

ESTIMATING THE BILATERAL FOREIGN DIRECT INVESTMENT FLOWS IN TRANSITION ECONOMIES

Bardhyl Dauti¹, Violeta Madzova², Kristina Velichkovska³

¹University of Tetovo, bardhyl.dauti@unite.edu.mk

²International Balkan University, v.madzova@ibu.edu.mk

³International Balkan University, kristina.velickovska@ibu.edu.mk

ABSTRACT

The paper employs a gravity model augmented with institutional related factors to study the determinants of bilateral FDI flows between South East European Countries (SEE-5) and Central East European Countries (CEE-10) on one hand, and European Union Countries (EU-14) on the other hand, on a yearly time span 1994-2010. The study applies different linear estimation technique like GLS and non-linear estimation techniques, like Random Effect Tobit and Poisson-Pseudo Maximum Likelihood. The findings of the paper suggest that the bilateral flow of FDI between countries is determined by market size factors of both host and source countries and transaction cost factors between countries, as well as by the institutional performance of host countries.

KEYWORDS

FOREIGN DIRECT INVESTMENT, TRANSITION COUNTRIES, PANEL ECONOMETRICS, GRAVITY MODEL

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1. INTRODUCTION

Foreign Direct Investments (FDI) are considered as the main source of foreign capital for transition economies of South East European Countries (SEECs) and New European Member States (EU-NMS), (UNCTAD, 2013). This development occurred with the process of transition from socialism to capitalism and the integration of the economies of SEECs and EU-NMS into the international economic structures through trade and capital flows. (Dauti, 2015a, 2015b; Buch *et al*, 2003). Moreover, FDI in transition economies of SEECs and EU-NMS can accelerate growth, institutional reforms, technological developments and infrastructure reforms, in addition to providing capital account relief (Damijan *et al*, 2002; Bevan and Estrin, 2004).

The aim of this paper is using panel data on bilateral FDI flows from individual developed source economies to transition developing host economies between 1994 and 2010, to analyse empirically the

determinants of inward FDI flows to host economies of SEEC-5¹ and EU-NMS-10², by focusing on market size, transaction cost and government policies as the determinants of FDI. Therefore, the empirical strategy of the paper will be focused on advantages of location FDI, denoted by market size factors of source and host countries and ownership and internalization advantages of FDI, denoted by distance, host country institutional factors, and transition progress (Dunning, 2007). These FDI flows are mainly coming from continental Europe and therefore several major global economies like the USA and Japan are under-represented in this study. Hence, EU-14 countries³ will be considered as the main source countries of FDI due to their main importance in terms of FDI in the SEE and CEE regions.

The empirical approach follows the models of Buch *et al* (2004) and Bevan and Estrin (2004), which are based on the theoretical models of Helpman (1984), which largely explains FDI flows by factor endowment considerations (including institutions and by viewing FDI flows, as determined by gravity factors, like market size factors represented by Gross Domestic Product (GDPs) of source and host countries and transaction factors represented by country distances). Hence, the basic gravity model of FDI, in this study, is augmented by considering also host country institutional related factors and transition progress. Based on this, the study draws on policy recommendations for promoting FDI inflows in the host countries. This study will enrich the empirical literature on FDI determinants, using bilateral data at country level, by considering also institutional and transition-related factors as crucial ones that largely determine the size of FDI inflow into transition economies. Moreover, the empirical study finds that FDI between the developed EU-14 countries and the transitional SEE-5 and EU-NMS-10 countries is determined by gravity factors, host country institutional factors, and transition progress.

The paper is organized as follows. The next section presents the theoretical background of the gravity model applied to studies of FDI flows. The following section presents the methodology and the empirical model and describes data used. The subsequent section presents the results obtained by estimating the augmented gravity model. The last section summarizes the results and concludes.

2. THEORETICAL BACKGROUND OF THE GRAVITY MODEL APPLIED TO FDI STUDIES

In the last two decades, gravity model analysis has been widely used in empirical studies of trade flows and foreign direct investments (Eichengreen and Irwin, 1998). The model is based on Newton's law of universal gravitation. The law states that all objects attract each other with a force of gravitational attraction. This force of gravitational attraction is directly dependent upon the masses of both objects and is inversely proportional to the square of the distance, which separates their centres. In economic terms, with respect to foreign investments, this model means that investment flows between two countries (gravitational attraction) is determined by the countries' GDPs (their masses) and inversely related to the distance between the two countries (generally their capital cities). A simple version of the gravity model is typically specified as:

$$f_{ij} = a \frac{y_i y_j}{d_{ij}^2} \quad (1)$$

where f_{ij} stands for the value of FDI from country i to country j , the y_i and y_j are the respective national income values of country i and j , d_{ij} is a measure of distance between them. Distance can be taken as a measure of the transaction and physical costs of foreign investments. These costs generally include: the transportation and communication costs, the cost of language and cultural barriers, the cost of movement

¹Albania, Bosnia and Herzegovina, Croatia, North Macedonia and Serbia

²Bulgaria, Romania, Slovenia, Slovak Republic, Czech Republic, Hungary, Poland, Latvia, Lithuania and Estonia

³Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherland, Portugal, Spain, Sweden, and United Kingdom

of personnel, as well as the information costs of institutional and legal factors, like local property rights, domestic regulations and tax systems, which are assumed to increase with distance (Bevan and Estrin, 2004). Besides physical distance, the extended gravity model applied in this study identifies the flows of FDI from the core 14 EU investing countries to 5 SEE countries and 10 EU New Member States (NMS). This analysis can be explained by the supply side of investing partners, demand conditions of host countries, and other economic factors (such as institutional factors), which can either assist or resist the movements of investment flows.

3. METHODOLOGY, EMPIRICAL APPROACH AND DATA

In line with theoretical framework of FDI determinants, we consider the role of geography in explaining FDI pattern among SEE and CEE countries and other policy factors either resisting or promoting FDI by using the conceptual framework of the gravity model. To capture the geographical relevance in explaining FDI patterns among SEE and CEE countries, we will consider distance as a proximity determinant of FDI, including regional grouping dummy variables, like World Trade Organization membership and bilateral FDI agreement. These integration variables are included in the model to consider the competitive advantage of host countries by gaining economies of scale and reducing investment barriers between SEE countries and CEE member states. The explanatory variables denoting market size, such as GDP for both home and host countries are included in the model to measure the effect of economic size on FDI flows. This perception is derived from the eclectic paradigm theory of FDI to consider the motivations of FDI either efficiency or market seeking (Dunning *et al*, 2001). Other institutions-related determinants, such as corruption perception index, world governance indicators on control of corruption, regulatory quality, government effectiveness, rule of law, political risk, and voice and accountability, are in the model in line with the perceptions of efficiency seeking considerations of FDI. The variable of schooling is considered in the model to account for host country human capital development and resource-seeking considerations of FDI. To explain the pattern and effects of inflows of FDI to SEECs and new member states of CEECs, each explanatory variable is considered independently. The reduced form of the model including related selected variables is given below:

$$\ln fdi_{ij,t} = \alpha_{ij} + \mu_t + \beta_0 \ln gdp_{i,t-1} + \beta_1 \ln gdp_{j,t-1} + \beta_2 \ln |gdp_{i,t-1} - gdp_{j,t-1}| + \beta_3 \ln x_{jt} + \beta_4 \ln fdi_{ij,t-1} \times \ln y_{jt} + \gamma + \delta + \varepsilon_{ij,t} \quad (2)$$

Where fdi_{ijt} is a bilateral gross FDI inflows from source country i to host country j at time t , in millions of US dollars. $gdp_{ij,t-1}$ represents market size variables denoting the gross domestic product, in millions of US dollar in source and host country, respectively. Both variables are lagged by 1-time period, in order to control for endogeneity problems between FDI and GDP. We use the absolute difference of GDP per capita variable between source country and host country at time t $dif |gdp_{i,t-1} - gdp_{j,t-1}|$ as measures of income. The absolute difference of GDP per capita, between source and host country, will allow us to control for serial correlation between GDP and GDP per capita variable (Greene, 2013). The country-pair specific effects, α_{ij} captures all the time invariant factors, such as distance, common land border, common language etc, while μ_t is a time dummy, γ is host country dummy and δ is source country dummy, x_{jt} represent the vector of host country explanatory variables and y_{jt} stands for host country institutional related variables interacted with lagged dependent variable. The interaction terms are lagged by 1 period to avoid possible endogeneity concerns. ε_{ijt} is the standard error term.

3.1. Empirical Model

Following the work of Altomonte (1998), Bevan and Estrin (2004), Boss and De Lar (2006) Johnson (2006) and Mateev (2008) applied to OLI framework, we employ the gravity model for explaining FDI patterns, among countries that have invested in the SEE-5 countries and EU-NMS-10. For estimation purposes, the extended gravity equation for FDI inflows in SEE and CEE countries is specified in the equation (3):

$$\begin{aligned} \ln fdi_{ij,t} = & \alpha_{ij} + \mu_t + \beta_0 \ln gdp_{i,t-1} + \beta_1 \ln gdp_{j,t-1} + \beta_2 \ln d_{ij} + \beta_3 \ln |gdp_{i,t-1} - gdp_{j,t-1}| \\ & + \beta_4 smctry_{ij} + \beta_5 wto_{jt} + \beta_6 bfdia_{jt} + \beta_7 \ln op_{jt-1} + \beta_8 \ln bex_{ij,t-1} + \beta_9 \ln sch_{jt} \\ & + \beta_{10} \ln trans_{jt} + \beta_{11} \ln cpi_{jt} + \beta_{12} \ln fdi_{ij,t-1} \times \ln cc_{jt} + \beta_{13} \ln fdi_{ij,t-1} \times \ln rq_{jt} \\ & + \beta_{14} \ln fdi_{ij,t-1} \times \ln gov_{jt} + \beta_{15} \ln fdi_{ij,t-1} \times \ln rl_{jt} + \beta_{16} \ln fdi_{ij,t-1} \times \ln pr_{jt} \\ & + \beta_{17} \ln fdi_{ij,t-1} \times \ln va_{jt} + \beta_{18} seed_{ij} + \gamma + \delta + \varepsilon_{ij,t} \quad (3) \end{aligned}$$

Where i denotes individual source countries, j denotes individual SEE and CEE receipt countries; t denotes the years from 1994 to 2010. The empirical model assumes that bilateral FDI in SEE and CEE countries is a function of GDP, distance, language, cultural and border similarities, world trade organization membership of host economy, bilateral FDI agreement, trade openness, bilateral exports from country j to country i , schooling, transition progress, corruption perception index and world governance indicators like control of corruption, regulatory quality, government effectiveness, rule of law, political risk and voice and accountability.

3.2. Data Description and Hypothesis

Along the lines of previous research, the dependent variable fdi_{ij} is defined as the bilateral flows of FDI from source country i to host country j at time t . The source of this data is the OECD. In the empirical model we include the variables of gdp_{it} and gdp_{jt} sourced from UNCTAD, to consider the market size of host and source country. The empirical literature suggests positive relationship between market size factors and the size of FDI flows (Bevan and Estrin, 2004; Johnson, 2006; Mateev, 2008; Dauti, 2015a; Dauti, 2015b). The source of this data is UNCTAD. In the empirical model, we also include the variable of the absolute difference of GDP per capita between countries to capture the market size differentials between countries, as well as factor endowments differentials between countries. The empirical literature suggests both, positive and negative relationship between factor cost differentials and FDI. The positive (negative) sign of this variable may also be due to the fact that differences in wage levels are compensated (not compensated) by productivity (Bergstrand, 1985, 1989). The source of the data for this variable is UNCTAD.

The transaction cost variable in this study is represented by the distance between source and host country. The variable of distance $\ln d_{ij}$ represents gravity factor. Distance between source and host country is expected to have a negative effect on the size of FDI flows, due to costly adoptions of goods to local preferences (Johnson, 2006) and high transportation cost (Bevan and Estrin, 2000; Resmini, 2000). The variable of distance is measured by the actual route distance from the economic centres (generally, capital cities) between source and host countries, in kilometres⁴. According to Resmini (2000), greater distance presents weaker trade ties between the FDI source country and the host country, thus providing for lower FDI flow levels. Typically, empirical studies proxy trade costs with bilateral distance.

However, a number of additional variables are also customarily used. In this regard, the model includes also additional gravity factors through dummy variables, like $smctry_{ij}$ which is a dummy variable that takes value one when two countries share a border, a language or were the same country in the past, correspondingly. In all the cases, the coefficient is expected to be positive. This variable is used to capture

⁴The source of this variable is <http://www.geobytes.com>.

information costs and search costs, which are probably lower for foreign investors whose business practices, competitiveness and delivery reliability are well known to one another. The source of the data for $smctry_{ij}$ is CEPIL.

The variable of openness, measured by the sum of exports and imports over GDP, sourced from UNCTAD, denoted by $lnop_{ijt}$ is included in the model to account for the openness level of the SEE countries (Bos and De Laar, 2004). The variable of openness is used to capture the liberalization of trade and foreign exchange transactions. The fewer restrictions a host country imposes on trade the higher will be the FDI attracted by this country. Therefore, a positive relationship between openness and FDI flow is expected.

The variable $lbex_{ijt-1}$ is considered in the model to account for bilateral exports from host country j to source country i . This variable is lagged by one time to allow the bilateral exports the grace period before it starts affecting host country's inflow of FDI. Bilateral exports are included as explanatory variable because of the higher export propensity of foreign firms to the international market. It is expected that host country bilateral exports to encourage more FDI flows, meaning that exports will come before FDI flows. Hence, export oriented economies may be more successful in encouraging FDI flows. Therefore, it is expected positive relationship between lagged bilateral exports and FDI flows. The source of the data for $lbex_{ijt}$ is OECD.

The variable of schooling $lnsch_{jt}$ sourced from World Bank database on education, measured by tertiary school enrolment as a per cent of gross school enrolment of the host country population is included in the model to account for efficiency-seeking motives of FDI, capturing the human capital developments in the host country (Borensztein, De Gregorio and Lee, 1998). According to the research literature, there is a strong positive relationship between FDI and the level of educational attainment in the domestic economy. In line with Borensztein, De Gregorio, and Lee (1998), this variable is expected to present a positive relation to FDI flows: the more educated the workforce, the greater the incentive for investment, since a better-educated workforce yields higher returns.

We augment the gravity model by institutional related factors having regard the importance of the institutional quality with respect to promoting the country to foreign investors. We proxy for the quality of institutions in the host country through the World Bank's Worldwide Governance Indicators (WGI), which include six relevant measures, on per centile rank values, like control of corruption, regulatory quality, rule of law, government effectiveness, political risk and voice and accountability. These measures are included in the model as interaction terms with lagged dependent variable fdi_{ijt-1} . Moreover, the inclusion of one year lagged FDI flows interacted with institutional related determinants of FDI, allows us to test whether the relationship between past and current FDI differ according to quality of host country institutional system. Methodologically, the lagged dependent variable is introduced in the model to correct for serial correlation problems.

The index of control of corruption $lncc_{jt}$ captures perceptions of the extent to which elites and private interests exercise public power for private gain, including both petty and grand forms of corruption, as well as "capture" of the state. It is expected that control of corruption will be negatively associated with bilateral FDI flow. The index of regulatory quality $lnrq_{jt}$ measures perception of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. It is expected that regulatory quality index will be positively related to bilateral FDI flow. The index of rule of law $lnrl_{jt}$ measures the perceptions of the extent to which economic agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence. It is expected that economic agents' confidence in host country institutional system, represented by quality of contract enforcement and property rights, will be positively related to bilateral FDI flow. The index of voice and accountability $lnva_{jt}$ captures perception of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. The political stability index $lnps_{jt}$ captures the perception of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically – motivated violence and terrorism. The government effectiveness index $lngov_{jt}$ captures perception of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the

quality of policy formulation and implementation and the credibility of the government's commitment to such policies. In general, it is expected that bilateral FDI flow from source to host country will increase as the overall institutional conditions in the SEE-5 and EU-NMS-10 host countries improve. Therefore, a positive relationship between FDI and host country governance indicators is expected.

The variable $Intrans_{jt}$ is included in the model to capture the transition progress of host country institutions. Following Johnson (2006), this variable is constructed by the sum of four EBRD transition specific indexes, i.e. the indexes denoting overall infrastructure reform, banking reforms, trade and foreign exchange rate reforms and the reforms in the securities and non – bank financial institutions. It is expected that the transition progress will be positively associated to bilateral FDI flow. The source of the data for this variable is European Bank of Reconstruction and Development (EBRD).

Additionally, Transparency International Corruption Perception Index, (CPI) is included in the study to address the level of perceived corruption and to capture the investment climate in the host countries. The variable $incpi_{jt}$ is measured by perceived corruption on a continuous scale from one to 10. In the model, we account for the effects of corruption as an institutionally related determinant. The data is collected from the Transparency International's website. The variable is expected to have a positive relationship with the FDI flow, since a higher value of the corruption index indicates a less corrupt business environment in the host country.

However, in the study there are also other institutional dummy variables included. The dummy variables, such as wto_{jt} , $bfdia_{ijt}$ are included in the model in line with the business network theory of FDI flows, to denote institutional factors affecting FDI flows into SEE countries. In this regard, wto_{jt} is included in the model to denote the membership of the receipt country of FDI into the World Trade Organization (WTO). The source of this data is the WTO database. The variable $bfdia_{ijt}$ is included in the model to denote bilateral investment treaties between country i and j at time t . The source of the data for bilateral investment treaties is UNCTAD.

Finally, to address the question of whether the main determinants of FDI are different across the two group of countries (SEE countries versus EU New Member States), in the estimated model, we introduce the host country dummy variable, denoted by the SEE dummy variable. This variable is included in order to differentiate between the overall potential for FDI inflows between the SEE-5 and EU-NMS-10 countries. It is expected that inflows of FDI may, to a certain extent, be independent of the above country-specific determinants and will be related to the geographic region of SEE that has been plagued by political instability and war for the important part of the time period under consideration. In addition, the SEE-5 countries have been less integrated in the regional free trade agreements and may hence be considered as less attractive locations for export platform-based FDI.

3.3. Econometric Issues

The non - linear estimation techniques are considered in the study, in order to deal with the problem of zero observations in the dependent variable. Therefore, due to the presence of zero FDI flows in the FDI data matrix, we rely on the results from Poisson Pseudo Maximum Likelihood Estimation technique (PPMLE) and Random Effects Tobit (RET) estimation technique. (Santos and Silva, 2011). In this regard, to solve the problem of zero and negative observations in the dependent variable, following Eichengreen and Irwin (1998) and Wei (2000), we transform the dependent variable, by taking the logarithm of the absolute value of FDI increased by one. By this transformation, we take care of zero observations, and negative values are retained and the coefficients from an OLS regression can still be interpreted as elasticity's for large values of the dependent variable. The advantages of using PPMLE and RET is that

they deal with the problem of zero FDI flows, provide unbiased and consistent estimates in the presence of heteroscedasticity, all observations are weighted equally and the mean is always positive⁵.

Additionally, due to the presence of heterogeneity in the data, which is more likely to be present in the case of transition economies, in the form of the country differences with respect to macroeconomic performances and structural country specific reforms, other specifications might be preferred for this purpose. Furthermore, simple panel estimation techniques, like fixed effects and random effects exhibit group - wise heteroscedastic, contemporaneously and serially correlated residuals, and therefore, we use the Parks - Kmenta method and Beck - Katz method. The Parks - Kmenta method performs estimation by using the Generalized Least Squares (GLS) estimation technique and applies two sequential transformations. The first transformation removes the serial correlation, while second corrects for contemporaneous correlation and heteroscedasticity (Beck and Katz, 1996). On the other hand, Beck and Katz (1996) proposed a less complex method, retaining OLS parameter estimates and replacing OLS standard errors with panel - corrected standard errors (PCSE).

4. DISCUSSION OF THE RESULTS

In all estimates, the gravity coefficients appear to show the same effect on the flow of FDI from EU-14 source countries to SEE-5 and EU-NMS-10 countries. Hence, the results are consistent with a transaction cost analysis of FDI in which FDI flows are attracted between relatively large economies, but the gains from overseas production diminish with distance from the source country. Host country GDP and source country GDP is positive and significant almost in all specifications (1-4). This suggests that the income level and the size of host country market is an important determinant for foreign investors. A negative and significant coefficient of distance indicates that FDI flows are determined by gravity factors as expected. On the other hand, the positive coefficient of host country GDP and negative coefficient of distance support the market – seeking hypothesis of FDI. Focusing on estimates from columns 1, the estimated gravity coefficients can be interpreted as follows. Source and host country GDP has a positive and significant impact on bilateral FDI, with an elasticity of 0.449 and 0.459 respectively. An increase in source and host country GDP by 10 per cent, increases bilateral FDI flow from source to host country, on average by 4.4 and 4.5 per cent, respectively. An increase in the road distance between capital cities of source and host country by 10 per cent will decrease bilateral FDI flows from source to host countries, on average, by 11.3 per cent. The variable accounting for the degree of openness of the respective SEE -5 and EU-NMS-10 countries is positive and significant in the relevant fixed effect specifications (see 1-5). This result confirms the importance of trade liberalization policies and foreign exchange transactions for the size of bilateral FDI flows into SEE-5 and EU-NMS-10, originated from EU-14 countries. Focusing on column 1, as the openness degree of host countries increases by 10 per cent, FDI into SEE-5 and EU-NMS-10, will increase, on average by 5.8 per cent, holding other variables constant. The coefficient of bilateral exports is significant and positive in almost all estimates (1-5). Focusing on column 1, this indicates that an increase of bilateral export from exporting SEE-5 and EU-NMS-10 to importing EU-14 countries, by 10 per cent improves the inflows of FDI from source EU-14 to host SEE-5 and EU-NMS-10 countries by 0.9 per cent. Hence, it is confirmed that bilateral exports come before bilateral FDI flows. In other words, foreign firms located in SEE-5 and EU-NMS-10 countries have high export propensity to their domestic markets. This result suggests that the increase of bilateral exports of host SEE-5 and EU-NMS-10 countries serves as a channel through which FDI activity in the exporting countries expand. The positive relationship between bilateral exports and bilateral FDI flow, on the other hand, confirms the complementarities between bilateral exports and bilateral FDI flows.

⁵ Westerlund and Wilhelmsson, 2009; Silva and Tenreyro, 2008.

Referring to the same estimates (see column 1-3 and 5), we find significant coefficients of schooling. The estimated elasticity of schooling is 0.62 indicating that a 10 per cent increase in tertiary school enrolment will increase bilateral FDI flow, from EU-14 to SEE-5 and EU-NMS-10 countries, by 6.2 per cent. This result supports efficiency seeking considerations, that foreign investors are likely to locate their investments in countries with high potentials of efficient human resources and a well-educated labour force. Among institutional related determinants, referring to specifications 1-4, the results are showing that lagged bilateral FDI flow interacted with regulatory quality is significant and positively related to agglomeration patterns, as expected. This interaction tests whether the relationship between past and current FDI differ according to quality of host country governments policies that promote private sector developments. This is an indication that FDI decisions rely on past information of host country perceptions toward governmental abilities to formulate and implement sound policies and regulations that promote private sector developments. This means that the relationship between past and current FDI differ according to governmental regulation policies. The reason why this index is significant in lagged form may be because this index does not vary too much from year to year, and the real effect cannot be captured by this estimation. In addition, the world governance indicator denoted by control of corruption interacted with agglomeration effect of FDI, is positive and significant in almost all estimates, contrary to expectations. The results indicate that the relationship between past and current FDI depends upon perceptions of the extent to which public power is exercised for private gains as well as the capture of the state by private interest. We find that as these perceptions increase by 10 per cent, the agglomeration effect of FDI on further FDI flows from EU-14 to SEE-5 and EU-NMS - 10, increases, on average, by 2.4 per cent. In addition, contrary to expectations, higher perceived corruption in the host countries, denoted by CPI index, appears to decrease the level of FDI flow into host SEE -5 and EU-NMS-10, originated form EU-14 countries, indicating that as the business environment in the host country is perceived to be less corrupt, by the perceptions of the host country population, the size of bilateral FDI flow into host countries decreases, since higher values of CPI index are associated with less corrupted business environments. This result is confirmed in column 3 and 4. Referring to relevant a 10 per cent increase in the corruption perception index is associated with average decrease of FDI flow into host countries, by 7.8 per cent. The variable of voice and accountability interacted with the agglomeration effect of FDI, contrary to expectations, shows a negative impact on further FDI flows, indicating that as the perceptions of host country citizens for empowering the democratic processes with regard to implementing democratic standards on governments selections through free elections campaigns increases, the agglomeration effect of FDI on further FDI flows decreases (see columns 1-4).

Table 1: Results from different estimations

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	FE with DKSE	FGLS	PCSE	Random Effect Tobit	Poisson Random Effect	Poisson Fixed Effect
Log of GDP in source country (-1)	0.449** [2.61]	0.449** [2.61]	0.091** [2.46]	0.136* [1.87]	0.076 [1.27]	-0.045 [-0.34]
Log of GDP in host country (-1)	0.459*** [3.55]	0.459*** [3.55]	0.570*** [12.54]	0.691*** [9.83]	0.417*** [7.44]	0.421*** [4.27]
Log absolute difference of GDP capita (-1)	0.002 [0.17]	0.002 [0.17]	0.001 [0.11]	0.003 [0.30]	0.006 [0.82]	0.005 [0.77]
Log of distance	-1.696*** [-4.99]	-0.696*** [-4.99]	-0.833*** [-6.51]	-1.159*** [-7.03]	-1.170*** [-6.33]	
Same country			0.086 [0.27]	0.027 [0.05]	-1.320** [-2.40]	
WTO membership.	0.044 [0.38]	0.044 [0.38]	0.503*** [5.31]	0.165** [2.06]	0.472*** [6.56]	0.415*** [5.43]
Bilateral FDI agreement	-0.236*** [-3.68]	-0.236*** [-3.68]	0.393*** [4.59]	-0.101 [-1.27]	0.232*** [3.01]	0.105 [1.29]

Log of openness (-1)	0.585**	0.585**	0.530***	0.639***	0.160	0.225*
	[2.34]	[2.34]	[3.34]	[4.13]	[1.42]	[1.77]
Log of bilateral exports (-1)	0.090***	0.090***	0.381***	0.136***	0.053***	0.020
	[6.59]	[6.59]	[9.97]	[7.45]	[3.49]	[1.33]
Log of schooling	0.622***	0.622***	0.074	0.410***	-0.086	-0.016
	[3.69]	[3.69]	[0.96]	[3.49]	[-1.01]	[-0.17]
Log of transition progress	0.652	0.652	-.222***	0.154	1.203***	2.008***
	[1.17]	[1.17]	[-4.22]	[0.47]	[3.70]	[5.57]
Log of corruption perception index	-0.600	-0.600	-.860***	-0.788***	0.063	0.210
	[-1.60]	[-1.60]	[-3.86]	[-4.14]	[0.46]	[1.42]
Log of control of corruption * FDI (-1)	0.242***	0.242***	0.254***	0.244***	0.094	0.070
	[3.46]	[3.46]	[3.31]	[2.91]	[1.62]	[1.18]
Log of regulatory quality * FDI (-1)	0.362***	0.362***	0.278**	0.356***	-0.065	-0.073
	[3.02]	[3.02]	[2.21]	[3.35]	[-1.00]	[-1.08]
Log of government effectiveness * FDI (-1)	-0.149	-0.149	-.326***	-0.200**	-0.030	0.023
	[-1.35]	[-1.35]	[-5.09]	[-2.34]	[-0.55]	[0.40]
Log of rule of law * FDI (-1)	-0.044	-0.044	0.170*	-0.039	-0.073	-0.069
	[-0.41]	[-0.41]	[1.77]	[-0.39]	[-1.01]	[-0.93]
Log of political risk * FDI (-1)	-0.010	-0.010	-0.144**	-0.009	-0.076***	-0.072**
	[-0.12]	[-0.12]	[-2.03]	[-0.17]	[-2.65]	[-2.49]
Log of voice and accountability * FDI (-1)	-0.376***	-0.376***	-0.226	-0.330***	0.150**	0.123*
	[-3.42]	[-3.42]	[-1.62]	[-3.06]	[2.26]	[1.78]
SEE Dummy Variable	0.000		-0.110	-0.213	-0.193	
	[.]		[-1.12]	[-1.11]	0.076	
Constant	0.000		2.824*	-0.056		
	[.]		[1.75]	[-0.03]		
Observations	3,173	3,173	3,173	3,173	3,173	3,173
Number of groups	196	196	196	196	196	164
Year dummy		YES	YES	YES	YES	YES
Log – Likelihood				-5278.42	-4081.67	-3291.44
Wald Test (χ^2)				1727.29	1105.75	956.21
Prob> χ^2				0.000	0.000	0.000
Observations				3,173	3,173	2,682

Notes: Dependent variable is log bilateral FDI flow. T-statistics in brackets, ***, ** and * indicate significance of coefficients at 1, 5 and 10 per cent, respectively.

The robust fixed effect estimates are confirming that the elasticity of voice and accountability, with respect to FDI, is -0.376, indicating that as the index of voice and accountability increases, by 10 per cent, the effect of agglomeration effect on further FDI flows, decreases, on average by 3 per cent, ceteris paribus. Hence, these results indicate that the early presence of foreign investors could not prove a positive spillover effect on host country democratic processes. The results shows that a 10 per cent increase of government effectiveness index, on a per centile rank, is associated with a decrease of the agglomeration effect of FDI on further bilateral FDI flows, from source to host countries, on average by 2 per cent, ceteris paribus (see column 4). On the other hand, the results from column 3 show that rule of law coefficient interacted with lagged FDI is significant and positively associated to bilateral FDI flow. This means that as the economic agent's confidence in host country institutions increases by 10 per cent, the agglomeration effect of FDI activity on further bilateral FDI flows in host countries increases by 1.7 per cent. The variable accounting for host country transition progress is shown to be statistically significant and positively associated to bilateral FDI flow in all relevant fixed effect estimates (columns 5 and 6). This result is particularly important for SEE countries, considering the effort of host SEE country institutions for advancing their transition reforms, like overall infrastructure reform, banking reforms, trade and foreign exchange rate reforms and the reforms in the securities and non – bank financial institutions.

Focusing on PPMLE with random effects, we find that the coefficient of *same country*, indicating common border, common language or cultural similarities between source and host country at the same time, are negatively associated to bilateral FDI flow. The explanation of this result is that countries in the sample that are close to each other do not have bilateral FDI flow. The argument holds, since there is not bilateral FDI flow between close countries of SEE-5 and EU-NMS-10. Considering Tobit random effect estimates and Poisson estimates, the estimated results are significant (the likelihood-ratio test (χ^2) reported in the last row of each table is a test of the significance of the random-effect estimates and Poisson estimates).

5. CONCLUSIONS

This paper has identified significant determinants of FDI flows into the SEE-5 transition economies and 10-New Members of European Union Countries, and highlighted the implications of different institutional factors for FDI flows. Using an augmented gravity model, we focused the research mainly on the importance of market-seeking factors, resource-seeking factors, efficiency-seeking factors and institutional factors as primary determinants of FDI in these countries. As expected, all of these determinants play an important role in determining firms' foreign market entry decision. Moreover, SEE-5 and EU-NMS-10 host country institutional-related factors appeared to significantly determine bilateral FDI flow from the EU-14 countries. Guided by the economic theory and empirical investigation, we specify static, non - linear and dynamic models. From all the estimates, we found that gravity factors, like market size of the host and source country, are an important determinant for foreign investors. Negative and significant coefficient of distance indicates that FDI is determined by gravity factors, as expected. Based on a cross-section panel data analysis we have found that FDI flows are significantly influenced by both gravity factors (distance, GDP) and non-gravity factors (openness, schooling, transition progress, the corruption perception index and interaction terms between governance indicators with bilateral FDI). The positive and significant coefficients of market size factors (GDP) for both source and host country indicates that FDI is determined by host and source country market seeking considerations. In addition, the positive and significant coefficients of schooling, and host country openness is a signal that foreign investors are considering efficiency - seeking considerations for positive FDI decisions. The interaction terms of institutional related variables (control of corruption, regulatory quality, government effectiveness, rule of law, voice and accountability and political risk), with agglomeration effect of FDI, however, have showed high significance. The significant coefficients of interaction terms between lagged FDI and institutional related variables indicate that further FDI decisions are depend by past information's of host country perceptions toward host country institutional progress. The economic importance of the findings of this chapter is on providing an analytical foundation for the evaluation of country policies and institutions aimed at making South East European Countries and New EU member states more attractive to foreign investors. In line with this finding, the chapter provides guidance on which major macroeconomic and institutional determinants of FDI a strong emphasis should be placed by policymakers in these countries.

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