Determinants of Foreign Direct Investment in Central and Southeastern Europe: New Empirical Tests

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ABSTRACT

The paper examines the major determinants of Foreign Direct Investment (FDI) flows in Central and Southeastern European countries. Previous research on FDI reports two groups of explanatory factors: gravity factors (distance, market size) and factor endowments (infrastructure, human capital). Other factors that are found to have a significant effect are geographical proximity, barriers to trade, tax policy and tax incentives, labor costs and regional integration. According to Demekas, et al. (2005), gravity factors explain a large part of FDI inflows in transition economies, including Southeastern European countries, but policy and institutional environment also matter for FDI. Using an econometric model based on cross-section data analysis, this paper finds that both gravity factors (distance, population, and GDP) and non-gravity, or transition-specific, factors (risk, labor costs, and corruption) can explain, to a large extent, the size of FDI flows into transition economies. No further evidence about the role of privatization in explaining the scale of inward investment is found. Moreover, at the second stage of the analysis, it has been shown that FDI flows into different groups of transition economies are, to a great extent, determined by the same macroeconomic and transition-specific factors, and not by the timing of their accession to the European Union (EU).

INTRODUCTION

Perhaps the most prominent face of globalization is the rapid integration of production and financial markets over the last decade: that is, trade and investment are the prime driving forces behind globalization. Foreign Direct Investment (FDI) has been one of the core features of globalization and the world economy over the past two decades. More firms in more industries from more countries are expanding abroad through direct investment than ever before, and virtually all economies now compete to attract multinational enterprises (MNEs). The inflow of foreign investment is widely thought to be an important channel for the diffusion of new ideas, technologies and business skills across national borders. It can improve the prospects for growth by increasing the total level of capital investment in the economy and by introducing more productive technology and techniques.

Foreign direct investment (FDI) has gained significant importance over the past decade as a tool for accelerating growth and development of economies in developing countries.[1] It is widely believed that the advantages that FDI brings to the standard of living and prospects for economic growth of the host nation largely outweigh its disadvantages. According to Barrell , & Holland (2000), FDI's importance lies in its fundamental difference from other forms of capital investment: the nature and duration of the commitment it involves. Its purpose is to establish cross-border commercial relations and at the same time exert a noticeable managerial influence over a foreign company. Specifically, FDI is a tool which enables developing countries to break with their objective and organizational gaps through the introduction of new techniques, both managerial and technological. Political and macroeconomic stability, as well as transparent legal regulations concerning foreign ownership and profit repatriation, are all important determinants of foreign investment decision making (Demekas, et al. 2005; Resmini, 2000).

The transition from socialism to capitalism in Central and Eastern European countries (CEECs) is both a political and an economic process (Bevan, & Estrin, 2000; Demekas, et al. 2005). An important aspect of the former is the possibility of reintegration into Europe symbolized for many countries by prospective membership of the European Union (EU). Integration into the world economy, notably through trade and capital flows, is a crucial and related element of the latter. Foreign direct investment (FDI) is a particularly important element of economic integration, because it opens possibilities for accelerated growth, technical innovation and enterprise restructuring, as well as capital account relief (Garibaldi, et al. 2002; Holland, & Pain, 1998). Thus, European Union membership can be viewed as a determining element of the operating business environment, and this may directly influence the rate of FDI flows in transition economies (Bevan, & Estrin, 2000; Bos, & De Laar, 2004).[2]

There is a growing amount of research literature that provides empirical evidence about the factors determining the pattern of FDI across transition economies. The majority of previous work in this area reports two groups of explanatory factors: gravity factors (proximity, market size) and factor endowments (infrastructure, human capital). Other factors that are found to have a significant effect on FDI in transition economies are geographical proximity, barriers to trade, tax policy and tax incentives, labor costs and regional integration. According to Demekas et al. (2005, 2007) gravity factors explain a large part of FDI inflows in CEECs, including Southeastern Europe, but policy and institutional environment also

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[1] Cho (2003) points out three key determinants and factors associated with the extent and pattern of FDI in developing host countries: attractiveness of the economic conditions in host countries, the policy framework towards the private sector, trade and industry, and FDI and its implementation by host governments, and the investment strategies of MNEs.

[2] Specifically, an announcement effect or a catch-up effect may explain the relatively high FDI flows to those transition countries that have been selected first for accession in the European Union (EU). The more integrated the accession countries are with the EU, the smoother the accession to the EU is expected to be. Thus, the stage of and relative position in the accession process influences net investment flows to the different countries entering the EU.

matter. Janicki, & Wunnava (2004) find that international trade is perhaps the most important determinant of foreign direct investment in this region.

Soon after the start of the transition period, it became clear that there was a large deviation in the amounts of direct investment received by the various transition countries; a few countries received a large proportion of the total inflows (e.g., Poland, Hungary and Czech Republic), whereas most other countries in Central and Eastern Europe received very low amounts of FDI inflows. Although many studies (Bevan, & Estrin, 2000; Brenton, Di Mauro, & Lücke, 1999) show that the size of the FDI inflows can largely be explained by a limited number of basic country characteristics, the question remains whether FDI flows to these transition economies can be explained in the same manner.[3] Using an econometric model based on cross-section data analysis this paper shows that FDI flows into different groups of transition economies are, to a great extent, determined by the same macroeconomic and transition-specific factors, and not by the timing of their accession to the European Union (EU).

The rest of the paper is organized as follows. The next section outlines our conceptual framework and summarizes the theory on the determinants of foreign direct investment. Section 3 elaborates on the FDI determinants in transition economies. The econometric model and cross-section analysis are presented in section 4. Section 5 presents econometric results from bilateral FDI cross-section regressions. Some concluding remarks are offered in the final section.

CONCEPTUAL FRAMEWORK

Foreign direct investment (FDI), its determinants, and its effects have been extensively studied. It has long been recognized that the benefits of FDI for the host country can be significant, including knowledge and technology transfer to domestic firms and the labor force, management improvement, productivity spillovers, enhanced competition, and improved access for exports abroad, notably in the source country (Demekas, et al. 2005). Moreover, since FDI flows are non-debt-creating, they are a preferred method of financing external current account deficits, especially in developing countries, where these deficits can be large and sustained. At the same time, the growing liberalization of FDI and other financial markets, while offering additional opportunities to which much attention is given in the literature, also pose significant risks and hazards to developing countries.[4]

In small economies, for example, large foreign companies can-and often do-abuse their dominant market positions and, especially in developing countries, attempt to influence the domestic political process. FDI can also give rise to potentially volatile balance of payment (BoP) flows, due, for example, to an increase in the imports of inputs by subsidiaries and payments of dividends and royalties abroad. Other acknowledged drawbacks are non-competitive pricing because multinational enterprises (MNEs) are able to exercise considerable market power, possible FDI withdrawal that may lead to financial instability and discourage other investors, and potential decrease of know-how development by local firms (Vavilov, 2005). On balance, however, the consensus view in the literature is that the benefits of FDI tend to significantly outweigh its costs for host countries.

The literature on the determinants of foreign investment has identified both policy and non-policy factors as drivers of FDI (Fedderke, & Romm, 2006). Policy factors include openness, product-market regulation, labor market arrangements, corporate tax rates and

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[3] In addition, the pattern of the operations undertaken in the CEECs by multinational firms is far from being homogeneous: most of the surveys have, implicitly or explicitly, recognized the heterogeneity of FDI in the regions, in terms of project characteristics and investment determinants at the sectoral and geographical level (Altomonte, 1998).

[4] Blomstrom, & Kokko (1998) and Schoors, & Van Der Tol (2002) argue that at least in the initial stages of development or transition, FDI could have a negative impact on the recipient economy. If domestic firms are so unproductive in comparison with foreign-owed firms, the former may be driven out of business, leading to a so-called "market stealing" effect.

infrastructure. Non-policy factors include market size, distance, factor proportions and political and economic stability. Market size of the host country, usually measured by GDP, is considered an important determinant of horizontal FDI, because the returns from such investment depend on economies of scale at the firm level. The effect of distance and transport costs on FDI is viewed as ambiguous. While they imply transaction costs for the investors, FDI may also carry advantages over trade when dealing with distant countries.

Differences in factor endowments between countries are often held to encourage vertical FDI because they make possible the exploitation of comparative advantage. Horizontal FDI by contrast is discouraged by differences in factor endowments because they make production of the same good in different countries difficult.[5] Political and economic instability are also predicted to deter FDI since they create uncertainty which raises the risk premium on the returns to FDI (Barrell, Gottschalk, & Hall, 2004). In general, it might be expected that that FDI is more likely to flow from developed countries into developing economies that are politically stable and have access to large, regional markets.[6]

Policy related factors determining FDI also fall into a number of categories. For example, openness of the domestic economy is influenced by direct FDI restrictions as well as trade barriers. FDI restrictions clearly raise barriers to FDI and are likely to influence the choice MNEs make with regards to the investment location. Two alternative views of the motives for FDI give contradictory predictions regarding the effects of trade liberalization on FDI (Fedderke, & Romm, 2006). The view of FDI and trade being substitutes sees "tariff-jumping" as a motive for FDI, and hence trade liberalization should negatively affect FDI. In a liberalized trade environment, exporting goods from the home country is relatively more attractive than FDI as a way to serve the regional market. The alternative view sees the motive for FDI as MNEs' different affiliates specializing according to the locational advantages of the host country. This applies, in particular, to vertical FDI where a liberal trade environment is a prerequisite for the international division of labor at the firm level.[7]

Countries where domestic product-market regulations impose unnecessary costs on business and create barriers to entry discourage FDI. Labor market conditions that impose extra costs on investors will tend to curb the inward FDI position of a country. Strict employment protection legislation and high labor tax wedges will discourage inward FDI in the host country, when the costs of job protection and labor taxation are not fully shifted onto lower after-tax wages. Strict employment protection legislation not only lowers the returns expected from FDI, but also their variability, since it makes it

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[5] Horizontal multinationals produce the same product in multiple plants so that they serve local markets from local production. Horizontal multinationals arise if proximity advantages outweigh concentration advantages. Given the dominance of developed countries as source and as host countries, horizontal models have received somewhat more attention than vertical models of FDI. The latter explain the existence of MNEs by large differences in factor endowment across countries because different parts of the production process have different input requirements. Since input prices vary across countries, it becomes profitable to split the production process according to the factor intensities of its different stages. Hence, the vertical model allows the separation of the knowledge-generating activities from production (Hauser, 2005).

[6] Early studies of FDI in developing countries have put particular stress on the indicators of economic and political risk (Lucas, 1993; Singh, & Jun, 1996). This comprises three main elements: a) macroeconomic stability, e.g., growth, inflation, exchange rate risk; b) institutional stability such as policies towards FDI, tax regimes, the transparency of legal regulations and the scale of corruption; and c) political stability, ranging from indicators of political freedom to measures of surveillance and revolutions.

[7] Trade policies, for example, and, more broadly, trade costs (tariffs, non-tariff barriers, and transportation costs) are generally found to have a significant impact on FDI flows, but in aggregate regressions their sign is ambiguous. This is probably due to the different effects the barriers to trade can be expected to have on horizontal and vertical FDI; they tend to attract horizontal FDI, which aims at penetrating the domestic market, but repel vertical FDI.

more difficult for MNEs to respond to supply and demand shocks. This increases the risk that investors face in the host country (Nicoletti, et al. 2003).

The impact of corporate tax rates is straightforward. Since higher tax rates applied to corporate profits lowers FDI returns, it will discourage inward FDI. Although the evidence on tax incentives is not conclusive, there are some indications that transparent and simple tax systems tend to be most attractive for FDI. For example, Devereux, Lockwood, & Redoano (2008) show that OECD countries do indeed compete with each other over corporate taxes in order to attract investment.[8] Finally, the availability and quality of infrastructure (transportation, communications and energy supply) will positively affect inward FDI, because good infrastructure lowers transaction costs thereby affecting comparative and absolute advantage.[9]

Recent research literature affirms that policy environment does matter for FDI (Demekas, et al. 2005, 2007; Lipschitz, Lane, & Mourmouras, 2002; Witkowska, 2007). At a very general level, a predictable policy environment that promotes macroeconomic stability, ensures the rule of law and the enforcement of contracts, minimizes distortions, supports competitiveness, and encourages private sector development can be expected to stimulate private- including foreign- investment. But when empirical studies attempt to estimate the impact of individual policies on FDI, the results are often ambiguous.

Though there has been considerable theoretical work on foreign direct investment (for a literature review see Alfaro, et al., 2006; Nonnemberg, & de Mendonça, 2004; Vavilov, 2005), there is no agreed model providing the basis for empirical work. Rather, the eclectic paradigm, also known as OLI framework (Dunning, 1988, 1992), has been largely employed in research literature as a general tool of reference for explaining the FDI patterns of multinational enterprises. Dunning (1988, 1992) proposes that FDI can be explained by three categories of factors: ownership advantages (O) for firms to operate overseas, such as intangible assets; locational advantages to investment in the host rather than in the donor country (L); and the benefits of internalization (I). However, there is a growing awareness that FDI operations are driven by determinants not necessarily expressed by the pure, static, economic advantages of the OLI framework.

Among the approaches which try to overcome the drawbacks of the eclectic paradigm, a promising (in terms of theoretical soundness and empirical evidence) line of research, which is being recently explored, is the application of the so-called *gravity models* to the theory of international production, via the inclusion of the OLI set of variables into general equilibrium models of international trade and investment. Gravity models were originally conceived in order to explain bilateral trade flows as dependent, in analogy with the law of gravitation, by the attraction of two countries' masses (sizes) weakened by the distance (transport costs) between them and enforced by preferential arrangements they eventually belong to (Altomonte, 1998).[10] The gravity model is of a highly applied nature. Much of its success can be attributed to its remarkable predictive power and its intuitive appeal.[11]

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[8] Devereux, Lockwood, & Redoano (2008) develop a model in which multinational firms choose their capital stock in response to an effective marginal tax rate (EMTR), and simultaneously choose the location of their profit in response to differences in statutory tax rates.

[9] Nicoletti, et al. (2003) show that the effect of infrastructure on FDI in the OECD countries is not very large – although this may simply demonstrate that the level of infrastructure across OECD countries is sufficiently high, so as to no longer exercise a significant influence on FDI location decisions.

[10] In economic terms, the size of exports flows from country *i* to country *j* is dependent by a) the size of the total potential supply of the exporting country, b) the size of the total potential demand of the importing country, and c) factors representing the resistance to a trade flow between the two countries (Altomonte, 1998).

[11] Virtually all empirical studies find that gravity factors (market size and proximity to the source country) are the most important determinants of FDI. Just as with trade flows, the gravity model consistently explains about 60 percent of aggregate FDI flows, regardless of the region. Since gravity factors are exogenous, this finding puts into perspective the efforts of policymakers in host countries to attract FDI (Demekas, et al. 2005).

FDI DETERMINANTS IN TRANSITION ECONOMIES

FDI enables CEE countries to raise investment levels above those of domestic savings, so inflows of foreign capital are vital to accelerating growth and development in Central and Eastern Europe. The importance of FDI is clear from the proportion it represents of total gross fixed capital formation. Typically, FDI comprises 4-17% of total investment in developed economies; but for CEE countries, it accounts for up to 44% (Bevan, Estrin, & Grabbe, 2001). FDI has further benefits beyond providing much more capital than would be available from domestic sources alone. Typically, FDI brings with it technology transfer, managerial and other skills (such as marketing and distribution, which are often lacking in the early years of post-communist transition), access to markets, training for staff, and lower environmental impact. Foreign direct investors are actively involved in one of the most important aspects of the transition process - the restructuring of firms. Indeed, there is some evidence that foreign direct investors in the transition economies are more effective than domestic owners in improving the performance of firms after privatization.[12]

Also, transition economies are well placed to benefit from the technology and knowledge transfer associated with FDI; they are relatively developed and possess a highly educated labor force (Demekas, et al. 2005). As a result, attracting FDI has become a prominent item on the government policy agenda in transition economies, and research on the determinants of FDI to these countries has been expanding rapidly. The analysis of the existing literature shows that the major determinants of FDI in transition economies can be divided into two groups: traditional determinants of FDI, such as market size, distance, trade costs, plant and firm specific costs, and relative factor endowments, and non-traditional, or transition-specific, determinants, namely, the share of private businesses, the method of privatization, infrastructure quality, corruption and the risk associated with each host country.

The analysis of research findings suggests that the distribution of FDI is highly uneven among the countries in Central and Eastern Europe due to their different transition progress. The vast majority of FDI flows has been received by Hungary, the Czech Republic and Poland, which were the first to begin liberalisation and the largest among the region. Counties such as Bulgaria and Romania have received much lower levels of FDI due to their relatively poor progress in meeting the economic and political conditions for their accession to the EU. As a whole, Southeastern European countries have seen low investment for the most part of the nineties with a recent positive trend as a result of the foreign-oriented privatization policies they had implemented in the late nineties. The observed differences between countries in Central Europe and those in Southeastern Europe can be attributed to the different transitional paths and especially the significant differences in the institutional environment of these countries. Political stability, democratisation, rule of law, bureaucracy and the existence of corruption and ethnic tensions have significantly influenced the MNE's decision to engage, or not, in investment activity in CEECs.

This paper contributes to the existing research literature through providing additional evidence on the most important determinants of FDI in Central and Southeastern Europe (CSE). The analysis is based on a data set for eight transition economies from CSE region and fifteen EU countries, over a period of six years. Following Demekas, et al. (2005), the analysis includes not only basic economic fundamentals expected to be major FDI determinants, but also specific political and institutional factors (such as risk, privatization and infrastructure) that may influence the distribution of FDI flows across the CSE countries. In order to capture the effect of the corruption practices observed in transition economies on FDI receipts, the model introduces a 'corruption' measure. It is widely believed that this factor is an important characteristic of the investment climate in transition economies which

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[12] There is growing evidence that enterprise productivity, R&D expenditure, innovation and company performance are higher in foreign owned firms - both in the transition economies and in Western countries (Barrell, & Pain, 1999; Holland, & Pain, 1998).

may have a deleterious impact on FDI flows attracted by these countries (Bevan, & Estrin, 2000; Demekas, et al., 2005).

DATA SET AND MODEL DESCRIPTION

This study aims to fill the gap in the current debate on the determinants of FDI flows in Central and Southeastern Europe (CSE) by providing an econometric analysis of the factors affecting the pattern of investment in a set of transition economies from fifteen EU countries over the years 2001-2006. The research hypothesis is that the size of FDI flows to these transition economies can be explained, to a large extent, by the same macroeconomic and transition-specific factors that determine the success of transition process in each country in the region, and not by the timing of their accession to the European Union (EU). To test the hypothesis the study develops an econometric model that rests on a panel data set recording the FDI flows from a source county i to a host country j at time t (cross-country, time-series model). The observations available on the i-th source country over time t are FDI flows realized over the set of host countries j. As a result, the panel data set is balanced.

Dependent Variable

Along the lines of previous research, dependent variable FDI_{ijt} is defined as the bilateral flows of Foreign Direct Investment (FDI) from country i to country j at time t. The sample includes 12 European Union source countries[13] (namely, Austria, Belgium, Denmark, France, Germany, Greece, Italy, Luxembourg, Netherlands, Spain, Sweden, and United Kingdom) and 8 Central and Southeastern European host countries (Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia). At the first stage of the analysis, the major determinants of FDI flows are investigated using the whole sample of host countries. Then, the sample is separated into two groups – Central and Southeastern European countries, and the model is tested empirically for each group of countries to determine whether the patterns of FDI flows across these countries can be attributed to same macroeconomic and transition-specific factors. The time period is from 2001 to 2006.

Independent Variables

Following Altomonte (1998) and his OLI framework, the study employs the gravity model for explaining FDI patterns of Multinational Enterprises (MNEs) that have invested in the CSE countries during the period 2001 - 2006. As defined by Altomonte (1998, p.8): "Gravity models were originally conceived in order to explain bilateral trade flows as dependent, in analogy with the law of gravitation, by the attraction of two countries' masses (sizes) weakened by the distance (transport costs) between them and enforced by preferential arrangements they eventually belong to." The expected economic factors that constitute the gravity model *per se* and their proxies are presented in Table 1.

Table 1: Explanatory variables

Variable	Proxy	Source
Size of the market of host country	Gross Domestic Product per capita (GDPPC)	World Bank, The World Development Indicators (2007)
Potential demand of local consumers	Population (POP)	World Bank, The World Development Indicators (2007)
Geographical distance among markets	Actual route distance from the capital of the source country i to the capital of the	Standard geographical computer software

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[13] Data for source countries' FDI flows are derived from the database of OECD's International Direct Investment (2007). The sample includes EU-15 countries, excluding Finland, Ireland, and Portugal for which complete year data are missing.

	host country *j*, calculated in kilometers (DISTANCE)	
Cost of labor	Percentage change in the overall cost of labor in the host country (WAGE)	EBRD Transition Report (2007)
Level of educational attainment	Percentage of the labor force in the host economy that possesses tertiary education or higher (LITERACY)	UNESCO Institute for Statistics Data Center (2007)
Trade openness	Level of imports plus exports of the host country as a percentage of its real GDP (TRADE)	World Bank, The World Development Indicators (2007)
Infrastructure quality	Host country infrastructure for Electric Power, Railways, Roads, Telecommunications and Water and Waste Water (INFRASTUCTURE)	EBRD Transition Report (2007)
Country sovereign risk	Moody's Sovereign Credit Rating (RISK)	Moody's Credit Rating Agency's web site
Corruption practices	Transparency International's Corruption index (CORRUPTION)	Transparency International's Annual Reports (2001-2006)
Cultural similarities	Dummy variable (CULT)	Author's calculations
Method of privatization	Dummy variable (PRIV)	Holland, & Pain (1998)

In line with Altomonte (1998) and other research, the first variable (GDPPC) is expected to present a positive sign and a positive correlation with FDI: the bigger the GDP, the larger the inflows of FDI, since larger economies tend to attract more capital in accordance with the gravity approach. The POP variable (as a proxy of size) is also expected to be positively related to FDI: the larger the consumer demand (represented by the population of the host country), the greater the incentive for investment (Altomonte, 1998; Bevan, & Estrin, 2000; Bos, & De Laar, 2004). The last gravity variable (DISTANCE) is expected to be of negative relation to FDI, since the greater the distance, the larger the transportation and investment costs for a prospective investor (Bevan, & Estrin, 2000; Resmini, 2000).[14]

In addition to the gravity approach, the paper examines several additional explanatory variables expected to be significant FDI determinants (see Table 1):

1. The first factor (WAGE) is part of the efficiency seeking considerations, which Altomonte (1998) defines as the comparative advantage of the host country over the source country in wage differences. The variable is an important determinant of FDI as it measures the relative changes in the business climate of the country as a whole.[15] In line with Janicki, & Wunnava (2004) and Lansbury, Pain, & Smidkova (1996), the expectation for WAGE variable is for a negative relation to FDI, since a rise in relative wages in the host country will adversely affect investment unless offset by a corresponding rise in relative productivity per head.[16]

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[14] According to Resmini (2000), greater distance presents weaker trade ties between the FDI source country and host country, thus providing for lower FDI flow levels.

[15] Of course, wages reveal only part of the story; what matters to the firm are differences in unit costs, taking account of the productivity of labor as well as wage levels.

[16] One potential criticism of the use of wage data for labor costs is that it fails to take into account the additional costs imposed by social security burdens on employers. However, it is not possible to obtain cross-country time series data on labor compensation for all the transition economies because of the relative lack of detailed national accounts statistics.

2. According to the research literature there is a strong positive interaction between FDI and the level of educational attainment in the domestic economy. For example, Borensztein, De Gregorio, & Lee (1998) have found that the net positive impact of FDI on growth is larger when the host country labor force is highly educated.[17] In line with this finding, the variable (LITERACY) is expected to present a positive sign and a positive correlation with FDI: the more educated the workforce, the greater the incentive for investment, since a better educated workforce yields higher returns.

3. Several previous studies (Altomonte, 1998; Bevan, & Estrin, 2000; Bos, & De Laar, 2004; Carstensen, & Toubal, 2004) have suggested that trade limitations have had significant impact on the size of FDI flows. Factors such as trade openness (TRADE) are of major importance to investors who usually prefer countries with relatively liberal trade regimes. It is widely argued that FDI and openness of the economy will be positively related as the latter in part proxies the liberality of the trade regime in the host country, and in part the higher propensity for multinational firms to export.[18]

4. Following Beer, & Cory (1996) the paper examines another institutional factor that previous research finds to be a significant FDI determinant – infrastructure quality. This variable (INFRASTUCTURE) is expected to present a positive sign and a positive correlation with FDI, since better infrastructure allows for increased FDI flows through better roads, transportation links and logistics.

5. The impact of the investment climate in the host countries is captured in the model through the RISK variable, represented by the Moody's Sovereign Credit Rating for each recipient country, transformed into numerical terms on the scale from 1 (the lowest possible rating) to 8 (maximum creditworthiness). In line with Bevan, & Estrin (2000) and Carstensen, & Toubal (2004), this variable is expected to be positively correlated with FDI, since higher values of the index (associated with lower risk of default), may signal for improved political and macroeconomic stability and therefore, lead to higher incentive for foreign investment.

6. Another characteristic of the investment climate in the host countries is the corruption and the related practices observed in transition economies. It is widely argued (see e.g, Bevan, & Estrin, 2000) that corruption has a deleterious impact on FDI, primarily via the risk premium.[19] In this paper, to account for its effects on FDI receipts, we use the format of the CORRUPTION index suggested by *Transparency International* – continuous scale from 10 (squeaky clean) to 0 (highly corrupt).[20] In line with previous research (Stoian, & Filippaios, 2008), the expectation for the corruption variable is for a negative relation to FDI.

7. The model also includes two dummy variables. The first one (CULT) takes into consideration the cultural ties among source and host countries. In our case, it is based on language similarities between the countries in the sample. This means that the variable takes the value of 1 when the source and host countries are from the same language family and 0

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[17] Borensztein, De Gregorio, & Lee (1998) finds strong complementary effects between FDI and human capital on the growth rate of income. This result is consistent with the idea that the flow of advanced technology brought along by FDI can increase the growth rate of the host economy only by interacting with that country's absorptive capability.

[18] Higher magnitude of the TRADE variable would present better established and maintained trade routes and relations, which also provides for higher investment levels.

[19] Bevan, & Estrin (2000) finds that this variable (represented by 'bribe tax' in their analysis) is highly significant and negatively correlated with credit ratings. This result most probably captures several transition specific features simultaneously, including notions of institutional capacity and capability, rule of law and so on, all of which should be highly negatively correlated with credit ratings and hence with FDI inflows.

[20] The index defines corruption as the abuse of public office for private gain and measures the degree to which corruption is perceived to exist among a country's public officials and politicians. It is a composite index, drawing on 14 polls and surveys from 12 independent institutions, which gathered the opinions of businesspeople and country analysts.

when they are not.[21] The second dummy is (PRIV), indicating the perceived quality of the method of privatisation followed by the recipient country. The variable is constructed on the same basis as Holland, & Pain (1998), where sales to outside owners receives the highest quality rating, while voucher distribution and management-employee buyouts receive the lowest rating.[22] Table 2 (upper part) shows the primary and the secondary methods of privatization used in different recipient countries in the sample, while the bottom part shows the quality rating of these methods.

Table 2: Methods of privatization

	Sale to Outside Owner	**Voucher Privatization**	**Management/Employee Buy-Out**
Bulgaria	Primary	Secondary	
Croatia			Primary
Czech Republic	Secondary	Primary	
Hungary	Primary		
Poland		Secondary	Primary
Romania	Secondary		Primary
Slovenia	Secondary		Primary
Slovak Republic		Secondary	Primary

Ranking	**Primary Method**	**Secondary Method**
4	Sale to Outside Owners	-
3	Sale to Outside Owners	Voucher or Buy Out
2	Voucher or Buy Out	Sale to Outside Owners
1	Voucher or Buy Out	Buy Out or Voucher
1	Voucher or Buy Out	-

Source: Holland, & Pain (1998); Author's calculations.

To summarise, the estimated model assumes the following form:

$$Ln(FDI_{ijt}) = \alpha_0 + \beta_1 Ln(Distance_{jt}) + \beta_2 Ln(GDP_{jt}) + \beta_3 Ln(Population_{jt}) + \beta_4 Ln(Trade_{jt})$$
$$+ \beta_5 Ln(Infrastucture_{jt}) + \beta_6 Ln(Wage_{jt}) + \beta_7 Ln(Risk_{jt}) + \beta_8 Ln(Corruption_{jt}) + u_{ijt}$$

$$(1)$$

where:
i = Austria, Belgium, Denmark, France, Germany, Greece, Italy, Luxembourg, Netherlands, Spain, Sweden, United Kingdom
j = Bulgaria, Romania, Croatia, Hungary, Poland, Czech Republic, Slovakia, and Slovenia
t = 2001,…, 2006.

EMPIRICAL ANALYSIS AND RESULTS
In order to test the model empirically, equation (1) is estimated using bilateral cross-section regression analysis – a standard econometric tool used in the empirical literature of this kind. The dependent variable is a cross-section of bilateral FDI flows (as a percentage of

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[21] For additional control, Bulgarian-German and Bulgarian-Greek relations are given 1 for historical trade closeness; also Slovenian-Austrian and Slovakian-Austrian relations are given 1, due to the belonging of both countries to the Hapsburg Empire; finally Slovenian-Italian relations are given 1, to control for both exceptional closeness and trade linkages between the two countries.
[22] Holland, & Pain (1998) test whether the method of privatisation has indeed affected the scale of inward investment. They construct an ordinal variable (PRIV), ranging from 1 to 4, for the different types of privatisation method.

GDP) between 8 host and 12 source countries over the period 2001-2006 from the OECD's International Direct Investment Database (2007). On the right-hand side of (1), the model uses three gravity variables: population (POP) in addition to GDP per capita in purchasing power parity (PPP) terms – as a proxy for market size and potential demand of local consumers; the distance (DISTANCE) between source and host country capitals; and a dummy (CULT) capturing cultural or language similarities between source and host country.[23] Additional factors (see Table 1) used as regressors in model (1) are: cost of labor (WAGE), literacy rate (LITERACY), trade openness (TRADE), infrastructure quality (INFRASTUCTURE), sovereign credit rating (RISK), corruption index (CORRUPTION), and method of privatization (PRIV).

Equation (1) is estimated for five different model specifications (A1 to A5). The results are presented in Table 3. As in all other studies in the literature, gravity variables are found to be very significant. The first two specifications A1 and A2 show that there are six statistically significant variables (both traditional and transition-specific factors) with signs of their estimated parameters as expected – distance, GDP, population, risk, wage and corruption. The other three variables, namely literacy, trade and infrastructure, are found to be statistically insignificant.[24]

Table 3: Bilateral FDI cross-section regressions[1, 2, 3, 4]

Models	Excluding privatization variable				
	A1	A2	A3	A4	A5
DISTANCE	-1.765***	-1.785***	-1.788***	-3.985***	-1.340*
	(-3.380)	(-3.470)	(-3.500)	(-4.130)	(-1.960)
GDPPC	1.815*	1.663**	1.483**	2.000	1.794*
	(1.890)	(2.200)	(2.140)	(0.690)	(1.830)
POP	2.078***	2.062***	1.714***	3.979**	1.760**
	(3.570)	(3.560)	(4.130)	(2.000)	(2.230)
LIT	-0.550				
	(-0.260)				
TRADE	0.564	0.578		0.332	0.337
	(0.600)	(0.620)		(0.130)	(0.280)
INFRASTRUCTURE	-2.232	-2.638		-12.667	-.890
	(-0.56)	(-0.720)		(-1.220)	(-0.180)
RISK	5.352***	5.217***	5.082***	4.111*	4.701*
	(2.610)	(2.640)	(2.610)	(1.650)	(1.930)
WAGE	-13.091*	-13.168**	-12.592*	-12.991	-10.662
	(-1.95)	(-1.970)	(-1.930)	(-1.380)	(-1.130)
CORRUPTION	-4.409*	-4.058**	-3.673**	-5.415*	-3.429*
	(-1.810)	(-1.990)	(-2.040)	(-1.980)	(-1.840)
R-squared	28.78%	28.79%	28.65%	37.07%	26.95%
No. of observation	576	576	576	216	360

Note:
1) Panel A1 - general model; Panel A2 – excluding LIT variable; Panel A3 – excluding Literacy, Trade and Infrastructure variables; Panel A4 – only Southeastern European countries (Bulgaria, Romania and Croatia), Panel A5 – only Central European countries (Poland, Hungary, the Czech Republic, Slovakia, and Slovenia)

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[23] This variable was found statistically insignificant in all our preliminary tests and was dropped from the model.

[24] Surprisingly, the analysis does not provide evidence that Trade Openness and Infrastructure are significant determinants of FDI flows into transition economies. The results from similar empirical studies attempting to estimate the impact of these two individual factors are ambiguous (see e.g., Demekas, et al. 2005).

2) All variables except dummies in logs. The regression procedure used is OLS (pooling).
3) *, **, and *** represent significance at 10, 5, and 1 percent, respectively. All regressions include source country dummies to control for source country effects.
4) *z*-statistics in brackets.

The first variable (DISTANCE) is significant at 1% level of significance, implying strong explanatory power. The negative sign of the variable shows a strong negative relationship between this variable and FDI flows: the smaller the distance (larger geographical proximity) to the main FDI source countries, the greater the FDI attracted.[25] The GDPPC variable is significant at 10% level of significance. The sign of the coefficient shows that there is a positive relationship between the size of the host economy and FDI flows, which is in line with our preliminary expectations. The significance of POP variable is within the 1% significance level. The sign of the coefficient shows a strong positive correlation between population variable and FDI as expected.

The host country's credit rating (RISK) is also found to be significantly positively correlated with FDI flows; improved credit ratings are therefore associated with greater FDI receipts in our sample countries. The significance of WAGE variable is within the 10% significance level and its sign presupposes a negative relationship between this variable and FDI flows. The variable representing corruption practices in the host countries (CORRUPTION) is marginally significant and implies a negative relationship between this variable and FDI flows, as expected in the preliminary analysis.

The next model specification (A2) excludes the first insignificant variable - LITERACY. As a result, the significance of the explanatory variables increases as three of those variables - GDPPC, WAGE and CORRUPTION, are now statistically significant at 5% level of significance. No changes in the sign or magnitude of the variables are observed. In specification A3, the remaining two insignificant variables (TRADE and INFRASTRUCTURE) are dropped. This results in a model where all the explanatory variables are statistically significant and with appropriate signs.

Although the results appear to be economically sensible, there remains some possibility that the reported coefficients may be subject to bias given that the cross-section regression pools investment across a number of different countries in different stages of transition. The study adopts two separate procedures to investigate the reliability of the findings from the full panel set. The first is to follow the procedure employed by Holland, & Pain (1998) and test for common parameters using two country groups - the five Central and Eastern European countries and the three remaining Southeastern countries. The paper re-estimates the general model (A2) allowing for separate slope parameters in each of the distinct country groups. The first group (specification A4) includes countries that joined the European Union (EU) in 2007 – Bulgaria and Romania, and a country, which is still in process of negotiation for accession – Croatia. The second group (specification A5) includes countries that joined the European Union in 2004 - Poland, the Czech Republic, Hungary, Slovenia and Slovakia.

The results (see Table 3) show that, for both groups of countries, the variables that remain highly significant are DISTANCE and POPULATION. GDPPC variable is marginally significant only for the second country group. When the effect of variables used in the model as proxies for transition-specific factors is analyzed, two of them (RISK and CORRUPTION) are found to be statistically significant at 10% level for both country groups. The conclusion is that the pattern of FDI flows across transition economies is determined by the same gravity factors such as distance, population and, to a certain degree, gross domestic product. However, the transition-specific variables cannot fully explain the distribution of FDI flows across the host countries in the sample. The finding is in line with the hypothesis that the timing of EU accession may not be able to explain the differences in

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[25] Since all the variables are in 'log' form, a coefficient of -1.765 implies that one percent increase in the value of the explanatory variable leads to 1.765 percent decrease in the magnitude of FDI.

FDI flows attracted by those CEE countries that have been selected first for accession (in 2004) and the rest of the countries accepted in 2007.[26]

Furthermore, in order to understand the effect of the method of privatisation used in recipient countries on FDI flows, a 'privatization' dummy (PRIV) is included in equation (1) and the model is run for the same five specifications as in Table 3. The results are presented in Table 4. Privatization of type 4 (see Table 2) is used as a control variable. There is little change in the coefficients on most of the explanatory variables as compared to the previous model specifications, with the exception of POP variable, which is statistically insignificant in model specifications B4 and B5 .

Table 4: Bilateral FDI cross-section regressions[1, 2, 3, 4]

	Including privatization variable				
Models	**B1**	**B2**	**B3**	**B4**	**B5**
DISTANCE	-1.729***	-1.739***	-1.708***	-3.926***	-1.410**
	(-3.260)	(-3.290)	(-3.250)	(-4.070)	(-2.070)
GDPPC	1.747	1.536*	1.376*	.470	3.753***
	(1.620)	(1.880)	(1.850)	(0.150)	(2.780)
POP	2.396***	2.318***	1.684***	-71.930	-.0281
	(3.130)	(3.220)	(3.920)	(-0.480)	(-0.020)
LITERACY	-0.733				
	(-0.300)				
TRADE	0.929	0.876		3.729	-4.272*
	(0.830)	(0.790)		(0.550)	(-1.720)
INFRASTRUCTURE	-3.995	-4.255		-1.838	-4.720
	(-0.890)	(-0.960)		(-0.140)	(-0.770)
RISK	5.180**	5.121**	5.425***	8.031*	3.049*
	(2.430)	(2.410)	(2.610)	(1.800)	(1.790)
WAGE	-12.532*	-12.423*	-11.525*	-12.321	-10.131
	(-1.820)	(-1.810)	(-1.710)	(-1.310)	(-1.080)
CORRUPTION	-4.987**	-4.575**	-4.120**	-11.400*	-2.426*
	(-1.980)	(-2.160)	(-2.150)	(-1.820)	(-1.790)
PRIV1	-0.917	-.792	-0.083	Not present	-1.274
	(-0.790)	(-0.730)	(-0.090)		(-0.820)
PRIV2	-0.429	-.450	-0.346	118.721	-5.448**
	(-0.550)	(0.570)	(-0.470)	(0.500)	(-2.080)
PRIV3	-1.078	-3.710	-0.922	38.132	Not present
	(-0.910)	(0.180)	(-0.800)	(0.450)	
R-squared	29.22%	29.24%	28.98%	37.73%	28.12%
No. of observation	576	576	576	216	360

Note:
1) Panel B1 - general model; Panel B2 – excluding LIT variable; Panel B3 – excluding Literacy, Trade and Infrastructure variables; Panel B4 – only Southeastern European countries (Bulgaria, Romania and Croatia), Panel B5 – only Central European countries (Poland, Hungary, Czech Republic, Slovakia, and Slovenia)
2) All variables except dummies in logs. The regression procedure used is OLS (pooling).

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[26] Our preliminary tests, similarly to Bos, & De Laar (2004), include a dummy variable that accounts for the announcement effect related to different timing of the accession process to the European Union (EU). In line with their results, we did not find evidence that an overall announcement or catch-up effect exists. Rather, macroeconomic fundamentals may explain differences in foreign investment into the region.

3) *, **, and *** represent significance at 10, 5, and 1 percent, respectively. All regressions include source country dummies to control for source country effects.
4) z-statistics in brackets.

The results (see Table 4) show that there is only one significant privatization dummy (PRIV2) in model specification B5, which refers to the second country group – Poland, the Czech Republic, Hungary, Slovenia and Slovakia. The sign and the magnitude of the coefficient mean that, in general, there is 5.4 percent less FDI flows attracted by the host countries, experiencing privatization of type 2 (that is, Vouchers or Buy-Outs as primary methods of privatization, and Sale to Outside Owners as secondary method of privatization), as compared to the countries, experiencing privatization of type 4 (Sale to Outside Owners). In contrast to previous research (Carstensen, & Toubal, 2004; Holland, & Pain, 1998), the study does not find strong evidence that the method of privatization has a significant effect on the level of foreign investment in transition economies in Central and Southeastern Europe.

The second procedure is to employ an approach similar to that used by Holland and Pain (1998) to highlight influential observations in cross-section models. The basic idea is to see whether any individual panel members have been particularly influential in obtaining the reported results. This can be established by re-estimating model A2 excluding each country in turn. The full set of results is presented in Table 5. The exclusion of Bulgaria leads to a sharp decrease of the significance of WAGE variable implying that the country's contribution to the importance of this specific FDI determinant in the full model specification is relatively high. In contrast, with the exclusion of Croatia and Slovenia from the general model its value increases, meaning that the WAGE variable is a determinant of less importance for FDI flows to these two countries.

The data in Table 5 show that the inclusion of Croatia and Slovakia in the general model clearly has an important impact on the reported effects from the corruption practices in transition economies. The exclusion of Hungary and the Czech Republic also has a noticeable effect on the coefficients of GDPPC and RISK variables; if Hungary is excluded they fall sharply, whereas if the Czech Republic is excluded they rise, meaning that these two variables are much less important determinants of the Czech Republic's FDI in the general model. There are no significant differences in the coefficients on the other explanatory variables in the model – distance, population, and trade, expect for infrastructure (which remains insignificant), suggesting that our findings are reasonably robust.

CONCLUSION

The analysis presented in this paper has enabled the identification of several key determinants of FDI flows into the transition economies of Central and Southeastern Europe (CSE), and highlighted the implications of different political and institutional factors for FDI flows to the EU's new member states. By using both traditional and transition specific variables, this paper complements the existing research literature by focusing on the primary determinants of FDI in CSE countries. Based on a bilateral cross-section data analysis, this paper finds that FDI flows are significantly influenced by both gravity factors (distance, GDP and population) and non-gravity factors (risk, labor costs, and corruption). Moreover, at the second stage of the analysis, it has been shown that the differences in FDI flows across different groups of transition economies are explained by the same economic factors and not by the timing of their accession to the European Union (EU).

In contrast to previous research, economic factors such as infrastructure and trade openness do not seem to have a significant impact on FDI flows into the host countries included in the sample. It may be expected that these variables are imperfect proxies: they may be correlated with each other or with other factors that also influence investment decisions, and their estimated coefficients may thus be hard to interpret. Explanatory variables that purport to measure the significance of the political and institutional environment, such as risk and corruption, are found to be significant determinants of FDI

flows into CSE economies. This effect weakens when the recipient countries in the sample are divided into different groups depending on the timing of their EU accession.[27]

Additionally, the analytical framework has permitted to identify the impact that the method of privatization may have upon FDI flows in transition economies. The analysis does not find strong evidence that the method of privatization used in recipient countries has a significant effect on FDI flows, which somehow contradicts the previously assumed positive impact of this variable. A strong effect is observed only in case of CSE countries in a more advanced stage of transition, where vouchers and/or buy-outs are used as primary methods of privatization, and sale to outside owners - as secondary method of privatization.

The results provide an analytical foundation for the evaluation of country policies and institutions aimed at making transition economies of Central and Southeastern Europe more attractive to foreign investors. In line with Demekas, et al. (2005), these findings can be used as guidance concerning major macroeconomic and institutional determinants of FDI, showing that a strong effort should be made by policymakers in these countries to liberalize trade and foreign exchange regime, control labor costs, and improve overall infrastructure. Moreover, the study finds a significant effect for the corruption measure, indicating that efforts to improve governance and combat corruption and bureaucracy will have a direct impact on FDI in these countries.

Unfortunately, the research does have some limitations. One of them is related to the relatively short observation period and the number of host countries included in the sample. The lack of complete data for some of the explanatory variables (e.g., wages) for some countries in the sample is the second obstacle that prevents us from constructing the most appropriate variables to use as proxies for FDI determinants. Collecting more data for more countries over a longer period of time and running a panel data analysis to account for country-specific heterogeneity will improve the model and the robustness of research findings.

Several potential extensions to this research would improve the understanding of the effects of FDI and its determinants on economic growth in transition economies. It would be interesting to investigate whether FDI effects across different groups of transition economies can be attributed to different (country-specific) economic variables. Another important issue to examine is the relevance of efficiency-seeking, market-seeking and resource-seeking objectives for foreign investment in transition economies. This will enable other researchers to test the hypothesis that the pattern of operations undertaken in the CSE countries by multinational firms is far from being homogeneous, especially during the first years of the transition process.

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[27] Although many empirical studies (Bevan, & Estrin, 2000; Bevan, Estrin, & Grabbe, 2001) suggest that countries, which proceed along the accession path, may benefit from a virtuous cycle, hence increasing the differential between them and the accession laggards, we do not find evidence in support of this hypothesis over the sample period.

Table 5: Influence analysis of FDI determinants in cross-section regressions[1,2,3,4]

	DIST	GDPPC	POP	TRADE	INFRA	RISK	WAGE	CORR
Full Model (A2)	-1.785*** (-3.470)	1.663** (2.200)	2.062*** (3.560)	0.578 (0.620)	-2.638 (-0.720)	5.217*** (2.640)	-13.168** (-1.970)	-4.058** (-1.990)
Excluding Bulgaria	-1.609*** (-2.900)	1.372* (1.720)	1.939*** (3.320)	.305 (0.310)	-1.934 (-0.520)	6.044*** (2.840)	-9.800 (-1.350)	-5.207** (-2.420)
Excluding Croatia	-1.663*** (-2.970)	2.095** (2.430)	1.953*** (2.750)	.721 (0.680)	-1.255 (-0.310)	5.749*** (2.720)	-15.294** (-2.020)	2.807 (1.120)
Excluding Czech Republic	-1.925*** (-3.720)	2.462*** (2.900)	2.352*** (3.870)	.851 (0.790)	-2.094 (-0.570)	7.343*** (3.220)	-11.754* (-1.800)	-5.056** (-2.360)
Excluding Hungary	-1.782*** (-3.300)	.513 (0.540)	1.675*** (2.820)	.335 (0.330)	-1.058 (-0.240)	2.963 (1.340)	-14.221** (-2.040)	-3.530* (-1.720)
Excluding Poland	-1.783*** (-3.260)	1.965** (2.430)	2.484*** (3.000)	.578 (0.550)	-4.233 (-1.030)	5.341*** (2.590)	-13.183* (-1.800)	-4.458* (-1.870)
Excluding Romania	-1.719*** (-3.110)	1.404* (1.780)	1.861*** (3.070)	.463 (0.480)	-2.459 (-0.640)	3.693 (1.560)	-12.357* (-1.720)	-4.238* (-1.930)
Excluding Slovakia	-2.371*** (-3.770)	1.564* (1.940)	2.357*** (3.710)	1.571 (1.200)	-8.104 (-1.610)	4.787** (2.120)	-13.471* (-1.930)	3.327 (1.450)
Excluding Slovenia	-1.742*** (-3.070)	1.764** (2.160)	2.107*** (3.320)	.592 (0.580)	-3.196 (-0.820)	5.164** (2.520)	-16.935** (-2.140)	-4.154* (-1.750)

Note:

1) Panel A2 - general model excluding LITERACY variable

2) All variables except dummies in logs. The regression procedure used is OLS (pooling).

3) *, **, and *** represent significance at 10, 5, and 1 percent, respectively. All regressions include source country dummies to control for source country effects.

4) *z*-statistics in brackets.

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