University of Pretoria
Department of Economics Working Paper Series

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Working Paper: 2009-29
December 2009

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Do Neighbors of Host Countries Matter to Aggregate US FDI Outflows?

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December 7, 2009

Abstract

Modeling spatial interaction among contiguous host countries receiving foreign direct investment from the same source country is usually conceived as reflection of market seeking behaviors or cost saving strategies of firms executing location arbitrage. This paper approaches the contiguity in aggregate data from the same source country as an incentive driven process where stocks attract new flows in the neighborhood of the stock location. We examine the influence of geographic neighbors on new flows of FDI from the United States in 3 different clusters in the world. The results show that host country's neighbors matter to new flows of FDI, however, they also indicate that, across clusters, cross countries spillovers are associated with non-manufacturing FDI (investments in services) but not with manufacturing FDI.

JEL Classification: C33, F21, F23, G14

Keywords: Foreign direct investment, Spillovers, spatial autocorrelation.

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1 Introduction

Current FDI literature contends that direct investment location decisions are based on market seeking behaviors or on cost differential and cheap labor motives. These are all characteristics of the host country that are appealing to FDI. However, several studies in economic geography and economic growth reveal that the effects of various agglomeration externalities and spillovers are crucial in explaining FDI location. This literature parallels the more popular contagion literature, emphasizing proximity among firms as essential in the transmission of externalities between foreign and local firms. One of the most salient results from this literature is that technology and wage spillovers are contingent upon the ability of local economy to absorb the effects of the presence of a foreign firm wether trough backward and forward linkages or trough competition with the foreign firm. However, it is worth noting that these contributions all show empirically that FDI tend to cluster in certain regions, and new flows of investments are likely to be closer old ones . They however all refrain from extending explained externalities across country borders. This paper empirically explores the possibility of cross country spillovers as reason for clustering in space of US FDI to a few neighboring of countries in the world.

The remainder of this article is organized as follows,After a brief literature review in section 2. We discuss our methodology in section 3. An empirical estimation tests the importance of neighbors' stock investments for inflows of foreign direct investment in Section 5. Finally, Section 6 concludes the paper.

2 Literature Review

The contagion or spillovers literature, which has experienced a substantial interest thanks to financial crisis of the 1990's that magnified the diffusion effects of financial shocks across markets and class of assets . The depth of the phenomenon made financial crisis particularly damaging for many economies as the ripples of the tequila crisis reached other countries of latin america, the Asian flu and the Russian debt crisis appeared to be contagious to countries geographically distant. Increased interconnection between countries and low communication costs has made financial contagion particularly common.a good starting point to understanding contagion, is the evaluation of mechanisms trough which economic phenomenon affect a group of units in a simulataneous or sequential manner.

Contagion is the spreading out of economic phenomena across markets, class of assets and countries. It is characterized by co movement in prices of financial assets. Contagion differs from spillovers essentially by its swift propagation. Spillovers are usually conceive as time taking construction affecting clustered units, in a sequential fashion.

The idea of proximity or geographical clustering has three majors interpretation in the FDI theory: The first interpretation builds on the work of Marshall (1960) and Caves (1974), emphasizing clustering or agglomeration as a way for economic units to gain positive externalities from the presence of other firms. These contributions suggest that agglomeration effects attract new investments ((**?**)). Second, FDI spillovers to local economy are contingent upon preparation of local firms in tools, procedures, size, human capital and infrastructures. The conventional analysis, outlined by Blomstrm and Kokko (2003), for instance, suggests that technology and managerial skill spillovers can be realized when local firms invest in new tools and new procedures. It concludes that FDI incentives motivated by expectations of spillovers to local firms should be accompanied by financial and technical preparation of local firms. Third, there is at least theoretically a possibility of technology souring Love (2003) for example suggested that new firms might be souring technology, whereupon firms locate close to leading research centers in areas where the source country is relatively less skilled, because there they can absorb learning spillovers. However, although there is evidence of competitive incentive to attract FDI on the basis positive spillovers, empirical investigation of spillover sourcing produced mixed results. Driffield and Munday (2000) did not find evidence of such behavior in a panel of FDI in the United Kingdom (UK) manufacturing industry. They concluded that profit seeking motivates location, even when close to older firms. (Branstetter, 2001);Branstetter (2006) suggested that technology sourcing motivated the increase in Japanese investments in the US in the second half of 1980. Attempts to study interdependence of foreign direct investments flows or stock across neighboring countries have been limited to the role that economic integration plays in the increase in FDI received by member countries (Neary, 2002; Balasubramanyam, Sapsford, and Griffiths, 2002; Girma, 2002). However, economics and statistics motives suggest that the actual treatment of interdependence between outflows or between stocks in analyzing FDI is incomplete. From an economic standpoint, even in the absence of integration among countries, three motives may create cross-country interdependence of stock and flows of FDI. First, the ability of countries to attract FDI can be related to their geographic location, because natural resources endowments, geophysical shocks, and epidemics cause correlation of outflows to geographic neighbors (Weinhold, 2002; Krugman, 1991). Second, the presence of MNC creates externalities that cannot be fully internalized. Competitive pressures force local firms to survive by adapting to more efficient methods. For example, local firms can either replicate a MNC knowledge and technology without additional cost, or can face stiff competition that forces them to find ways to survive. At any rate, the reason why spillovers should be limited by countries geographical barriers is unclear unless we assume existence of protectionist measures similar to those existing in the 18th century Europe. Third, on the one hand, the profit-seeking motive for FDI suggests that high GDP has a positive influence on attracting new flows of FDI, on the other hand, economic growth literature argues that GDP growth rates are correlated across countries (Conley and Ligon, 2002; Weinhold, 2002). Putting these ideas together, we have the stage set for the type of analysis conducted in the contagion literature. Growth rate correlation unexplained by similar macroeconomic shocks in aggregate trade and investments opens the gate for the idea of transmission of shocks between host countries. For instance, correlation of FDI flows may arise because information contained in US investment stock in a country influences new investment flows to its neighbors. From a statistical standpoint, if there is dependence between flows or between stocks of FDI across neighboring countries, spillovers may be present and may lead to bias in an analysis based only on a host country's characteristics. This paper differs from existing literature in two ways. First, spillovers across countries are introduced as a determinant of foreign direct investment. The paper explicitly departs from the traditional capital flow perspective that justifies flows by profits and factor costs considerations within the host country. To the best of my knowledge, there is no clear attempt to systematically follow this route, probably because of the shift that have been operated into analyzing firm level data. Much recent interest has gone to understanding technology diffusion, which is only one channel of FDI spillovers. Wheeler and Mody (1992) are the closest reference to show that the presence of many firms in a country matters significantly in the attraction of new firms in aggregate data, other close research study the impact of economic integration which supposes economic arrangement. This study systematically checks the importance of a neighboring country. Existing work do not systematically consider the influence of the presence of firms in neighboring countries. A significant influence of neighbors stocks in this study will suggest not only that there may be a bias in previous research, but also that countries can view their geographical proximity to leading investment centers as a clear characteristic of an alternative investment location (complementary or substitute location). Second, the analysis uses panel data, which is also a different from other studies that relies mostly on time series analysis. The use the of panel data technique allows us to work around endogeneity problems that are frequent in cross section analysis. The regression based approach followed here make it possible to capture the magnitude of the importance of the spatial variable (neighbor's variable) as a determinant of FDI. Finally, using manufacturing FDI and non-manufacturing FDI as alternate dependent variables help improve our understanding of spillovers. The results show that, controlling for country size, past investment relationship and factor costs, spillovers in non manufacturing industry, motivated by high concentration of past investments exist in Europe for the US FDI data. Clearly, not only does neighbor matters to FDI flows, but also would affect inflows to a third country.

3 Modelling Spatial Effect in FDI

In this section we describe the methodology. We model spatial interaction visible in figure 1 as a linear spatial stochastic process. Consistent with current analysis (Anselin and Bera, 1998; Anselin, 1988; Anselin, Florax, and Rey, 2004), clusters behavior are modeled using an exogenous weight matrix that specifies the spatial topology. We first define spatial matrices using distance among countries as.

$$\begin{vmatrix} d_{11} & d_{12} & . & . & . & d_{1n} \\ d_{21} & d_{22} & . & . & . & d_{2n} \\ . & . & . & . & . & . \\ . & . & . & . & . & . \\ . & . & . & . & . & . \\ d_{n1} & d_{n2} & . & . & . & d_{nn} \end{vmatrix} \begin{vmatrix} f_1 \\ f_2 \\ . \\ . \\ . \\ f_n \end{vmatrix} = \begin{vmatrix} b_1 \\ b_2 \\ . \\ . \\ . \\ b_n \end{vmatrix}$$

The problem is how to specify the weight matrix. A binomial specification would give for 1 if countries are considered neighbors and Zero if they are not

$$\begin{vmatrix} 1 & 0 & . & . & . & 1 \\ 0 & 1 & . & . & . & 1 \\ . & . & . & . & . & . \\ . & . & . & . & . & . \\ . & . & . & . & . & . \\ 1 & 1 & . & . & . & 1 \end{vmatrix} \begin{vmatrix} f_1 \\ f_2 \\ . \\ . \\ . \\ f_n \end{vmatrix} = \begin{vmatrix} b_1 \\ b_2 \\ . \\ . \\ . \\ b_n \end{vmatrix}$$

we estimate a spatial model of the type

$$FDI = \rho W \lambda + \beta X$$

The *border effect matrix* ρW of the $n \times n$ matrix of neighbor status time $n \times 1$ vector of stock of FDI This modeling methodology follows Baltagi, Egger, and Pfaffermayr (2007) and Blonigen, Davies, Waddell, and Naughton (2007) Whereas a distance decay specification normalizes elements of the weight matrix to be inverse function of distance to the host location. Thus, the border vector enters the FDI equation.

There may still be a question about the existence of spatial dependence amont the FDI host countries:

Linear spatial stochastic modeling offers two distinctive directions for checking spatial dependence. First a spatial autoregressive error model and second a spatial lag model. The spatial lag model is appropriate here because it fits better the economic interpretation that can be given to the substantive spatial interaction observed in the data set and represented in figure 1. We posit that interaction among neighboring countries or agglomeration effects can be captured by the extend to which prior existence in a neighboring country, determines investments in the host country. The spatial errors models on the other hand captures nuisance resulting from the omission of spatial behavioral features in the actual units studied (Anselin and Bera, 1998).

A spatial autoregressive error model is written as ("from spatial effects and non linearity in spatial regression models")

$$y = X\beta + (I - \lambda W)^{-1}\mu$$

rearranging the equation above shows that the spatial error model is equivalent to an extended spatial lag model comprising both a spatially lagged dependent variable and spatially lagged exogenous variables

$$y = \lambda W y + X\beta + W\check{X}\gamma + \mu$$

where $\check{X}$ is the original design matrix where the constant term has been removed. The formal equivalence holds only if $(k-1)$ non linear constraints are satisfied, specifically $\lambda\beta = -\gamma$ "this is known as the spatial durbin or the common factor model" (Anselin 2000)

A spatial process model such as the spatial autoregressive moving average model (SARMA) is quite general. Its specification is given by

$$(I - \rho W)y = X\beta + (I - \theta V)\mu$$

where ρ and θ are scalar spatial parameters. W and V are exogenously determined weight matrices

To test for spatial autocorrelation, there are diffuse tests and focused tests. Diffuse tests check whether residual are spatially autocorelated. The Moran statistics calculated for this dataset at -.0258212077 which is small enough to fail to show negative spatial dispersion in the error term. Moran's I is calculated as

$$I = \frac{R}{S_0} . \frac{u'Wu}{u'u}$$

u is the vector of OLS residuals S_0 is the sum of the elements of the weight matrix This test assumes asymptotic normality and linearity of the data generating process.

Because, the modeling approach in the paper attempts to capture the source and magnitude of spatial as coefficient of a parameter to be estimated. The significance of the Coefficient is the best indicator of the existence of spatial autocorrelation.

4 Data and Estimation

The equatiion to be estimated can be rewritten as

$$\begin{aligned} FDI_{it} &= \beta_0 + \beta_1 D_{it} + \beta_2 DIST_{it} + \beta_3 C_{2F_{it}} + \beta_4 w_{it} + \beta_5 \Delta RER_{it} + \\ &\quad \beta_6 DUM_{it} + \beta_7 PR_{it} + \alpha F_{it-1} + \varphi\Gamma + \varepsilon_t \end{aligned}$$

FDI_{it}, the annual flow of FDI from the US to country at year is used here as endogenous variable. It represents funds that US parent companies provide to their foreign affiliates. Provision of funds to foreign affiliate takes 3 forms: equity capital, inter-company debt, and reinvested earnings . Data were obtained from the BEA website. Publicly available BEA data excludes countries where less that 500 000 is invested and avoids disclosure of individual firm data . The definition of FDI in this paper is consistent with The IMF's definition of FDI flows as described in the IMF Balance of Payment Manual (1993, p.41, item 177). Various studies in the macro-view perspective of FDI analysis look at aggregate flows and rely on similar definitions (Love, 2003; Barrell and Pain, 1996; Bajo-Rubio and Sosvilla-Rivero, 1994). FDI is further constructed into FDI flows to the manufacturing sector (FDIMA) and FDI in the non-manufacturing sector (FDINMA). FDIMA and FDINMA are used as alternate endogenous variables. Explicative variables consist of 8 variables obtained from various sources. First,D_{it} is the size of country at year . It represents the market size in the host country. D_{it} is alternatively proxied by population and by GDP , which data is obtained from the IMF. Second, $DIST_{it}$ is the distance between Washington, DC and the capital city of country (the host country). Distance data are obtained from www.indo.com, where calculations are done using the "geod" program available form the US Geological Survey. $DIST_{it}$ represents information cost. Thus, the more distance between two countries, the more information asymmetry between them. $DIST_{it}$ is also used to identify geographical neighbors in the sample . Third,C_{2F} is the ratio of host country to US cost of capital at year . Data for COSTK are computed following Love (2003) and Bajo-Rubio and Sosvilla-Rivero (1994), p.118) as

$$C_{2F_{it}} = (\frac{K_d}{GDP_d}) * (r + 0.10 - \pi_1) \tag{1}$$

where K_d is the gross fixed capital formation deflator, GDP_d is the gross domestic product deflator, and r the medium run nominal interest rate. Data on K_d, GDP_d and r are obtained from the IMF. Depreciation rate by assumption is 0 and π_1 is the rate of change in K_d one year ahead. Fourth, $COSTL_{it}$ is the relative cost of labor in the host country. COSTL is defined as the ratio of host country wages to US wages in dollar per hour, as published in the International Labor Office yearbook. Sixth, $CHER_{it}$ is one period change in the real exchange rate between the country i currency and the US dollar at year t. The real exchange rate is defined as

$$RER = \frac{(E_n * 100)/P_d}{(USD * 100)/(USPPI)} \tag{2}$$

where E_n is the host country's nominal exchange rate in dollars, P_d is host country's price deflator, $USPPI$ is US producer price index. All necessary data are obtained from the IMF. Seventh, PR_{it} is the firms' profit in country i at year t, proxy by firms' market value. Eight and finally,

$$\Gamma = \sum_{i \neq i} wF_{jt-1} \tag{3}$$

is the neighbors influence variable. Where F_{ij} is the stock of investment in all the j's countries in a 1000 miles radius from a country i.

The annual data used in this study span the period 1982 to 2000. Summary statistics for the data are provided in

The baseline equation contains only host country characteristics in the spirit of traditional analysis of FDI determinants. Long-term investment relationships (historical stock) and influence of neighbors are progressively added. The neighbor's influence term seeks to capture the geographic diffusion of flows and stock of FDI over time. The neighbor term simulates the spillover variable because it tests the extent to which important stock of investments in neighboring countries affects flows to the host country . A neighbor is defined as a country within a geographical distance of 1000 miles from the host country. To check the sensitivity of the conclusion to the definition of neighbor, a robustness check was conducted for distances from 500 miles to 3000 miles. In terms of estimation technique, most studies of the relationship between FDI and its determinants are done using time series analysis (Barrell and Pain, 1996; Bajo-Rubio and Sosvilla-Rivero, 1994). Although some recent contributions use panel data (Wheeler and Mody, 1992; Braunerhjelm and Svensson, 1996;

Filippaios, Papanastassiou, and Pearce, 2003; Love, 2003), dynamic panel data are rare. The data allows the development of a model with one cross section dimension , one time dimension , and one spatial term. We applied the panel data estimation technique to the following model:

$$I_{it} = \beta X_{it} + \alpha FDI_{t-1} + \varphi\Gamma + \varepsilon_t \tag{4}$$

where $\varepsilon_{it} = \mu_i + \nu_{it}$

Stocks of investments are defined as cumulative flows and can be written as

$$FDI_{t-1} = I_{t-1} + FDI_{t-2} \tag{5}$$

Using (5), we can rewrite (4) as follows:

$$I_{it} = \alpha_1 I_{t-1} + \beta X_{it} + \alpha_2 F_{t-2} + \varphi \sum_{i \neq i} wF_{jt-1} + \varepsilon_t \tag{6}$$

where $\alpha FDI_{t-1} = \alpha_1 I_{t-1} + \alpha_2 F_{t-2}$

After inclusion of the spatial term, there is a problem with ordinary least squares because observations are not independent and identically distributed. This procedure also assume that the distribution may still be normal. Second, there may still be correlation of the independent border vector with the error term, and third, the choice of the distance at which contagion occurs is arbitrary. The spatial lag model usually has an endogeneity issue. The litterature suggest many ways of dealing with this type of problem. The instrumental variable or the general method of moments or the maximum likelihood estimation (Anselin 1988) Clearly OLS are biased and inconsistent in the spatial lag model irrespective of the properties of the error term. We will use the general method of moments because it is standard for solving dynamic panel data estimation issues.

5 Results and implications

The presence of the lagged dependent variable as an explanatory variable makes the static model innapropriate, moreover because of the lack of randomness in the distribution of countries, ordinary least squares estimation (pooled model) is clearly not valid. We use here a GMM which incorporates an instrumental variable procedure by using the lag of the variables as instrument for the variable. Table 1 presents the summary statistics. A fully collected variable present about 1026 observations on 53 countries regrouped into 3 major clusters (Europe, Asia and Latin America). The correlation table shows that the neighbor coefficient our target explanatory variable, is significantly correlated with many other variables, but to reduce the possibility of spurious correlation we check the consistency of correlation results in a panel data regression.

[Insert Table 2 Full Sample Empirical results about here]

Table 2 shows the regression results. All variables are instrumented by the lag level of the regressors, following the Arellano and Bond dynamic panel data estimation procedure. The coefficient of the spatial term reflects shocks (accumulated over time) to neighboring countries that help attract FDI in the host country. Because the spatial variable is a stock of flows accumulated over time, it is fair to suggest that it carries the idea of spillovers that naturally take time to integrate into the host country's economy. Moreover, it can be logically considered to be the extent to which investing in the host country is an alternative to investing in neighboring countries. Two main conclusions can be derived from the regressions below. First, the coefficient of the spatial term is positive and significant. Thus, controlling for host country's characteristics, shocks to neighboring countries positively affect FDI to the host country. Second, after the introduction of the variable representing neighbor's influence, the country SIZE coefficient becomes negative and non-significant. This means that the host country size less is important when the country is integrated with its neighbors. This result is consistent with prior studies that show that the size of the regional market is more relevant than the size of the host country market to investment in Europe.

[Insert Table 3. Full Sample Arellano and Bond Fixed Effect Regression of FDI about here]

When restricting the analysis to flows of FDI in the non-manufacturing sector, as shown on Table 3, the two conclusions in the regressions above still hold. Stock of investment in geographically neighboring countries has a positive impact on the host country's new flows of FDI. This relationship is (exactly as above) valid when the distance between the host country and the neighbor is at most 1000 miles. The country SIZE coefficient is positive and non-significant when controlling only for home country characteristics and when including neighbor's influence. Furthermore, the country SIZE coefficient is negative and significant when an additional control variable is introduced to capture the fact the country has received investments in the past.

[Insert Table 4. Full Sample Arrellano and Bond Fixed Effect Regression of FDI non-manufacturing about here]

Table 4 shows results of three regressions where the dependent variable is restricted to flows of foreign investment directed to the manufacturing sector. The main result is that the two conclusions above no longer hold true. Geographical neighbors do not have a statistically significant impact on new flows of investments in the host country, and unlike in the case of non-manufacturing investments, the country SIZE coefficient is positive and significant. This suggests that manufacturing investments may be less likely to diffuse to neighboring countries.

[Insert Table 5. Full sample Arrellano and Bond fixed effect regression of FDI manufacturing about here]

Thus, when spillover is defined as a process by which a neighboring country stock of investments influences new flows of investments to the host country, US FDI decisions in general seem to be influenced by prior knowledge of the neighboring country. However, this behavior only occurs when flows are directed to the non-manufacturing sector. Performing regressions on specific regions gives similar results (available from the author upon request).

6 Conclusion

The effects of neighboring countries on new flows of FDI to a host country can be modeled using geographical spillovers stemming from monitoring resources outside the host country. Estimating an FDI equation with lag stock of Neighbors FDI shows that, US FDI depends globally upon the amount of information collected over time about the neighborhood of the investment location. However, this conclusion does not hold true when investments to only the manufacturing sector are considered. It seems that geographical spillover from information costs foster investments to neighboring countries in non-manufacturing sector only. This may be due to the fact that manufacturing investments are heavy and generally used as a regional supply platform. Further analysis may however be needed to understand the full scope of the behavior of traditional FDI determinants in this model. This study shows that although US FDI is globally dependent upon the amount of information collected over time on the neighborhood of the investment location, there is a heterogeneous response to the importance of neighbors depending on the location of the investment and the affectation of the FDI as manufacturing or non-manufacturing. This result appear to be robust to a definition of neighbor over a range of distance going from 750 to 3000 miles

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Table 1: Summary statistics

Variable	Mean	Std. Dev.	N
fdi	1097.997	3144.81	936
fdinma	703.426	2675.142	971
fdiman	344.54	799.791	982
gdp	61006.167	151804.983	976
dist	4827.056	2412.364	1026
costk	6.505	69.707	809
costl	1079.644	9502.523	620
chrer	-9.095	2.173	945
firmprofit	93.248	82.569	644
bodrinv	73939.960	117969.6	1026
relativcosk	8.616	214.515	758
relativwag	82.378	735.805	620
relativesize	4881639723.226	14851746201.942	976
relativesize2	1805377.036	4211311.518	1006

Table 2: Cross-correlations

Variables	FDI	FDINMA	FDIMAN	GDP	DIST	COSTK	COSTL	CHRER	firmprofit	BODRINV	relativcosk	relativwag	relativesiz
FDI	1.000												
FDINMA	0.958	1.000											
	(0.000)												
FDIMAN	0.586	0.329	1.000										
	(0.000)	(0.000)											
GDP	0.199	0.180	0.149	1.000									
	(0.000)	(0.001)	(0.008)										
DIST	-0.213	-0.148	-0.282	-0.009	1.000								
	(0.000)	(0.008)	(0.000)	(0.871)									
COSTK	-0.056	-0.042	-0.066	-0.048	-0.019	1.000							
	(0.323)	(0.459)	(0.243)	(0.400)	(0.736)								
COSTL	-0.009	-0.012	0.005	-0.026	-0.055	0.897	1.000						
	(0.880)	(0.834)	(0.925)	(0.651)	(0.327)	(0.000)							
CHRER	0.028	0.021	0.033	0.027	0.036	-0.907	-0.982	1.000					
	(0.617)	(0.705)	(0.563)	(0.635)	(0.523)	(0.000)	(0.000)						
firmprofit	0.407	0.368	0.300	0.150	-0.122	-0.136	-0.044	0.079	1.000				
	(0.000)	(0.000)	(0.000)	(0.008)	(0.031)	(0.015)	(0.435)	(0.162)					
BODRINV	0.394	0.395	0.180	0.127	-0.267	-0.069	-0.049	0.037	0.307	1.000			
	(0.000)	(0.000)	(0.001)	(0.024)	(0.000)	(0.219)	(0.383)	(0.511)	(0.000)				
relativcosk	0.013	0.015	0.000	0.012	0.136	0.231	0.170	-0.185	-0.094	0.002	1.000		
	(0.819)	(0.791)	(0.997)	(0.838)	(0.015)	(0.000)	(0.003)	(0.001)	(0.097)	(0.970)			
relativwag	-0.016	-0.016	-0.006	-0.028	-0.050	0.901	0.998	-0.982	-0.059	-0.048	0.172	1.000	
	(0.784)	(0.779)	(0.912)	(0.626)	(0.381)	(0.000)	(0.000)	(0.000)	(0.300)	(0.391)	(0.002)		
relativesize	0.295	0.243	0.285	0.441	-0.137	-0.039	-0.025	0.020	0.188	0.588	0.025	-0.025	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.015)	(0.491)	(0.653)	(0.729)	(0.001)	(0.000)	(0.658)	(0.656)	
relativesize2	0.337	0.285	0.304	0.410	-0.164	-0.045	-0.034	0.025	0.185	0.612	0.021	-0.033	0.961
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.425)	(0.553)	(0.652)	(0.001)	(0.000)	(0.714)	(0.559)	(0.000)

Table 2: Full sample FDI Regression

	(1)	(2)	(3)
VARIABLES	Base case	Augmented 1	Augmented 2
LD.fdi	0.00	-0.00	-0.00
	(0.07)	(0.07)	(0.07)
D.gdp		-0.00085	-0.00097
		(0.00571)	(0.00568)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	-0.06	-0.07	-0.06
	(0.95)	(0.96)	(0.95)
D.relativwag	-10.19	-9.63	-9.80
	(10.82)	(10.83)	(10.81)
D.chrer	944.92	895.86	923.14
	(897.39)	(898.51)	(896.44)
D.firmprofit	6.77	6.92	6.94
	(5.06)	(5.08)	(5.07)
D.bodrinv	0.01**	0.01*	0.01**
	(0.01)	(0.01)	(0.01)
D.population		-6.96	
		(25.51)	
D.gdpcapita	-0.19294		
	(0.21413)		
Constant	107.65	80.50	76.14
	(83.40)	(80.88)	(78.48)
Observations	225	225	225
Number of id	31	31	31
ARtest	2	2	2
Sargan	203.2	203.3	204.1

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3:Asia and Pacific FDI Regression

	(1)	(2)	(3)
VARIABLES	Base case	Augmented 1	Augmented 2
LD.fdi	-0.39***	-0.44***	-0.44***
	(0.09)	(0.09)	(0.09)
D.gdp		-0.00803**	-0.00806**
		(0.00405)	(0.00387)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	-2.67***	-2.09***	-2.09***
	(0.71)	(0.72)	(0.69)
D.relativwag	3,772.31***	3,813.86***	3,821.47***
	(1,442.48)	(819.00)	(769.25)
D.chrer	-3,525.95**	-3,599.41**	-3,598.35**
	(1,611.27)	(1,564.10)	(1,551.61)
D.firmprofit	6.37	5.22	5.21
	(4.12)	(4.12)	(4.06)
D.bodrinv	0.02	0.05*	0.05**
	(0.02)	(0.02)	(0.02)
D.population		-0.21	
		(7.30)	
D.gdpcapita	-0.01533		
	(0.13549)		
Constant	3.40	15.20	14.73
	(42.62)	(44.93)	(41.55)
Observations	73	73	73
Number of id	9	9	9
ARtest	2	2	2
Sargan	78.05	76.02	77.21

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Latin America FDI Regression

	(1)	(2)	(3)
VARIABLES	Base case	Augmented 1	Augmented 2
LD.fdi	-0.45***	-0.46**	-0.46***
	(0.17)	(0.18)	(0.17)
D.gdp		0.00419	0.00403
		(0.01555)	(0.01456)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	0.29	0.35	0.35
	(0.53)	(0.60)	(0.59)
D.relativwag	-4.97	-5.37	-5.27
	(4.78)	(5.91)	(4.91)
D.chrer	123.21	121.72	122.11
	(367.39)	(370.34)	(365.25)
D.firmprofit	-4.29	-4.32	-4.27
	(3.05)	(3.45)	(3.04)
D.bodrinv	-0.02	-0.03	-0.03
	(0.06)	(0.06)	(0.06)
D.population		6.29	
		(199.68)	
D.gdpcapita	0.15013		
	(0.72709)		
Constant	238.39*	245.67*	246.95*
	(129.59)	(140.53)	(132.70)
Observations	46	46	46
Number of id	9	9	9
ARtest	2	2	2
Sargan	35.68	34.74	35.68

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Western Europe FDI Regression

VARIABLES	(1) Base case	(2) Augmented 1	(3) Augmented 2
LD.fdi	-0.20*	-0.21**	-0.21**
	(0.11)	(0.11)	(0.11)
D.gdp		0.00008	0.00577
		(0.01380)	(0.00767)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	-90.19*	-96.31*	-93.35*
	(51.40)	(50.59)	(50.38)
D.relativwag	-721.34	-538.12	-701.47
	(921.66)	(922.15)	(859.25)
D.chrer	13,888.61***	13,876.52***	13,714.80***
	(3,834.05)	(3,827.37)	(3,821.42)
D.firmprofit	28.15**	27.95**	28.69**
	(13.77)	(13.55)	(13.67)
D.bodrinv	0.05***	0.05***	0.05***
	(0.01)	(0.01)	(0.01)
D.population		571.28	
		(1,247.02)	
D.gdpcapita	0.14496		
	(0.34970)		
Constant	-886.50***	-889.32***	-840.61***
	(303.19)	(296.40)	(269.96)
Observations	87	87	87
Number of id	11	11	11
ARtest	2	2	2
Sargan	76.40	76.39	76.81

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6: Full Sample FDINMA Regression

VARIABLES	(1) Base case	(2) Augmented 1	(3) Augmented 2
LD.fdinma	-0.03	-0.03	-0.03
	(0.07)	(0.07)	(0.07)
D.gdp		-0.00289	-0.00297
		(0.00559)	(0.00556)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	-0.04	-0.07	-0.07
	(0.92)	(0.92)	(0.92)
D.relativwag	-8.53	-8.00	-8.06
	(10.94)	(10.96)	(10.93)
D.chrer	893.67	889.82	899.21
	(853.36)	(855.54)	(852.78)
D.firmprofit	7.89	7.81	7.86
	(5.16)	(5.17)	(5.16)
D.bodrinv	0.01**	0.01**	0.01**
	(0.01)	(0.01)	(0.01)
D.population		-2.83	
		(24.66)	
D.gdpcapita	-0.10262		
	(0.21901)		
Constant	27.02	24.24	21.82
	(82.59)	(81.72)	(79.10)
Observations	214	214	214
Number of id	30	30	30
ARtest	2	2	2
Sargan	194.2	193.5	194.4

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7: Asia and Pacific FDINMA Regression

	(1)	(2)	(3)
VARIABLES	Base case	Augmented 1	Augmented 2
LD.fdinma	-0.55***	-0.58***	-0.58***
	(0.09)	(0.09)	(0.09)
D.gdp		-0.00287	-0.00283
		(0.00320)	(0.00306)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	-0.91	-0.38	-0.39
	(0.56)	(0.58)	(0.55)
D.relativwag	1,350.14	2,607.38***	2,598.74***
	(1,138.84)	(647.52)	(610.27)
D.chrer	-1,767.53	-2,062.78*	-2,064.63*
	(1,259.29)	(1,246.86)	(1,236.23)
D.firmprofit	3.59	3.42	3.44
	(3.23)	(3.29)	(3.25)
D.bodrinv	-0.00	0.02	0.02
	(0.02)	(0.02)	(0.02)
D.population		0.25	
		(5.84)	
D.gdpcapita	0.13341		
	(0.10728)		
Constant	9.70	6.04	6.60
	(33.61)	(36.13)	(33.34)
Observations	73	73	73
Number of id	9	9	9
ARtest	2	2	2
Sargan	66.92	66.79	67.87

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 8: LAtin America FDINMA Regression

	(1)	(2)	(3)
VARIABLES	Base case	Augmented 1	Augmented 2
LD.fdinma	-0.40**	-0.41**	-0.42**
	(0.18)	(0.18)	(0.18)
D.gdp		0.00858	0.00962
		(0.01124)	(0.01056)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	-0.07	0.09	0.08
	(0.37)	(0.41)	(0.41)
D.relativwag	-4.92	-4.98	-5.67
	(3.39)	(4.19)	(3.47)
D.chrer	173.50	165.15	164.13
	(260.96)	(260.67)	(256.79)
D.firmprofit	-2.89	-2.57	-2.91
	(2.20)	(2.45)	(2.16)
D.bodrinv	-0.00	-0.01	-0.01
	(0.04)	(0.04)	(0.04)
D.population		-42.07	
		(137.46)	
D.gdpcapita	0.28174		
	(0.53898)		
Constant	130.54	162.41	152.46
	(92.93)	(102.01)	(95.26)
Observations	45	45	45
Number of id	9	9	9
ARtest	2	2	2
Sargan	35.43	34.55	35.69

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 9: Western Europe FDINMA Regression

	(1)	(2)	(3)
VARIABLES	Base case	Augmented 1	Augmented 2
LD.fdinma	-0.19	-0.19*	-0.19
	(0.12)	(0.12)	(0.12)
D.gdp		-0.01270	-0.00038
		(0.01522)	(0.00793)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	-89.01	-96.31*	-90.20*
	(55.13)	(54.47)	(54.24)
D.relativwag	-686.49	-376.08	-634.00
	(970.30)	(969.15)	(932.69)
D.chrer	13,063.56***	13,462.15***	13,155.84***
	(4,007.55)	(4,003.97)	(4,001.67)
D.firmprofit	26.96*	27.05*	26.66*
	(15.60)	(15.44)	(15.48)
D.bodrinv	0.05**	0.05**	0.05**
	(0.02)	(0.02)	(0.02)
D.population		1,346.22	
		(1,420.09)	
D.gdpcapita	0.04918		
	(0.37630)		
Constant	-868.45**	-917.98**	-848.60**
	(421.84)	(400.75)	(395.08)
Observations	77	77	77
Number of id	10	10	10
ARtest	2	2	2
Sargan	68.12	67.86	68.39

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

TAble 10: Full sample FDIMA Regression

	(1)	(2)	(3)
VARIABLES	Base case	Augmented 1	Augmented 2
LD.fdiman	-0.25***	-0.26***	-0.26***
	(0.07)	(0.07)	(0.07)
D.gdp		0.00377*	0.00361*
		(0.00212)	(0.00211)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	-0.10	-0.05	-0.05
	(0.34)	(0.34)	(0.34)
D.relativwag	-1.04	-1.35	-1.32
	(3.80)	(3.78)	(3.78)
D.chrer	-76.78	-117.00	-108.01
	(322.63)	(321.55)	(321.33)
D.firmprofit	0.13	0.75	0.62
	(1.82)	(1.84)	(1.83)
D.bodrinv	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)
D.population		-6.50	
		(4.37)	
D.gdpcapita	-0.00777		
	(0.06685)		
Constant	78.74***	77.74***	69.02**
	(29.35)	(29.39)	(28.23)
Observations	229	229	229
Number of id	30	30	30
ARtest	2	2	2
Sargan	218.3	215.9	217.2

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 11:Asia and Pacific FDIMA Regression

	(1)	(2)	(3)
VARIABLES	Base case	Augmented 1	Augmented 2
LD.fdiman	-0.19*	-0.23*	-0.23*
	(0.11)	(0.12)	(0.12)
D.gdp		-0.00429	-0.00403*
		(0.00265)	(0.00244)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	-1.80***	-1.74***	-1.78***
	(0.48)	(0.50)	(0.47)
D.relativwag	2,424.05***	1,429.42***	1,357.46***
	(868.07)	(540.88)	(460.73)
D.chrer	-1,834.99*	-1,576.88	-1,627.94
	(1,085.42)	(1,080.21)	(1,053.97)
D.firmprofit	2.37	1.45	1.76
	(2.45)	(2.71)	(2.42)
D.bodrinv	0.02*	0.03	0.02*
	(0.01)	(0.02)	(0.01)
D.population		0.70	
		(2.68)	
D.gdpcapita	-0.12507		
	(0.08336)		
Constant	-17.44	-7.39	-3.90
	(26.46)	(29.41)	(25.95)
Observations	80	80	80
Number of id	9	9	9
ARtest	2	2	2
Sargan	92.98	93.23	94.75

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 12: Latin America FDI Regression

VARIABLES	(1) Base case	(2) Augmented 1	(3) Augmented 2
LD.fdiman	-0.44***	-0.48***	-0.44***
	(0.17)	(0.18)	(0.17)
D.gdp		-0.00536	-0.00610
		(0.00706)	(0.00679)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	0.39	0.27	0.29
	(0.25)	(0.29)	(0.28)
D.relativwag	-0.07	-0.17	0.41
	(2.31)	(2.74)	(2.36)
D.chrer	-48.27	-45.34	-42.55
	(174.15)	(173.15)	(171.54)
D.firmprofit	-1.26	-1.58	-1.28
	(1.45)	(1.60)	(1.42)
D.bodrinv	-0.02	-0.01	-0.01
	(0.03)	(0.03)	(0.03)
D.population		42.49	
		(98.33)	
D.gdpcapita	-0.18247		
	(0.34854)		
Constant	100.75*	78.45	88.92
	(59.95)	(65.11)	(59.91)
Observations	45	45	45
Number of id	9	9	9
ARtest	2	2	2
Sargan	34.41	33.87	34.66

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 13: Western Europe FDIMA Regression

VARIABLES	(1) Base case	(2) Augmented 1	(3) Augmented 2
LD.fdiman	-0.30***	-0.37***	-0.37***
	(0.11)	(0.11)	(0.11)
D.gdp		0.01319***	0.00558**
		(0.00415)	(0.00224)
D.dist	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
D.relativcosk	13.24	16.99	11.58
	(15.42)	(14.68)	(14.46)
D.relativwag	36.99	-189.13	-43.05
	(276.16)	(255.19)	(246.95)
D.chrer	1,218.76	929.06	1,028.88
	(1,095.12)	(1,036.68)	(1,032.39)
D.firmprofit	5.61	6.55*	5.88
	(4.16)	(3.96)	(3.94)
D.bodrinv	0.01	0.01*	0.01
	(0.00)	(0.00)	(0.00)
D.population		-813.04**	
		(374.38)	
D.gdpcapita	0.04801		
	(0.08481)		
Constant	-113.66	-96.33	-106.10
	(92.17)	(87.98)	(87.93)
Observations	85	85	85
Number of id	10	10	10
ARtest	2	2	2
Sargan	80.23	76.94	82.14

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

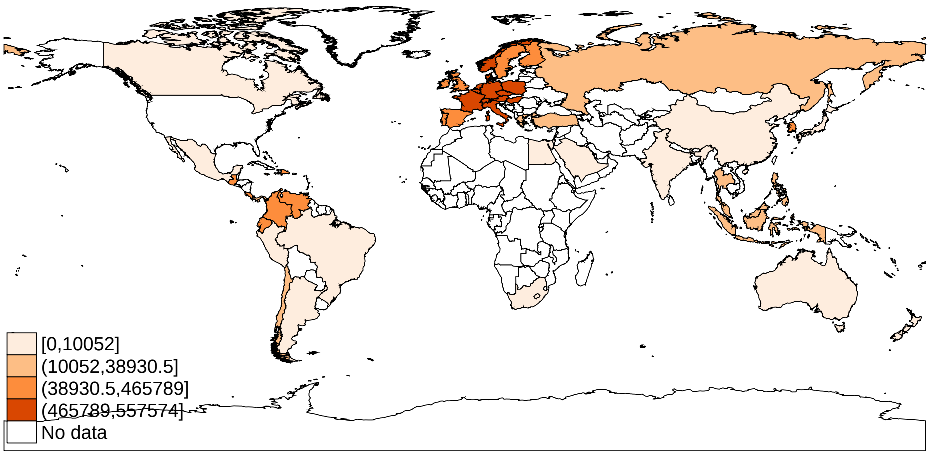

Figure 1: US FDI in the world