce the risk of excluded variables bias. These are selected from a larger list based on their inclusion in similar studies, their statistical significance and low correlation with the governance variables to avoid multicollinearity. The Same language dummy denotes the presence of a common language between the source and target country, which may encourage more FDI. Same religion displays cultural similarities, which may also encourage more FDI. “Oil” measures the production of crude oil, natural gas and other liquids in thousands of barrels (U.S. Energy Information Administration). “Difference in Per Capita GDP” is the difference in per capita GDP between the source and target country and a measure of endowments (World Bank, 2012). This variable should have a positive coefficient if FDI tends to move from rich countries to poor countries. “Landlocked” dummy is a proxy for poor accessibility and high transportation costs. “Inflation” is a measure of macroeconomic instability, which may reduce FDI (World

1. See the PRS website for further details.

2. See Kaufmann, Kraay and Zoido-Lobaton (1999) for a discussion of the problems inherent in making cross-country comparisons.

Table 1. Independent variables and expected signs

Gravity variables	Sign	Governance variables	Sign	Control variables	Sign
GDP target	+	Bureaucratic quality (T)	+	Same language	+
GDP source	+	Law and order (T)	+	Same religion	+
Distance	-	Democratic accountability (T)	+	Oil	+
		Control of corruption (T)	+	Difference in per capita GDP	+
		Regulatory quality (T)	+	Landlocked (T)	-
		Bureaucratic quality (S)	-	Landlocked (S)	-
		Law and order (S)	-	Inflation (T)	-
		Democratic accountability (S)	-	Inflation (S)	-
		Control of corruption (S)	-	Religion in politics (T)	+
		Regulatory quality (S)	-	Religion in politics (S)	-
				Government stability (T)	+
				Government stability (S)	-
				Socioeconomic conditions (T)	+
				Socioeconomic conditions (S)	-

Bank, 2012). “Religion in Politics” measures religious tension (PRS Group). It is scaled from 0 to 4 and high values indicate low levels of religious tension (PRS Group). “Government Stability” measures a government’s ability to stay in office and carry out its stated programs. The index consists of three subcomponents: Government Unity, Legislative Strength and Popular Support. The index is scaled from 0 to 4 and high values indicate stability (PRS Group). “Socioeconomic Conditions” is an assessment of the socioeconomic pressures that can fuel social dissatisfaction. The index consists of three subcomponents: Unemployment, Consumer Confidence and Poverty. This index is also scaled from 0 to 4 and high values indicate better Socioeconomic Conditions (PRS Group). We expect positive (negative) coefficients for the target (source) countries for “Religion in Politics,” “Government Stability” and “Socioeconomic Conditions.” The expected signs of the independent variables are given in Table 1.

## 5. PANEL DATA ANALYSIS

The advantages of using panel data are well-known: increased estimation precision in comparison with cross-sectional or time-series studies due to larger sample size, circumvention of omitted variable bias and avoidance of heterogeneity problems that often arise in cross-sectional investigations.

The data cover a period of 24 years (1985-2008) and refer to 18 target countries (Costa Rica, El Salvador, Guatemala, Argentina,

Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela) and 21 source countries (Australia, Austria, Canada, China, Denmark, Finland, France, Germany, Iceland, Italy, Japan, South Korea, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, UK, U.S). Data availability determined the selection of these countries. Table 2 presents the availability of bilateral FDI stock data for Latin American countries.

Missing values are an important concern that can significantly affect our results. Data are not available for all years under consideration for all variables. The missing values, which are excluded from our analysis, could denote either that data is unavailable or that there is no FDI. In both cases a bias is introduced. While the database includes few zero values, we cannot be sure if the missing values are unavailable or zero. Zero investment is highly informative of investors' unwillingness to invest in risky countries. Whether missing values are zeros or unavailable, however, we have no option but to rely on the available data. We purchased FDI data from UNCTAD and governance data from PRS, which are the most reliable databases that are currently available. While we encourage the reader to interpret our results with caution, we also argue that if poor governance discourages FDI, it should do so in countries for which we have more complete data.<sup>3</sup> Linders and de Groot (2006), moreover, addressed this problem and concluded that omitting zero values from the sample leads to acceptable results and might be the simplest solution.

Separate regressions for each governance variable are estimated in order to avoid a multicollinearity problem. Apart from the oil variable, multicollinearity is not a major problem for the other control variables in the baseline model (Table 4). The oil variable is collinear, with GDP (T) distorting the coefficient, but this does not concern us as multicollinearity between the control variables would have no impact on the coefficients of governance variables that we are interested

3. In order to check the accuracy and consistency of our results we employed two experiments that involved manipulating the database. If the data start from a certain year and are available for the subsequent time period, we can assume FDI to be zero for the preceding time period. If no data are available for the entire time period we can assume zero FDI. Under these assumptions, we estimate some of the missing values from the available data and assumed the others to be zero. Then we re-estimated the regressions using this new database and the results were not altered in a meaningful way. Table 2 indicates that missing values are not random since most of the missing values are from the most corrupt countries, such Paraguay, Honduras, Guatemala, Nicaragua and Bolivia, which could bias the results. In order to address this concern we have excluded these countries and re-estimated the regressions. Our results were enhanced, i.e., the variables became more significant.

Table 2. Data availability for bilateral FDI stock in Latin American countries

	Costa Rica	El Salvador	Guatemala	Argentina	Bolivia	Brazil	Chile	Colombia	Dominican Republic	Ecuador	Honduras	Mexico	Nicaragua	Panama	Paraguay	Peru	Uruguay	Venezuela
Australia	-	-	-	2002-03, 2007-08	-	2002-04, 2007-08	1996-00, 2004-05, 2007-08	2004	-	-	-	2000, 2008	-	-	-	-	2001	-
Austria	-	-	-	1998	-	1998, 2004-07	1998	1988	-	-	-	2004-05	-	-	-	-	-	1998
Canada	1996-08	1998-02	1987-93, 1995-96, 1998-00, 2003	1985-08	1993-05	1985-08	1985-08	1985-08	1994-99, 2002-03, 2005-08	1988, 1995, 1997-98, 2000-01, 2004-08	2005-08	1985-08	2007	1985-06	-	1987, 1993-08	1997-04, 2006	1985-08
China	-	-	-	2003-08	2005-08	2003-08	2003-08	2004-08	2008	2003-08	2003-08	2003-08	-	2003-08	2008	2003-08	2003, 2007	2003-08
Denmark	2004-07	2004-07	2004-07	1994, 1996, 2004-08	2004-07	1994, 1996, 1998-08	2004-08	1994, 2004-08	2004-07	2004-07	-	1994, 1996, 2004-08	2004-07	2004-08	-	2005-08	2005-08	1994, 1996
Finland	-	-	-	1994-97, 2004, 2006-08	-	1994-98, 2000-08	2000-08	-	-	-	-	1994-08	-	-	-	-	-	-
France	-	-	-	1989-08	-	1989-08	1989-08	1992-08	-	-	-	1989-08	-	1989-90, 1992-08	-	1992-08	1992-08	1989-08
Germany	1985-08	1985-08	1985-08	1985-08	1985-03	1985-08	1985-08	1985-08	1988, 1992-08	1985-08	1995-08	1985-08	1998-08	1985-08	1985-90, 1992-03	1986-08	1985-08	1985-08
Iceland	-	-	-	-	-	-	1992-08	-	-	-	-	1995-02	-	1992-99	-	-	-	-
Italy	-	-	-	1994-07	-	1994-07	-	-	-	-	-	-	-	-	-	-	-	-
Japan	-	-	-	-	-	1996-08	-	-	-	-	-	1996-08	-	-	-	-	-	-
Luxembourg	-	-	-	-	-	1995-07	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	-	-	-	1985-03	-	1985-08	1985-03	1985-03	-	-	-	1985-03	-	-	1985-02, 1994-03	-	-	1985-03
New Zealand	-	-	-	-	2000, 2002	2000, 2002	1995-00	-	-	-	-	2000-04	-	2000	-	2002-06	-	2000-02
Norway	2004-06	-	-	1998-08	-	1998-08	1998-08	1998-02, 2005-08	-	2002-03	-	1998-08	-	1998-08	-	2001-08	2001-03	1998-08
Portugal	1999-03	-	-	1996-08	-	1996-08	1996-03	1996-03	2003	1999	2001-03	1996-06	-	1996-03	-	1996-03	1996-03	1996-08
Spain	-	-	-	2004-08	-	2004-08	2004-08	-	-	-	-	2004-08	-	-	-	-	-	-
Sweden	-	-	-	-	-	1994-08	-	-	-	-	-	1996-08	-	-	-	-	-	-
Switzerland	1993-08	-	1993-08	1985-08	-	1985-08	1985-08	1985-08	-	1994-08	-	1985-08	-	-	-	1985-08	1993-08	1985-08
UK	-	-	-	1987-94	-	1987-08	1987-08	1991-08	-	-	-	1985-08	-	1987-96, 1999-01, 2003-05, 2007-08	-	1992-94	1992-94	1987-94
USA	1985-08	1985-08	1985-08	1985-08	1985-07	1985-08	1985-08	1985-08	1985-88, 1990-08	1985-08	1985-08	1985-08	1985-89, 1991, 1995-08	1985-08	1985-08	1985-08	1985-08	1985-08

Table 3. Matrix of bivariate correlations among the set of explanatory variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1	1.00	0.00	0.05	0.54	0.61	0.02	0.93	0.00	-0.25	0.11	-0.09	-0.01	0.01	-0.01	-0.01	0.01	0.00	0.09	0.11	0.01	0.00	-0.08	0.00	0.79	0.01	0.26	0.01
2	0.00	1.00	-0.04	-0.01	-0.01	0.32	-0.01	0.64	0.11	-0.51	0.01	0.24	0.01	0.04	-0.08	-0.21	0.00	0.00	0.00	0.12	0.26	0.00	-0.09	0.01	0.77	-0.01	0.49
3	0.05	-0.04	1.00	0.11	-0.04	-0.03	0.06	-0.04	-0.34	0.00	0.12	-0.09	-0.03	0.02	0.03	0.01	-0.02	-0.12	-0.25	-0.02	-0.05	0.01	0.03	0.03	-0.04	-0.05	-0.01
4	0.54	-0.01	0.11	1.00	0.55	0.00	0.55	0.00	-0.40	0.28	-0.31	-0.02	-0.08	0.00	-0.06	0.01	-0.01	0.18	0.13	0.00	-0.01	0.13	0.00	0.56	-0.01	0.62	0.00
5	0.61	-0.01	-0.04	0.55	1.00	0.09	0.55	0.00	-0.13	0.35	-0.18	-0.01	0.19	0.01	-0.03	0.03	-0.01	0.02	0.60	0.08	0.00	0.26	0.01	0.61	0.02	0.65	0.05
6	0.02	0.32	-0.03	0.00	0.09	1.00	0.00	0.24	0.08	-0.20	-0.03	0.09	0.13	0.15	-0.18	-0.28	-0.30	0.00	0.07	0.44	0.08	0.08	-0.05	-0.11	0.30	-0.05	0.47
7	0.93	-0.01	0.06	0.55	0.55	0.00	1.00	0.00	-0.27	0.11	-0.12	-0.01	-0.04	-0.03	-0.02	0.01	0.00	0.09	0.05	0.00	-0.01	-0.08	0.00	0.78	0.00	0.28	0.00
8	0.00	0.64	-0.04	0.00	0.00	0.24	0.00	1.00	0.05	-0.33	0.00	0.15	0.03	0.01	-0.06	-0.01	-0.07	0.00	0.00	0.17	0.12	0.00	-0.16	0.00	0.79	-0.01	0.33
9	-0.25	0.11	-0.34	-0.40	-0.13	0.08	-0.27	0.05	1.00	-0.17	-0.13	0.16	0.08	-0.02	-0.02	-0.15	0.13	0.06	0.21	0.10	0.09	-0.03	0.08	-0.21	0.09	-0.13	0.09
10	0.11	-0.51	0.00	0.28	0.35	-0.20	0.11	-0.33	-0.17	1.00	-0.01	-0.49	0.07	-0.07	-0.03	0.17	0.17	0.03	0.33	-0.16	-0.38	0.13	0.09	0.26	-0.46	0.52	-0.41
11	-0.09	0.01	0.12	-0.31	-0.18	-0.03	-0.12	0.00	-0.13	-0.01	1.00	0.03	0.00	-0.01	0.03	-0.01	0.00	-0.44	-0.12	-0.02	0.02	-0.07	0.00	-0.06	-0.01	-0.15	-0.01
12	-0.01	0.24	-0.09	-0.02	-0.01	0.09	-0.01	0.15	0.16	-0.49	0.03	1.00	0.00	0.00	-0.07	-0.15	-0.17	-0.01	0.01	-0.08	0.63	-0.01	0.01	0.02	0.20	-0.02	0.24
13	0.01	0.01	-0.03	-0.08	0.19	0.13	-0.04	0.03	0.08	0.07	0.00	0.00	1.00	0.20	0.03	0.00	0.00	-0.07	0.19	0.05	0.02	0.12	-0.01	0.08	0.03	0.00	0.08
14	-0.01	0.04	0.02	0.00	0.01	0.15	-0.03	0.01	-0.02	-0.07	-0.01	0.00	0.20	1.00	0.06	-0.09	-0.08	0.00	-0.01	-0.07	-0.05	0.02	0.00	-0.04	0.00	-0.02	0.09
15	-0.01	-0.08	0.03	-0.06	-0.03	-0.18	-0.02	-0.06	-0.02	-0.03	0.03	-0.07	0.03	0.06	1.00	0.07	0.02	-0.02	-0.01	-0.11	0.08	-0.02	-0.15	-0.01	-0.07	-0.08	-0.18
16	0.01	-0.21	0.01	0.01	0.03	-0.28	0.01	-0.10	-0.15	0.17	-0.01	-0.15	0.00	-0.09	0.07	1.00	0.01	0.00	0.02	-0.30	-0.03	0.02	-0.16	-0.03	-0.18	0.00	-0.45
17	0.00	0.00	-0.02	-0.01	-0.01	-0.30	0.00	-0.07	0.13	0.17	0.00	-0.17	0.00	-0.08	0.02	0.01	1.00	0.00	-0.01	0.03	-0.05	0.00	0.26	0.00	0.04	-0.02	-0.19
18	0.09	0.00	-0.12	0.18	0.02	0.00	0.09	0.00	0.06	0.03	-0.44	-0.01	-0.07	0.00	-0.02	0.00	0.00	1.00	-0.01	0.00	-0.01	0.01	0.00	0.07	0.00	0.10	0.00
19	0.11	0.00	-0.25	0.13	0.60	0.07	0.05	0.00	0.21	0.33	-0.12	0.01	0.19	-0.01	-0.01	0.02	-0.01	-0.01	1.00	0.07	0.01	0.26	0.01	0.29	0.02	0.55	0.04
20	0.01	0.12	-0.02	0.00	0.08	0.44	0.00	0.17	0.10	-0.16	-0.02	-0.08	0.05	-0.07	-0.11	-0.30	0.03	0.00	0.07	1.00	-0.04	0.06	0.01	-0.09	0.25	-0.03	0.28
21	0.00	0.26	-0.05	-0.01	0.00	0.08	-0.01	0.12	0.09	-0.38	0.02	0.63	0.02	-0.05	0.08	-0.03	-0.05	-0.01	0.01	-0.04	1.00	0.00	0.13	0.00	0.19	-0.02	-0.02
22	-0.08	0.00	0.01	0.13	0.26	0.08	-0.08	0.00	-0.03	0.13	-0.07	-0.01	0.12	0.02	-0.02	0.02	0.00	0.01	0.26	0.06	0.00	1.00	0.01	0.06	0.03	0.23	0.05
23	0.00	-0.09	0.03	0.00	0.01	-0.05	0.00	-0.16	0.08	0.09	0.00	0.01	-0.01	0.00	-0.15	-0.16	0.26	0.00	0.01	0.01	0.13	0.01	1.00	-0.02	-0.04	0.00	0.06
24	0.79	0.01	0.03	0.56	0.61	-0.11	0.78	0.00	-0.21	0.26	-0.06	0.02	0.08	-0.04	-0.01	-0.03	0.00	0.07	0.29	-0.09	0.00	0.06	-0.02	1.00	-0.02	0.47	-0.05
25	0.01	0.77	-0.04	-0.01	0.02	0.30	0.00	0.79	0.09	-0.46	-0.01	0.20	0.03	0.00	-0.07	-0.18	0.04	0.00	0.02	0.25	0.19	0.03	-0.04	-0.02	1.00	-0.02	0.41
26	0.26	-0.01	-0.05	0.62	0.65	-0.05	0.28	-0.01	-0.13	0.52	-0.15	-0.02	0.00	-0.02	-0.08	0.00	-0.02	0.10	0.55	-0.03	-0.02	0.23	0.00	0.47	-0.02	1.00	-0.02
27	0.01	0.49	-0.01	0.00	0.05	0.47	0.00	0.33	0.09	-0.41	-0.01	0.24	0.08	0.09	-0.18	-0.45	-0.19	0.00	0.04	0.28	-0.02	0.05	0.06	-0.05	0.41	-0.02	1.00

1 Bureaucratic Quality (S), 2 Bureaucratic Quality (T), 3 Common Language, 4 Common Religion, 5 Corruption (S), 6 Corruption (T), 7 Democratic Accountability (S), 8 Democratic Accountability (T), 9 Distance, 10 GDPpc difference, 11 GDP (S), 12 GDP (T), 13 Government Stability (S), 14 Government Stability (T), 15 Inflation (S), 16 Inflation (T), 17 Landlocked (T), 18 Landlocked (S), 19 Law-Order (T), 20 Law-Order (S), 21 Oil, 22 Religion in Politics (T), 23 Religion in Politics (S), 24 Socioeconomic Conditions (S), 25 Socioeconomic Conditions (T), 26 Regulatory Quality (S), 27 Regulatory Quality (T).

**Table 4. Baseline panel data gravity model estimates***(random effects models)*

Constant	-22.94* [-11.1]	Oil	-0.07* [-7.04]	Religion in politics (T)	0.37* [3.52]
GDP (T)	0.72* [17.4]	GDP per capita difference	0.23* [2.90]	Religion in politics (S)	0.31* [2.89]
GDP (S)	0.47* [13.8]	Land-Locked (T)	0.38 [1.71]	Government stability (T)	0.07 [2.08]
Distance	-0.31* [-4.05]	Land-Lock (S)	0.43* [2.57]	Government stability (S)	0.10 [2.47]
Same language	2.17* [7.00]	Inflation (T)	-0.10* [-10.1]	Socioeconomic conditions (T)	-0.07 [-2.30]
Same religion	1.00* [3.87]	Inflation (S)	-0.04 [-0.94]	Socioeconomic conditions (S)	0.17 [3.00]
N	2362	Wald-Joint	1985 [0.00]	AR(1)	38.21 [0.00]
R <sup>2</sup>	0.663	Wald-dummy	122.1 [0.00]	AR(2)	23.95 [0.00]

Notes for Tables 4 and 5: The dependent variable is bilateral FDI stock between source and target countries.  
\* is significant at 1 % level and \*\* is significant at 10 % level. All the variables are in logarithmic form.

**Table 5. Panel data gravity model estimates for the governance variables***(random effects models)*

	With Oil variable		Without Oil variable	
	Target	Source	Target	Source
Control of corruption	-0.08* [-4.72]	-0.23* [-3.09]	-0.08* [-4.68]	-0.26* [-3.11]
Bureaucratic quality	-0.02* [-3.86]	0.44* [2.29]	-0.02* [-3.66]	0.43* [2.15]
Law and order	-0.08* [-2.40]	-0.01 [-0.09]	-0.10 [-2.18]	-0.02 [-0.95]
Democratic accountability	0.00 [0.14]	0.35* [3.37]	0.02 [0.63]	0.42* [3.41]
Regulatory quality	-0.07** [-1.91]	-0.08 [-0.39]	-0.07** [-1.91]	-0.05 [-0.24]

in. The coefficient of the oil variable is highly significant and has a negative sign. However, if we exclude GDP (T) and estimate the same regression, the coefficient of “oil” variable becomes positive. To check consistency of the results we estimated the regressions with and without the oil variable and the results for the governance



variables did not change (see Table 5). When the control variables are found to be collinear with the governance variables, however, they are excluded from the estimations. We estimate the above equation by using the random effects method. The random effects method requires the application of the generalized least squares method to achieve efficient results. The fixed-effects method is unsuitable for our regressions as it eliminates time invariant variables such as “distance” and “landlocked.” The pooled least squares method is also unsuitable as it fails to control for time trends.<sup>4</sup> Potential heteroskedasticity problems that usually emerge from the application of OLS are resolved by the adoption of the random effects method, which applies GLS. In addition, heteroskedasticity was further resolved by using the Newey-West heteroskedasticity and autocorrelation-consistent standard errors. Random effects method was selected because the fixed-effects method is unsuitable for our regressions, as it eliminates time invariant variables such as “distance” and “landlocked.” The pooled least squares method is also unsuitable as it fails to control for time trends.<sup>5</sup> All variables are in logarithmic form to improve heteroskedasticity<sup>6</sup>.

## 6. RESULTS

We first estimate the baseline model (Table 4) to validate our model and database without the inclusion of the governance variables, and then present the coefficients and t-ratios of each governance variable (Table 5). The baseline model in Table 4 reveals good results for the gravity variables as distance and income variables are highly significant and have the expected signs.

The baseline model also indicates that bilateral FDI stock between the source and target countries are influenced by other factors. While we are primarily interested in the governance variables, the control variables also produce some interesting results. Cultural similarity between source and target countries in terms of same language and same religion is a source of attraction for multinational companies.

4. Despite these limitations we have estimated the same equation by using the Fixed Effect and Pooled Least Squares methods. Although we do not report here, we confirm that the results are consistent with the above method for the governance variables.

5. Despite these limitations we have estimated the same equation by using the Fixed Effect and Pooled Least Squares methods. Although we do not report here, we confirm that the results are consistent with the above method for the governance variables.

6. In order to take logs of zero values we used a very small number such as 0.001.

Meanwhile, the oil variable has a negative and significant coefficient but, as discussed earlier, this is due to a multicollinearity problem between the oil variable and GDP (T). When we exclude GDP (T) from the regressions, the coefficient of the oil variable becomes positive and significant. GDP per capita difference has a positive and significant coefficient, which implies that the larger the per capita income gap between source and target countries, the larger the incoming FDI. This supports the claim that, if everything else is held constant, FDI tends to flow from high-income source countries to low-income Latin American countries. Landlocked has a positive and significant sign for the source countries, which may indicate that FDI substitute trade. As transport cost is usually higher for landlocked countries, source countries may prefer to invest in target countries rather than exporting to them. Inflation, which measures macroeconomic instability, is a significant source of repulsion in the target countries. Positive and significant coefficients for religion in politics and government stability imply that religious tensions and government instability in both source and target countries discourage FDI. The Socioeconomic conditions variable has a negative and significant sign for the target countries and a positive and significant sign for the source countries. This implies that MNCs in the source countries are encouraged to invest more beyond their national borders when unemployment and poverty are low and consumer confidence is high. And these MNCs prefer to invest in target countries where unemployment and poverty are high and consumer confidence is low.

The results for the governance variables for the target countries confirm the results of Bellos and Subasat (2012b) with a minor difference. With the exception of “Democratic Accountability,” the governance variables have negative and significant coefficients, which imply that poor governance is associated with a high level of FDI. “Democratic Accountability” has a positive and significant coefficient in Bellos and Subasat (2012b) whereas it has a positive and insignificant sign in our work. Our results, therefore, suggest that poor governance does not deter, and in fact encourages, FDI not only in transition countries but also in Latin America. The “Regulatory Quality” variable also has a negative and marginally significant sign, which implies that poor regulations do not discourage FDI.

For the source countries the control of corruption has a negative and significant sign, which suggests that high corruption levels in the source countries encourage MNCs to invest more in Latin America.

Therefore, corruption in the source countries encourages more FDI in Latin America. While “Law and Order” has a negative and insignificant coefficient, “Bureaucratic Quality” and “Democratic Accountability” have positive and significant coefficients. This implies that better “Bureaucratic Quality” and “Democratic Accountability” in source countries encourage more outward FDI in Latin America.

## 7. DISCUSSION AND CONCLUSIONS

This paper investigates the link between governance and FDI in the context of selected Latin American countries using a panel gravity approach to date from 1985 to 2008. The results indicate the FDI-enhancing character of poor governance in target countries, which is consistent with the findings of Bellos and Subasat (2012a and 2012b) in transition economies. While the coefficients of the governance variables are rather small, implying a limited impact on FDI, we can safely reject the idea that good governance is becoming a more important determinant of FDI or that as long as good governance conditions prevail, no special incentives are needed to attract FDI.

Given that the abovementioned results contradict most of the relevant literature, how are we to interpret them? While we should be careful about extrapolating our results, they indicate that unexpected results are not specific to the transition countries. Further empirical work on other regions and country groups could provide a clearer view of the link between governance and FDI. The results could be interpreted in a number of alternative ways: 1. Corruption greases the wheels by circumventing poor governance and poor governance greases the wheels by circumventing poor regulations. 2. FDI tends to flow from rich countries to poor countries with poor governance. 3. Natural resources may be associated with large FDI inflows as well as poor governance. 4. Poor governance is preferred by MNCs.

Let us consider each of these alternatives. Our findings do not provide evidence to support the “grease the wheel” view, which suggests that corruption can compensate for poor governance and poor governance can compensate for poor regulations, and attract more FDI. The Latin American countries in our sample experienced a worsening of corruption and regulatory quality but improvement in the other governance indicators between 1985 and 2008. This is inconsistent with the “grease the wheels” view, according to which corruption is supposed to compensate for poor governance. Given that the other

governance indicators are improving in Latin America, corruption has fewer distortions to grease. The “grease the wheel” view in terms of regulatory quality (which deteriorated between 1996 and 2008) could make more sense except that there is a negative correlation between regulatory quality and FDI. In other words, better regulations do not encourage but deter FDI, which is again inconsistent with the “grease the wheel” hypothesis. Since MNCs are not deterred by poor regulations corruption is not needed to grease such distortions.

Moskalev (2007) argued that FDI may flow from rich and well-governed OECD countries to poorly governed, low-income countries as they offer better investment opportunities. Poor governance is compensated by higher investment opportunities in low-income countries. In this view, better investment opportunities, rather than poor governance, attract FDI. There are a number of problems with Moskalev’s arguments. Firstly, while Moskalev argued that FDI flows from better-governed, high-income countries to poorly governed, low-income countries, a simple observation of FDI figures disputes this proposition. Data from UNCTAD (2012) suggests that developed countries receive the most FDI inflows. Moreover a simple correlation between per-capita income and the share of FDI stock in GDP in our sample countries reveals no meaningful link between them ( $R$ -bar-squared is very close to zero). Secondly, the gravity model indirectly controls per-capita GDP as the size of total GDP depends on the size of the population and per-capita GDP. Larger markets attract more FDI and richer countries tend to have larger markets. Finally, our model directly controls for per-capita GDP differences. It is indeed true that if everything else is held constant, FDI tends to flow from high-income source countries to low-income Latin American countries. Our results, however, suggest that given the per-capita GDP differences, poor governance attracts FDI.

We should also consider the impact of oil and natural gas production on FDI, which is very relevant in the context of many Latin American countries. The existence of extensive natural resources is often associated with large FDI inflows as well as a poor governance environment. The “resource curse” arguments refer not only to de-industrialization and slower growth rates but also to internal conflicts, autocratic regimes and corruption (Siegle, 2007). It can be argued that MNCs tolerate a poor governance environment in exchange for large profits from natural resources. Poor governance may be compensated by substantial profit opportunities in oil-producing countries. This argument is also not compelling for our case study for two reasons. First, the correlation

matrix (Table 3) suggests that the “oil and natural gas” production variable is not correlated with the governance variables. Second, the major oil-producing countries in the region (Venezuela, Ecuador and Bolivia) have experienced large-scale nationalizations of their oil and natural gas sector during recent years. This, in turn, has led to significant changes in the institutional framework that governs foreign investors’ property rights (Percy *et al.*, 2011). While our empirical work shows a strong positive correlation between FDI and the “oil and natural gas” variable (once we exclude the GDP target variable), such policies must have a negative effect on FDI. According to Biglaiser and Derouen (2006), the “risk of expropriation” is a significant deterrent of FDI and according to Biglaiser and Staats (2010), avoidance of expropriation is the first priority of MNCs. Therefore, the radical increase in FDI into the region is unlikely to be due to “oil and natural gas” production.

Finally, enhanced investment opportunities caused by poor governance could provide a more plausible explanation of growing FDI in Latin America. As we discussed earlier, rent-seeking activities are pursued not only by corrupt politicians and policy makers but also by large MNCs. A poor governance environment may provide fertile ground for large MNCs with considerable sources to finance rent-seeking activities. In a relation-based system it is not only the case that powerful rulers tend to favor big business including MNCs, but also that MNCs actively shape the local environment to achieve favorable conditions (Li, 2005; Zhu, 2007).

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