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The FDI and trade relationship revisited under structural change: Evidence from a sector-based analysis in Central and Eastern European countries

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ABSTRACT

This study revisits the long standing argument on the Foreign Direct Investment (FDI) and Trade relationship in an effort to shed some new light on the issue as well as investors' behavior. This is achieved within the context of structural changes as proposed by the Investment Development Path (IDP) paradigm. In addition, it does so in a sector-based framework where more accurate results may be obtained and safer implications may be outlaid. We use an expanded dataset of Central and Eastern European countries, from the early stages of transition in 1992 to 2006 covering a variety of location factors. Results pinpoint to a differential relationship between FDI and imports among the sectors, indicating a complementary one for manufacturing (secondary) and services (tertiary) and a substitution one for agriculture (primary). In the case of FDI we find strong locational characteristics such as the large market size, the gradual improvement of the macro-environment and finally the quality of labour force as centripetal

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forces, well documented along the structural changes framework of the IPD we employ here.

Keywords: Central & Eastern European Countries (CEEC), Investment Development Path (IDP), Inward Foreign Direct Investment (FDI), Imports.

JEL Classification: F210, F230, F290, M110, O520

Introduction

International Trade and Foreign Direct Investment (FDI) are undoubtedly considered as driving forces behind economic integration and have been claimed to exert a considerable impact on economies especially as they can potentially enhance economic growth and development. Consequently, the examination of those two factors as well as their relationship is of particular importance for the growth prospects of Central and Eastern European Countries (CEECs) in the context of an expanded EU.

Stylized facts indicate that leaders in the FDI attraction race within the CEE region are countries like Poland ($109 million in 1990, $34,227 million in 2000 and $182,799 million in 2009 respectively in FDI stock), Hungary ($570, $22870 and $248,681 million in 1990, 2000 and 2009 respectively) and the Czech Republic ($1,363, $21644 and $115,899 million in FDI stock accordingly for the years 1990, 2000 and 2009). These countries are well ahead in their liberalization process and also the largest, in economic terms, among the region. Poland continues to be the top recipient, being within the same group of FDI recipients with Germany, the UK, Japan, Belgium, Canada etc. for 2009 (World Investment Report, 2010). These countries, Poland, Hungary and Czech Republic, together account for more than three-quarters of the total inward FDI stock located in the accessed EU countries. Indeed, taking a snapshot of the largest cumulative FDI inflows for the period covering 1992 to 2009, we find Poland with $147.2 billion, Czech Republic with $80.8 billion and Hungary with $69.3 billion respectively (UNCTAD, FDI/TNC database).

Nevertheless, during the last decade, there are also differentiations as Hungary, the Czech Republic and Estonia have had high inflows relative to GDP for some years, whilst Lithuania, Latvia and the Czech Republic experienced the largest increase in FDI inflows in 2004 among the 10 new (by then) member states[3] (Holland and Pain, 1998; Allen and Overy Report, 2006; World Investment

[3] For extensive description on FDI trends in the region, please refer to World Investment Report of UNCTAD, various issues, and Allen and Overy Report (2006) for trends and prospects.

Report, various issues)[4]. Similarly flows to Romania and Bulgaria grew significantly in 2006 in anticipation of joining the EU on the 1st of January 2007. Of the 19 members of the group consisting the South-East Europe and the Commonwealth Independent States (CIS), Bulgaria and Romania together accounted for more than one fifth of the regional total in 2004 and for more than 70% of the South-East European subtotal (World Investment Report 2005). Regarding their FDI stocks and their trends, Bulgaria registered $112 million in FDI stocks in 1990, $2,704 million in 2000 and 50,727 million in 2009 whilst Romania had 6,953 million in 2000 and 73, 983 million in 2009 (World Investment Report, 2010). It total, new EU members accounted for almost half (49% of the cumulative total) of the South-East and the Commonwealth Independent States of close to $ 1 trillion over the period 1992–2009.

Croatia is the only upper-middle income country in the South-East and the CIS planned to join the EU. In 1999, even as one of the most affected South-Eastern European countries from the Russian crisis of 1998, FDI inflows in Croatia were resilient (World Investment Report 2000). In 2006 Croatia is among the top 10 FDI recipients having the seventh position (World Investment Report 2007). Table 1 below is enlightening as to the amounts of inward FDI received with respect to the World's total[5].

From an international investors' perspective, key investors in the region are primarily Western European countries, especially Austria and Germany, and the US. Austria has a special relationship with the region based on personal ties and links. These personal ties and links correspond to two factors. First, Austria was one of the first trade partners for CEECs whilst in the early years of the nineties there were substantial immigration flows from these economies to Austria. The importance of Austria as a key investor for the region is clearly illustrated by the fact that nearly 40% of total Austrian new direct investment abroad were allocated in CEECs in 2000, whilst this figure rose immensely to 80% in 2001 (Hunya, 2002). Following Austria, Germany has also close cultural ties, in terms of tradition and language, as well as tight economic integration with the countries of CEE. German SMEs were amongst the first to invest in CEECs whilst the existing strong relationships between the former Eastern Germany and the Visegrad countries facilitated further this process (Baun, 2005). Finally, US investors are registered to hold a significant role in these states and primarily dominate in Poland where more than 30% of capital is of American origin (Meyer, 1998) but also it registers large increases of FDI from Japanese

[4] The analysis investigates the general trends that exclude the effects of the crisis of the last years which is not the topic of this work.

[5] Table 1 reports FDI inflows only for selected time periods whilst for a complete picture of the period 1992-2006, Table 1 is replicated with the full information in the Appendix.

companies such as Sharp, Toyota and Toshiba (World Investment Report 2007). In 2006, the largest investors in the region are Germany and Italy (in that order) (World Investment Report 2007).

Table 1. FDI inflows as percentage of World Total (selected time periods)[6]

Country/Year	1992	1995	1997	2000	2002	2006	Average
Bulgaria	0.02%	0.02%	0.10%	0.09%	0.18%	0.43%	**0.14%**
Croatia	0.01%	0.03%	0.11%	0.09%	0.21%	0.29%	**0.12%**
Czech Republic	0.52%	0.71%	0.27%	0.40%	1.57%	0.49%	**0.55%**
Estonia	0.04%	0.06%	0.06%	0.03%	0.05%	0.14%	**0.08%**
Hungary	1.54%	1.40%	0.86%	0.22%	0.55%	0.50%	**0.81%**
Latvia	0.02%	0.05%	0.11%	0.03%	0.05%	0.13%	**0.05%**
Lithuania	0.01%	0.02%	0.07%	0.03%	0.14%	0.15%	**0.06%**
Poland	0.35%	1.01%	1.02%	0.75%	0.76%	1.15%	**0.80%**
Romania	0.04%	0.12%	0.25%	0.09%	0.21%	0.94%	**0.26%**
Slovakia	0.05%	0.71%	0.05%	0.16%	0.76%	0.34%	**0.22%**
Slovenia	0.06%	0.04%	0.07%	0.01%	0.30%	0.03%	**0.06%**
Total of Region in World	**2.65%**	**4.17%**	**2.97%**	**1.90%**	**4.79%**	**4.59%**	**3.15%**

Source: UNCTAD, 2007 and Authors' calculations

The present study has a twofold scope; firstly to shed new light on the issue of the interrelationship between inward FDI and imports, i.e. complementarity vs. substitutability focusing on the CEECs; secondly to thoroughly examine location determinants of inward FDI for the ten new EU member-states of CEE[7] and a candidate member state, Croatia. To achieve our goal we apply the above exercises within Dunning's Investment Development Path (IDP) and we carry out our analysis not only in aggregate FDI and imports, as most of the empirical studies do up to the present, but we further differentiate among the primary, secondary and tertiary sectors of the economy, i.e. agriculture, manufacturing and services. We theoretically assume and empirically demonstrate that activities in these different sectors will display different behaviour in the various stages of economic development.

The remainder of the paper is organized as follows: the next section outlays a thorough literature review on the FDI and Trade relationship. Section 3 discusses Dunning's IDP framework for the CEECs. Next, section 4 presents the model

[6] This table shows data up to 2006 as the investigation of the FDI-trade relationship is tested for the period up to 2006.

[7] The new EU member states are Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia and the recently accessed Bulgaria and Romania.

and hypothesis formulation based on our conceptual IDP framework as well as econometric methods and data; section 5 displays obtained empirical results and finally section 6 summarizes the paper, offers some policy implications and concludes with potential extensions.

The relationship of FDI and trade: a literature review

Although the current study is interested in examining inward FDI and imports into the respective economies of CEE, it would be useful to review the existing literature on the different aspects of the relationship of FDI and trade[8] in general.

The relationship between FDI and trade

The relationship of FDI with trade has been voluminously studied in the relevant literature, albeit no determinate outcome has, thus far, been established. There appears to be a consensus that the nature of the relationship is neither substitutable nor complementary, but rather depends on the industry, country and the time period investigated (Pontes, 2004). Even within this framework, thought, results are not conclusive as will be demonstrated below through the discussion of the current literature. This alone demonstrates and justifies the need for a further examination using a multidisciplinary approach, as the one adopted in this paper.

Alternative theories

International investment, in its early years, took place in order to overcome trade barriers in host countries. High tariffs or import-substituting policies that offered protection to local producers acted as deterrents of international trade (Horst, 1972; Buckley and Casson, 1981). In this context, international investment aiming at servicing foreign markets, by local production, replaces exports. Also, early theories on FDI view FDI (outward) and trade (exports) as alternative means in the internationalisation of economic flows (Hymer, 1976; Dunning, 1988). Along this line of argument, i.e. the substitutability between FDI and trade, theories of horizontal investment (Horstmann and Markusen, 1992; Brainard, 1993; Markusen, 1995, Carr et al. 1998), argue that with low economies of scale in production and high trade costs it is beneficial for the firm to supply national markets through local production rather than through exports. In such cases, hence, outward FDI substitutes trade (exports). The majority of these studies reflect a rather protectionist global environment where barriers to

[8] Outward FDI and exports refer to the sending/investing country. The other side of the coin is inward FDI and imports in the recipient economy. While basically they regard the same question, the country of interest is different; in the first case it is the sending country that one is interested in while in the second case it is the host country.

FDI significantly reduce FDI (Ghosh et al., 2012). Despite the gradual liberalisation of the global environment (Komaya and Golub, 2006) restrictions still reduce the FDI flows and therefore we would expect this substitutability relationship to hold in a number of cases (Ghosh et al., 2012)

At the other end of the spectrum, there are a number of arguments pointing to a complementary relationship. Kojima (1978) back in 1978 observed that international investment took place in sectors where the host country has a comparative advantage. He later (1991) applied his development-based theory to Japanese investment in Asia and Latin America concluding that Japan's investment, in these regions, is trade creating.

In a theoretical setting of vertical investment, Helpman (1984) proves that in the existence of low transport costs, headquarters are separated from plants, in order to take advantage of factor cost differentials. He concludes that outward FDI creates exports in the form of capital goods and factor services flows, from the headquarters to the plants. From another point of view, horizontal investments are claimed to promote exports, in particular between countries of similar income (Markusen, 1998). More recently, Pontes (2004) developed a theoretical model allowing for different locations of vertical stages of production and distinguishing between trade (exports) in finished and intermediate goods. Using this model he shows that exports and outward FDI are complements when high trade costs exist and substitutes otherwise[9].

The empirics of the relationship

In the empirical forefront, it appears that the bulk of studies favour the complementary relationship between FDI and trade. It is noteworthy, nevertheless, that the outcome usually depends also on the level of aggregation used in any analysis yet not in an affirmative way. Results depending on the firm level (microeconomic), the sectoral (industry) level and the economy-wide level (macroeconomic)[10] differ, but still even within these categories of analyses there is no unanimity. Though the relationship of trade and investment could be investigated more effectively within the microeconomic (firm-level) or sectoral (industry) framework, there are problems with data availability and the ability to cover all relevant aspects of the relationship (Fontagne, 1999). This is a partial

[9] In sum, there exist a number of theories that predict either substitutability or complementarity as briefly discussed here; they are distinguished in FDI explanatory approaches (internationalization theory, eclectic paradigm), trade models that incorporate MNEs, vertical and horizontal models of MNEs, knowledge capital models of MNEs. For an extensive literature review on these please refer to Forte (2004).

[10] For a recent survey on the relevant empirical literature see Forte (2004).

gap in the literature[11] that this paper fills in adopting not only a macroeconomic perspective but also using industry level data.

One may find, however, a small number of studies that have investigated the issue in the firm level but the majority are country specific and even less are industry specific.

Corporate-level studies

At the corporate level, a complementary relationship was obtained by Lipsey and Weiss (1981, 1984) and Sachs and Shatz (1994) for US outward FDI and Swedenborg (1979; 1982) on Swedish firms' FDI. On the contrary, Swensson (2004) concluded in favour of a substitutable relationship in his work on inward FDI in the US and US imports for the period 1974-1994. However, micro evidence suggests that the relationship varies over time and an initial complementary relationship may turn into a substitution one as internationalisation advances to a high degree; such evidence is provided in Bergsten *et al*. (1978), Pearce (1982) and Svensson, (1996).

Industry-level studies

At an industry level, Fontagne (1999) checked the relationship using bilateral trade and FDI in industries between pairs of three countries, i.e., France, the UK and the US; in particular he checked for both inward and outward FDI and exports and imports separately, and he concluded that there is complementarity with exports and imports for both inward and outward investment flows. He showed, however, that inward FDI in France induces high sensitivity in imports (they rise but not much) and one dollar of inward investment in the US by French industries is associated with sixty cents of imports. Fontangne and Pajot (1997) using industry data for France, the US, Sweden, Italy and the Netherlands, find a complementary relationship of inward FDI and imports in France whilst they obtain the opposite results for the US. Meredith and Maki (1992) concluded in favour of a complementary relationship for industries investing in Canada.

Country-level studies

On macro-level grounds, evidence is also mixed; a substitutability relationship is obtained in Horst (1972) and Belderbos and Sleuwagen (1998) (studying US investment in Canada, Japanese investment in the EU respectively), Barrell and Pain (1999) (for Japanese investment in the US and the EU) and Pain and

[11] There are a few works that explore the relationship at the firm and sectoral level but as will be evidenced in the description that follows, they are very few and most importantly, they deal with advanced countries, primarily the US and Sweden.

Wakelin (1998) (for 11 OECD countries during the period 1971-1992). A complementary relationship has been found in OECD (1998a) for various bilateral relationships, Wilamoski and Tinkler (1999) for US FDI and exports to Mexico and Lipsey et al. (2000), Aberg (2001)[12] for Japanese investments, Clausing (2000) for American FDI and exports in 29 hosts and Aizenman and Noy (2005) for aggregate FDI and aggregate trade (exports plus imports). Also, in a study carried out by the OECD (1998b) for 21 OECD countries over the period 1980-1995, it was demonstrated that FDI induces trade and even more notably for the bilateral relationship between US and Japan. This study, however, failed to capture any relationship between inward FDI and imports. Pantulu and Poon (2003) investigate the US and Japanese outward FDI and both exports and imports and conclude that a relationship cannot be generally established, but rather it depends on the partner countries under consideration. Nevertheless, their evidence suggests that FDI and trade are usually complementing rather than substituting each other. More recently, Cieclik (2009) concludes in favour of a complementary relationship between FDI and international trade between Poland and the OECD countries for the incomplete specialization Heckhscher-Ohlin model but lack of support for the complete specialization model.

Inward FDI and imports[13]

Regarding the particular inward FDI and imports relationship studied in this paper, there are only very few to address the issue: de Mello and Fukasaku (2000), by means of bi-variate vector error-correction models and causality analysis, show that a positive relationship between imports and FDI inflows exists in some of the Latin American and Southeast Asian countries selected. Similarly, Brainard (1997), in an effort to test her proximity-concentration hypothesis, observes that foreign affiliate sales and imports in US are positively related to one another. Her theory in the explanation of FDI in fact constitutes

[12] Actually, in what regards Japanese investments, it is claimed to be more trade enhancing in Asia than in Latin America due to the more liberal policies of the former (Goldberg and Klein, 1998; Graham, 1999).

[13] In the particular question of outward FDI and exports, exports have been tested in the literature in order to explore their role in creating linkages with CEEC markets as a means for subsequent investments. It is also argued that insofar as FDI is motivated by market access -regarding the tradable sectors- it is complementing rather than substituting trade, i.e. it raises the value added of parent companies in home countries relative to a case without foreign investments (German Institute for Economic Research and EPRC, 2001). We find evidence in Brenton, Di Mauro and Lücke (1998) (complementary relationship), Nicolini (1998) in the Food and Beverages sector for the Visegrad economies (partial indication that exports serve as an initial entry channel for a more complete economic involvement, at a later stage, in the region).

the starting point of some recent works that analyze the connection between imports and FDI inflows using gravity models. This is for example the case of Clausing (2000), who through the gravity equation presents evidence supporting a complementary relationship between US imports and the activity of foreign affiliates operating in the US. Lin (1995), however, through the estimation of an import demand equation augmented with an inward FDI variable, finds no evidence of any impact from current inward FDI to imports in Taiwan. A recent study belongs to Alguacil and Orts (2003); they studied the particular question for Spain and their results suggested that the investment projects entailed a positive relationship with imports using an unrestricted VAR model with inflows of FDI and imports respectively.

On the whole, there have been numerous studies trying to assess the relationship of outward FDI-Exports relationship or aggregate FDI and total trade (imports plus exports) relationship, mostly for advanced economies. There is only very limited research concerning the inward FDI-Imports relationship as evidenced above as well as none to the best of our knowledge, for the countries under consideration in this study. In addition, there is no study as far as we are concerned, that explicitly tests for this relationship in a simultaneous equation model, surpassing, thus, criticisms on potential endogeneity problems between FDI and imports that may arise.

This work, also, belongs to the small class of papers that have studied the relationship of FDI and trade outside the traditional gravity models. Though the gravity models may be valid, they are confined to standard size and distance measures, hence may miss some interesting elements that may be of particular significance for the underlying relationship. By abstracting from pure gravity models (though still capturing size explicitly and distance measures through dummy variables) we are able to answer another question besides the inward FDI-Imports relationship; we are enabled to identify location factors of the CEE region that attract foreign investors.

The Investment Development Path and the CEECs

The Investment Development Path (IDP) paradigm is a dynamic concept which relates the international investment position of a given country to its level of economic development. It draws on Dunning's eclectic paradigm of international production and is framed by the OLI variables (ownership, locational and internalization advantages). The model assumes, first, that development induces significant structural change to the economy and, second, that such change has a systematic relationship with the pattern of FDI (Lall, 1996, p. 424). It contends that the change in the locational advantage of a country as well as in its firms' ownership and internalization advantages *vis-à-vis* other economies explains

how its international investment position evolves from only receiving inward FDI to 'exporting' FDI. Dunning initially postulated that a country would go through four stages of development (Dunning, 1981a, 1981b), to which Narula later added a fifth stage (Narula, 1993). The five stages are defined according to the propensity of a country to be a net recipient or a net exporter of FDI. This propensity depends on the relative importance of a country's natural and created assets, as defined by Dunning and Narula (1996, p. 38, note 4). The five stages of the IDP are summarized in table 2.

Table 2. Characteristics of the IDP

Stage	Inward FDI	Outward FDI	NOIP*
1	Insufficient location advantages → No inward FDI except natural resource seeking	Absence of domestic firms' ownership advantages (Oac) → No outward FDI	Around zero
2	Development of 'generic' location advantages →Faster growth of inward FDI than of GDP	Emergence of domestic firms' country-specific Oa →Little outward FDI	Increasingly negative
3	Erosion of location advantages in labour-intensive activities Development of created-asset location-advantages →Decrease in the rate of growth of inward FDI	Growth of Oa advantages →Increase in the rate of growth of outward FDI	Positive
4	Location advantages entirely based on created assets →Superiority of outward FDI over inward FDI	Firm-specific ownership advantages (Oaf) more important than Oac advantages →Superiority of outward FDI over inward FDI	Positive
5	Theoretically, fall and then fluctuation around zero of the NOIP, but in fact no longer a reliable relationship between a country's international investment position and its relative stage of development		

∗ Stands for Net Outward Investment Position of a country

Table 3 presents the evolution of the IDP coefficient (Outward minus Inward FDI position normalized by the GDP), for the ten new EU members and Croatia during the period 1992-2006. In constructing the IDP coefficient we followed Clegg (1996) and we denote in bold and italics the minimum value of the coefficient. This minimum value corresponds to the end of the second stage of the IDP. It is evident that countries like Hungary, Slovakia and Slovenia have passed to the third stage of the IDP by performing outward investments as well, followed by Poland in 2004 whilst Bulgaria, Croatia, Romania, Latvia and Lithuania have only in the late years of our sample reached the same stage. Most of the countries under examination for the largest part of the nineties fell into the second stage.

The understanding of the process of transition from one stage of development to the next one as well as the investigation of the FDI-Trade relationship is of crucial importance for policy makers and managers of countries and active firms in the CEE region. In this sense, *Location* is emerging as indeed the 'neglected' factor in our understanding of FDI (Dunning, 2003 & 2009) and especially in the CEE region. Different countries follow different development paths or are indeed in different stages of their development process. In particular, Dunning concludes *"With the gradual geographic dispersion of created assets, and as firms become more multinational by deepening or widening their cross-border value chains, then, ..., the structure and content of the location portfolio of firms becomes more critical to their global competitive positions"* (Dunning, 2003: 63). The rest of the paper will address these two key issues, shedding light to location factors that attract FDI from an empirical perspective and its relationship with trade both from a theoretical and an empirical perspective by distinguishing among the three major sectors: primary, secondary and tertiary.

Model, sample and methodology

For our purposes we split our sample into three sub-periods, namely the period prior to 1997, the period covering the years between 1997 and 2002 and the period after 2002. The three time periods correspond to the early stages of transition (before 1997), the mature stage (between 1997 and 2002) and a stage where most of these countries are beginning their final preparation to the EU accession (after 2002). Although these breakpoints correspond to specific points associated with the transition process of the CEECs we also employed the Supremum F test, which involves estimating all Chow F statistics for each potential breakpoint in the sample and choosing the one where the F statistic was higher. When this test was implemented the breakpoints were determined at 1997 and 2002 with F statistics of 32.5 and 28.9 respectively. The relationships

Table 3. Investment Development Path Coefficient (in bold and italics the minimum values corresponding to the end of stage 2 of the IDP)

Country/Year	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	Average
Bulgaria	-0.1%	-0.1%	-0.2%	-0.2%	-0.3%	-1.0%	-1.1%	-1.5%	-1.9%	-1.4%	-1.6%	-3.3%	-5.5%	-5.0%	***-6.7%***	**-2.0%**
Croatia	0.0%	-0.3%	-0.3%	-0.3%	-1.1%	-0.8%	-1.8%	-3.1%	-2.3%	-2.4%	-1.1%	-3.6%	-1.6%	-2.6%	***-5.4%***	**-1.7%**
Czech Republic	-0.7%	-0.4%	-0.5%	-1.7%	-0.8%	-0.8%	-2.4%	-4.0%	-3.1%	-3.3%	-5.0%	-1.1%	-2.2%	***-6.1%***	-2.2%	**-2.2%**
Estonia	-0.7%	-1.4%	-2.0%	-1.8%	-0.9%	-1.0%	-4.2%	-1.6%	-2.1%	-2.1%	-0.9%	-4.1%	-3.5%	***-10.1%***	-2.3%	**-2.6%**
Hungary	-2.7%	-4.5%	-2.0%	***-4.5%***	-2.9%	-3.1%	-2.4%	-2.3%	-1.6%	-2.5%	-1.8%	-0.3%	-2.1%	-3.1%	-1.7%	**-2.3%**
Latvia	-0.2%	-0.3%	-1.8%	-1.6%	-2.3%	-2.9%	-1.6%	-1.7%	-2.0%	-0.5%	-1.1%	-1.0%	-1.9%	-2.0%	***-4.4%***	**-1.6%**
Lithuania	0.0%	-0.1%	-0.1%	-0.3%	-0.5%	-1.1%	-2.8%	-1.5%	-1.1%	-1.2%	-1.8%	-0.3%	-1.1%	-1.4%	***-2.9%***	**-1.0%**
Poland	-0.2%	-0.6%	-0.6%	-1.1%	-1.2%	-1.2%	-1.5%	-1.7%	-2.1%	-1.3%	-0.9%	-0.9%	***-2.4%***	-1.3%	-1.8%	**-1.2%**
Romania	-0.1%	-0.1%	-0.2%	-0.3%	-0.2%	-0.8%	-1.4%	-0.7%	-0.7%	-0.8%	-0.7%	-1.3%	-3.5%	-3.4%	***-5.6%***	**-1.3%**
Slovakia	-0.3%	-0.3%	-0.4%	-4.5%	-0.5%	-0.2%	-0.9%	-1.2%	-2.8%	-2.2%	***-5.5%***	-2.5%	-3.7%	-2.2%	-4.0%	**-2.0%**
Slovenia	-0.4%	-0.4%	-0.4%	-0.5%	-0.5%	-0.9%	-0.6%	-0.2%	-0.2%	-0.6%	***-3.6%***	0.3%	-0.6%	0.2%	0.8%	**-0.5%**
Total for the Region	**-0.5%**	**-0.6%**	**-0.5%**	**-1.2%**	**-0.9%**	**-1.1%**	**-1.5%**	**-1.6%**	**-1.7%**	**-1.5%**	**-1.7%**	**-1.1%**	**-2.2%**	**-2.7%**	**-2.6%**	**-1.4%**

Source: UNCTAD, 2007; Economist Intelligence Unit, 2007 and Authors' calculations

before, between and after these two breakpoints are further explored in the following empirical part of the paper.

Whilst FDI in manufacturing is slightly higher than services in the first period, for the last two periods FDI in services overtakes manufacturing. FDI in agriculture shows a gradual decline in its relative share, confirming a substantial change in the structure of FDI inflows in these economies. Imports, on the other hand, show a similar increase in their absolute size from the first to the third period. The structure of imports, though, is different from that of FDI with imports in manufacturing dominating the total volume. Especially in the last period, i.e. after 2002, imports in manufacturing goods correspond to almost 85% of the total volume.

Model

In order to check for the relationship between FDI and Imports we build on previous studies exploring this relationship (Resmini, 2000; Lankes and Venables, 1996; Meyer, 1998; Boeri and Brücker 2000; Bevan and Estrin, 2000; Clausing, 2000; Altomonte and Guagliano, 2001; Rojec and Jaklic, 2002; Filippaios and Kottaridi, 2013) and we estimate the following system of equations:

$$FDIINFLOWS_{it} = \alpha_1 + \alpha_2 IMPORTS_{it} + \alpha_3 REALGDP_{it} + \alpha_4 PRIMARYEDU_{it} + \alpha_5 SECONDARYEDU_{it} + \alpha_6 REALINTEREST_{it} + \alpha_7 ULC_{it} + \alpha_8 R\&D/GDP_{it} + \alpha_9 INVESTMENTPROF_{it} + \alpha_{10} BUREAUCRACY_{it} + \alpha_{11} CORRUPTION_{it} + \alpha_{12} GOVERNMENTSTAB_{it} + \alpha_{13} LAW\&ORDER_{it} + \alpha_{14} M\&ASALES_{it} + DUMMIES + \varepsilon_{1it}$$

$$IMPORTS_{it} = \beta_1 + \beta_2 FDIINFLOWS_{it} + \beta_3 REALGDP_{it} + \beta_4 GDPPERCAPITA_{it} + \beta_5 TRADE/GDP_{it} + \beta_6 TRADETAXREV_{it} + \beta_7 SOCIOCONDITIONS_{it} + \varepsilon_{2it,}$$

where *i* stands for the country under consideration and *t* for the respective year.

It is worth clarifying here that a system of equations allows us to deal with potential endogeneity problems between FDI and Imports as well as explore the complementarity or substitutability of their relationship. A more detailed explanation on the methodology selection is offered in the next section.

The FDI equation[14] (FDI INFLOWS), where FDI is measured in flows in primary, secondary and tertiary sector respectively, is a function of imports (*IMPORTS*) in

[14] It must be mentioned here that all of the studies carried out for the CEECs, are country-level, either dealing with total FDI inflows in the region or bilateral flows from some advanced origins to CEEC destinations, for there is lack of *"consistent and detailed sectoral data"* (Resmini, 2000, p.666). The only exception belongs to Resmini (2000) who analyses the determinants of FDI inflows in the manufacturing sector of twelve host CEECs, following the Pavitt (1984) taxonomy (the Pavitt

the corresponding sectors. Though a considerable amount of FDI in the region has taken place through privatisation and acquisitions, the rationale for making such investments still holds regardless of the entry mode[15,16]. In this study we have used FDI flows instead of FDI stocks given that imports represent flows and we would need to have comparable dependent variables in both equations. Furthermore, previous literature (Filippaios and Papanastasiou, 2008) suggests that the use of flows, despite their variability (Kim, 2004) captures more appropriately the investors' motivations in each time period.

We hypothesize our FDI equation based on the existing literature on FDI determinants in general but also with regards to the specific region under consideration. We do that with a particular focus on the IDP framework developed earlier where country-specific variables are important and influence firm-specific advantages. Such country-specific variables are within the spectrum as size of the market, structure of the economy, resource endowments, and particularly the role of government, we included the following explanatory/control variables: for the FDI equation, we included Real Gross Domestic Product (*REAL GDP*) that captures 'market- seeking behaviour' as this constitutes a strong characteristic in the second stage of IDP and consequently we expect a positive relation[17]. The opening up of CEECs' markets was the obvious choice especially for firms whose established markets in the West were saturated (Lankes and Venables, 1996; Meyer, 1998; Boeri and Brücker 2000; Bevan and Estrin, 2000; Clausing, 2000; Altomonte and Guagliano, 2001; Rojec and Jaklic, 2002).

PRIMARY EDU and *SECONDARY EDU* respectively indicate two intensity measures capturing the number of teachers per pupils in primary and secondary education. The availability of skills plays a crucial role for *"the implementation of innovative production technologies and to the adaptation to a Western business culture"* although *"this technology remains less advanced than in the home countries"* (Carstensen and Toubal, 2004; p. 17 and p. 9 respectively; Rojec and Jaklic, 2002). In particular, a high secondary education intensity measure indicates the existence of a skilled labour force that can adapt to new production methods in

taxonomy distinguishes among scale-intensive, high-tech and traditional sectors and specialized producers).

[15] The entry modes are distinguished in greenfiled investment, mergers and acquisitions (through privatization), nevertheless, all types of entry mode regard long-lasting interest in the respective host, and thus country location factors are significant prerequisites for all.

[16] The use of a different measure of imports, normalized by the total trade, or the GDP of the country does not alter the results. Also the inclusion of a lagged FDI and Imports variable in the estimations does not alter the results, which are available upon request from the authors.

[17] It is noteworthy that large markets hold also a particular role in new trade and new economic geography theories, as they reflect the potential of firms to capture economies of scale (Krugman, 1980, Amiti, 1998).

a highly productive way. In this case a positive sign will be in support of the emerging new patterns of specialised location determinants. This is particularly important for countries in the second stage of the IDP.

Labour costs are captured by unit labour cost (*ULC*) reflecting a more traditional 'efficiency-seeking behaviour'[18]. This investment behaviour is closely related to second stage IDP countries where FDI takes place primarily for gaining efficiency in production.

The real interest rate (*REAL INTEREST*) is included as a measure of risk premium for the economy on the grounds that a higher interest rate implies a non-credible and non-stable market on the one hand, and a significant cost to investors for raising capital from the local financial market, thus advantaging financial capital flows from abroad. Uncertainty with regards to macroeconomic conditions, as well as the institutional framework, has been found in the related literature to exert a negative impact on inward FDI into the region (Holland and Pain, 1998; Bevan and Estrin, 2000). Countries that are in their development trajectory give special notice on macroeconomic stability pacts in their effort to stabilise their economies and enjoy high growth rates. This emerges a significant aspect for countries at their second stage of the IDP. Aizenman and Noy (2000) use the interest rate spread and Pantulu and Poon (2003) use the exchange rate as alternative measures.

We also incorporated a variable capturing the potential of the economy to generate new knowledge and innovation. This measure is the Research & Development expenditure over GDP (*R&D OVER GDP*) and captures the commitment of the host economy to create those conditions that would enable local as well as foreign firms to create new knowledge.

In order to account for the overall macro-environment we also included six variables capturing the investment profile, the quality of the bureaucratic system, the existence of corruption in politics, the government's stability, the existence of a cohesive legal framework and the amount of Mergers and Acquisitions in the host economy. The investment profile (*INVESTMENT PROF*) is a measure of expropriation risk, contract viability, the easiness in profit repatriation and the payment delays. Bureaucratic Quality (*BUREAUCRACY*) acts as a supplement to the government's stability. In countries with a good rating, the local bureaucracy can facilitate policies, act in an autonomous way of political pressures and offer to the international investors a stable partner irrespectively of the governmental changes. Corruption (*CORRUPTION*) measures the risk of corruption in politics

[18] Cost factors are at the heart of the Hecksher-Ohlin traditional trade theory. Foreign investments are considered to be motivated by production cost differentials, which investors exploit in order to increase their profits by reducing their cost of production. It is, however, beyond the scope of this paper to explain FDI determinants within this framework.

which can indirectly influence the cost of entry or operations especially for international investors. Government's stability (*GOVERNMENT STAB*) is a combined measure of government's unity, legislative strength of the constitution and popular support to the government. It measures the ability of a government to stay in power and carry out its policies and programme. This stability is of particular importance to international investors as it gives them security over the countries' policies. Law and Order (*LAW & ORDER*) act as a safety net for international investors against expropriation risks or any other contractual disagreement and dispute with local partners. This variable represents the strength and impartiality of the legal system as well as the popular observance of the law. Finally, Mergers & Acquisitions sales (*M&A SALES*) measure the overall risk of the economy in the sense that they indicate a more liberal and healthy environment as well as the liquidity of the local market in the case of disinvestment. The higher the volume of those the easiest would be for a multinational to either enter or exit from a market. Moreover, a high volume of M&A sales corresponds to more mature markets.

The imports equation is basically standard: imports are positively affected by the level of foreign investments that take place in line with our theoretical analysis. A set of control variables was also included, measuring the market size of the importing country (*REAL GDP*), GDP per capita (*GDP PER CAPITA*), the trade openness of the local economy as measured by the percentage of imports and exports over the GDP (*TRADE OVER GDP*) and the taxation of imports (*TRADE TAX REV*).

We expect the first three variables to exert a positive influence on imports and the fourth one a negative one. Particular attention must be paid on *GDP PER CAPITA* because this indicates the respective development level of a country and, consequently, its needs for more advanced and qualitative goods produced in Western markets. To further explore the relationship between the level of socioeconomic development of a country and its imports we included in the analysis a more qualitative variable, which captures the socioeconomic conditions in the countries under investigation (*SOCIO CONDITIONS*). The variable captures pressures that could fuel social dissatisfaction and consists of measures of the unemployment rate, the consumers' confidence and the poverty levels in the local economy. High levels of those three sub-components would indicate a higher income inequality, worse socioeconomic conditions in the economy and could lead to social dissatisfaction and distress, significantly affecting imports in a negative way, according to the International Country Risk Guide.

Sample and methodology

The sample includes the ten CEE new members of the enlarged EU, i.e. Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic and Slovenia, Bulgaria and Romania and a candidate member, i.e. Croatia. The time period covered extends from the early transition stages in 1992 till 2006.

The present study differs from other relevant articles in the literature testing the FDI-Trade relationship in that we depart from conventional testing of gravity models used elsewhere (Pantulu and Poon, 2003; Clausing, 2000) or simple regression tests (Swensson, 2004; Aizenman and Noy, 2005) and proceed with Zellner and Theil (1962) 3SLS (Three-stage Least Squares) estimator to get consistent and efficient estimators of the system in order to account for endogeneity. The 3SLS satisfies the requirements for an IV (Instrumental Variable) estimator and therefore is consistent.

The IV in this case makes use of the equation correlations of the disturbances. Furthermore, among all IV estimators that use only the sample information embodied in the system, 3SLS is asymptotically efficient. In estimating our model, we have also instrumented all other potential endogenous variables (REAL GDP, GDP PER CAPITA, and M&A SALES) to avoid endogeneity problems (Zellner ant Theil, 1962; Dhrymes, 1969). In our estimations we used as instruments the exogenous variables in the equations and their available lags[19]. We performed our estimation with the use of reg3 command in STATA. This command is using all available lags of exogenous variables as instruments. Given the nature of the model it is crucial to then test the appropriateness of the instruments discussed below.

One key issue that remains to be tested is the appropriateness of the instruments used. We followed the discussion on Davidson and MacKinnon (1993, p.532) who propose a Hansen/Sargan (1988) test for over-identification of systems. Under the null hypothesis the instruments used are the appropriate ones and are uncorrelated with the disturbances. We report the Hansen/Sargan test for each equation at the bottom of the respective table (Hall and Peixe, 2003; Hall et al., 1996)[20].

Finally, a relevant question that arises when using panel data regards the poolability of the sample. In our case the unrestricted country-specific fixed effects are captured through the dummies discussed earlier. The inclusion of fixed effects

[19] We excluded REAL GDP, GDP PER CAPITA and M&A SALES from potential instruments due to the possible endogeneity they have with IMPORTS and FDI INFLOWS.

[20] All system equation regressions where performed using STATA v.10 and the relevant 3SLS simultaneous equation command (reg3) whilst for the Hansen/Sargan test we created a do file calculating the test value. The code for the test is available upon request from the authors.

would reduce the degrees of freedom and would make the testing of the relationships in different time periods infeasible.

Econometric Results

Results are presented in Tables 4, 5 and 6 for the respective sectors. Results are provided for the three different periods that cover the early years of transition, the main transition phase and the final steps for EU accession.

It is evident that there is a strong complimentary relationship between imports and FDI in the secondary and tertiary sectors whilst FDI substitutes for imports in agricultural activities. Analyzing the relationship in different time periods, we see that during the first period i.e., before 1997, the relationship is not clear for agriculture (Table 4) as we get a positive coefficient in the FDI equation and a negative one in the imports equation, though they both are non-significant. FDI in services (Table 6) during this same period substitutes imports but the coefficient is non-significant whilst it is evident that imports complement FDI with a highly significant coefficient. FDI in manufacturing activities (Table 5) shows a statistically significant relationship with imports. In the second period, we again find a substitution relationship in agriculture while a complimentary one for manufacturing and services. Finally, in the third period, results remain the same indicating a substitution relationship in agriculture and a complimentary relationship in the other two sectors. These results reveal a structural change of the economies under consideration similar to the one hypothesized by the IDP and conform to Dunning et al. (2001) who argue that for countries belonging to the first and second stages, FDI and trade are very likely to be in different sectors.

Focusing on each sector separately and beginning with agriculture as regards the particular FDI drivers in these host economies, it is apparent that the coefficient of REAL GDP, capturing 'market-seeking' behaviour is significant in the first and the second periods whilst it is not significant for the period following 2002. This testifies in favour of a strong market seeking motivation for such investments in the region overall yet showing a probable differentiation after 2002.

Table 4. Model estimation, 3SLS, Endogenous Variables: FDI AGRIC and IMPORTS AGRIC, Different Time Periods of Transition

	Before 1997	Between 1997 and 2002	After 2002
FDI AGRIC			
IMP AGRIC	2.739	-1.792**	-3.616***
	(2.622)	(0.777)	(0.927)
REAL GDP	0.007*	0.009***	0.002
	(0.004)	(0.002)	(0.002)
PRIMARY EDUC	-67.289*	-60.376***	21.327
	(34.347)	(20.447)	(14.999)
SECONDARY EDUC	59.083*	92.250***	3.656
	(33.615)	(19.597)	(2.606)
REAL INTEREST	0.031	-0.145	-0.015
	(0.077)	(0.238)	(0.126)
ULC	-0.040***	0.030**	0.088***
	(0.014)	(0.011)	(0.024)
R&D OVER GDP	-1.675	-0.604	1.006
	(1.732)	(0.520)	(0.634)
INVESTMENT PROF	-0.015	-0.373***	-1.144***
	(0.453)	(0.117)	(0.230)
BUREAUCRACY	1.879**	1.363***	1.259*
	(0.809)	(0.481)	(0.653)
CORRUPTION	-0.484	-0.414	-2.575***
	(0.607)	(0.260)	(0.516)
GOVERNMENT STAB	-0.420	-0.131	-0.268
	(0.497)	(0.225)	(0.189)
LAW & ORDER	-1.196	-0.301	0.413
	(0.756)	(0.294)	(0.492)
M&A SALES	0.001	-0.001	0.001
	(0.001)	(0.002)	(0.002)
CONSTANT	4.726	3.916	17.247***
	(5.521)	(2.812)	(4.455)
IMP AGRIC			
FDI AGRIC	-0.018	-0.111***	-0.102***
	(0.030)	(0.035)	(0.033)
REAL GDP	0.001	0.001	-0.003
	(0.001)	(0.001)	(0.003)
GDP PER CAPITA	0.002	0.003	0.004
	(0.002)	(0.002)	(0.002)
TRADE OVER GDP	0.002	-0.001	-0.003
	(0.002)	(0.002)	(0.002)
TRADE TAX REV	0.001	0.020**	0.000
	(0.006)	(0.009)	(0.010)
SOCIO CONDITIONS	0.024	0.088***	0.023
	(0.046)	(0.032)	(0.047)
CONSTANT	0.314	-0.180	0.982
	(0.347)	(0.483)	(0.720)
N	66	44	55
F Equation 1	5.82***	13.54***	8.37***
F Equation 2	1.27	4.99***	3.94***
Akaike Info Criterion	129.861	81.838	121.864
Hansen/Sargan	2.75	2.52	3.58

Standard errors in parenthesis, *** significant at 1%, ** significant at 5%, * significant at 10%

Table 5. Model estimation, 3SLS, Endogenous Variables: FDI MANUF and IMPORTS MANUF, Different Time Periods of Transition

	Before 1997	Between 1997 and 2002	After 2002
FDI MANUF			
IMP MANUF	2.534	5.193	16.703***
	(1.612)	(4.079)	(6.134)
REAL GDP	0.001	0.006***	-0.001
	(0.001)	(0.002)	(0.002)
PRIMARY EDUC	29.036**	-25.325*	-17.790
	(12.067)	(14.694)	(14.927)
SECONDARY EDUC	8.932	35.455**	-4.236**
	(13.481)	(17.358)	(2.043)
REAL INTEREST	-0.024	-0.148	-0.109
	(0.041)	(0.148)	(0.110)
ULC	-0.015***	-0.001	-0.031
	(0.005)	(0.010)	(0.029)
R&D OVER GDP	-1.517**	-0.270	0.409
	(0.586)	(0.543)	(0.633)
INVESTMENT PROF	-0.253	0.072	0.053
	(0.154)	(0.115)	(0.219)
BUREAUCRACY	0.568**	0.227	-0.663
	(0.226)	(0.282)	(0.469)
CORRUPTION	-0.336	0.225	0.861*
	(0.272)	(0.205)	(0.482)
GOVERNMENT STAB	0.386**	-0.208	-0.421**
	(0.152)	(0.179)	(0.192)
LAW & ORDER	0.228	0.151	-1.129**
	(0.284)	(0.342)	(0.531)
M&A SALES	0.024	0.023	0.019
	(0.022)	(0.026)	(0.022)
CONSTANT	-9.187*	-18.288	-56.432**
	(5.300)	(16.023)	(23.424)
IMP MANUF			
FDI MANUF	0.050***	0.056***	0.013
	(0.014)	(0.017)	(0.012)
REAL GDP	0.003	-0.002	0.001
	(0.003)	(0.002)	(0.001)
GDP PER CAPITA	0.005***	0.004**	0.001
	(0.002)	(0.001)	(0.002)
TRADE OVER GDP	0.067	-0.051	-0.045
	(0.091)	(0.081)	(0.062)
TRADE TAX REV	0.006**	-0.002	-0.001
	(0.002)	(0.002)	(0.002)
SOCIO CONDITIONS	0.033**	0.003	0.031***
	(0.015)	(0.010)	(0.008)
CONSTANT	3.381***	3.992***	4.078***
	(0.117)	(0.149)	(0.121)
N	66	44	55
F Equation 1	14.76***	8.72***	3.94***
F Equation 2	13.68***	7.76***	7.91***
Akaike Info Criterion	11.955	-6.391	11.760
Hansen/Sargan	2.62	2.91	2.95

Standard errors in parenthesis, *** significant at 1%, ** significant at 5%, * significant at 10%

Table 6. Model estimation, 3SLS, Endogenous Variables: FDI SERVICES and IMPORTS SERVICES, Different Time Periods of Transition

	Before 1997	Between 1997 and 2002	After 2002
FDI SERVICES			
IMP SERVICES	1.419**	0.907**	2.944***
	(0.543)	(0.405)	(0.693)
REAL GDP	-0.004	0.004	-0.009***
	(0.002)	(0.003)	(0.003)
PRIMARY EDUC	23.859*	-17.946	-10.902
	(12.298)	(12.501)	(11.529)
SECONDARY EDUC	47.182***	36.325**	2.274
	(14.229)	(14.065)	(1.819)
REAL INTEREST	-0.011	-0.088	0.080
	(0.036)	(0.120)	(0.082)
ULC	-0.001	0.016*	0.009
	(0.007)	(0.009)	(0.016)
R&D OVER GDP	-0.408	0.663	-0.800
	(0.597)	(0.443)	(0.671)
INVESTMENT PROF	0.252*	-0.127	-0.083
	(0.148)	(0.090)	(0.171)
BUREAUCRACY	-0.715**	0.085	0.020
	(0.283)	(0.258)	(0.345)
CORRUPTION	0.298	-0.079	-0.535
	(0.256)	(0.161)	(0.472)
GOVERNMENT STAB	0.152	-0.134	0.105
	(0.162)	(0.148)	(0.148)
LAW & ORDER	-0.446	-0.315	0.002
	(0.299)	(0.222)	(0.325)
M&A SALES	0.007	-0.008	0.004
	(0.006)	(0.007)	(0.005)
CONSTANT	-29.729***	-11.418	-54.854***
	(10.776)	(8.096)	(15.246)
IMP SERVICES			
FDI SERVICES	-0.001	0.345***	0.354***
	(0.072)	(0.101)	(0.095)
REAL GDP	0.005***	0.003**	0.004***
	(0.001)	(0.001)	(0.001)
GDP PER CAPITA	0.010***	0.011***	0.010**
	(0.002)	(0.004)	(0.006)
TRADE OVER GDP	-0.003	0.002	0.001
	(0.003)	(0.003)	(0.003)
TRADE TAX REV	-0.031***	-0.032***	0.012
	(0.011)	(0.012)	(0.010)
SOCIO CONDITIONS	-0.080	-0.100**	0.014
	(0.068)	(0.048)	(0.065)
CONSTANT	21.238***	19.693***	18.144***
	(0.567)	(0.626)	(0.714)
N	66	44	55
F Equation 1	11.96***	8.97***	5.13***
F Equation 2	27.29***	31.88***	18.52***
Akaike Info Criterion	132.192	113.346	108.269
Hansen/Sargan	2.77	2.73	1.99

Standard errors in parenthesis, *** significant at 1%, ** significant at 5%, * significant at 10%

Also, there is a clear-cut difference between the effect of primary and secondary education intensity on FDI. The PRIMARY EDU is negatively significant for the first and second periods whilst the secondary education (SECONDARY EDU) intensity, which stands for medium workforce capabilities and skills, provides a positive and statistically significant sign in the respective periods. ULC turns out negatively significant for the first period while it is positively significant for the next two periods. Though this may come as a surprise in the first place, labour costs are sometimes assumed to capture capabilities and skills of the workforce which is in line with the positive signs we got for the secondary education. Such a relationship regarding all the above indicates an investment behaviour targeting second stage of the IDP countries where the need is for medium levels of skills and capabilities in order to carry out the production.

In contrast, the sign of R&D OVER GDP is not significant in any of the separate periods. Regarding the macroeconomic variables, it turns out that bureaucracy and corruption have the hypothesized signs, yet the investment profile gives a negative sign which is statistically significant for the second and third periods. This may seem puzzling however it could be attributed to the particular nature of agriculture which may not be as much affected by the ratings of the overall investment profile. Another plausible explanation could be found in theories of uncertainty and private investment where under particular conditions uncertainty raises the expected profitability of capital which, in turn, increases desired capital stock and leads to an increase in investment[21].

At the same time, in the imports equation, the socio-economic conditions seem to be of importance as the coefficient emerges positive and significant both in the total sample and in the second period.

Turning to manufacturing, we get different results for the different time periods. In the second period, the market size is highly significant witnessing the "market" seeking nature of such investments. ULC is negatively significant but in the first period only whilst corruption shows a positive and significant result, in the third period, which is awkward yet it is possible that foreign investors find their way out of it in order to take advantage of other local conditions for their "market and efficiency seeking" investments. Coefficients with respect to other variables change signs and significance among time periods which is a clear indication of the changing economic structure of these countries during our time frame. In the

[21] Hartman (1972) and Abel (1983) considered risk neutral investors under constant returns to scale and perfectly competitive firms. Abel and Eberly (1994) showed that, even under asymmetric adjustment costs, optimal investment by a competitive firm continues to be a non-decreasing function of uncertainty.

imports equation, GDP per capita is highly significant and positive and so are socio-economic conditions.

Finally, for services, results are more clear-cut but the picture remains quite differentiated among the periods. In the first period it appears that both primary and secondary education act as pull factors. This shows a need for both basic knowledge but also medium skills and competences revealing a diversifying nature in tertiary investments. ULC turns out marginally significant and positive in the second period which might comply with the significance of secondary education as evidence of quite skilled workforce. It is noteworthy that the market size here not only is not significant but acts as a deterrent in the last sub-period. We may infer that services are primarily directed from the availability of medium skilled personnel rather than the size of the market as they can more easily that the other two sectors to be involved in exporting their activities (no transport costs for example). In the imports equation, both real GDP and GDP per capita are highly significant and taxation on international trade turns out to be negative and significant. This indicates that trade barriers overall have negative and significant effects.

Conclusions

Central and Eastern Europe constitutes a region in transition from a centrally planned to an open market economy that rapidly became an integrated member of the EU. As a consequence it is not surprising that the developments in the region have raised substantial interest from the part of foreign investors who detect viable and profitable opportunities in the area. At the same time policy makers require an understanding of this process in order to further boost the growth and the development potential of their national economies as well as the region's as a whole. The IDP calculated coefficient stemming out of Dunning's eclectic paradigm, suggests that these economies remained into the second stage of IDP for the nineties and have moved to the third stage in the late years of our sample period. The second stage of development is associated with the production/export of mature products to these economies.

From a policy perspective our paper sheds further light on the 'core-periphery' issue within an enlarged EU. Given that FDI in these economies almost tripled in the period after the announcement of EU enlargement it is possible to infer that there was a significant positive effect of EU enlargement. Despite our holistic approach to take into consideration industry effects in the examination of FDI-Imports complementary or substitutable relationship further examination of relationship within the region may be of concern to other countries' policy makers, both within the EU and those of other emerging economies. Especially within the

current agenda of further EU enlargement towards the East with the accession of Turkey and other Commonwealth member states (CIS) this topic becomes of crucial importance. A possible extension emerge on this basis. It would be interesting to explore the ways that this new reality in the CEEC region might affect the peripheral countries like Greece and Portugal.

In conclusion, in the above context, international trade and FDI are undoubtedly considered as driving forces behind economic integration and have been claimed to exert a considerable impact on economies especially as they can potentially enhance economic growth and development. Our analysis revisits the long standing argument on the FDI and Trade relationship in an effort to shed some new light on the issue as well as investors' behavior taking into consideration the transition process of the CEE region. Hence, we study the relationship within the context of structural changes as proposed by the IDP paradigm going, consequently, beyond existing analyses. In addition, this work is carried out in a sector-based framework where more accurate results may be obtained and safer implications may be outlaid.

In particular, the IDP model assumes, first, that development induces significant structural change to the economy and, second, that such change has a systematic relationship with the pattern of FDI. At the same time, Dunning et al. (2001) argue that for countries belonging to the first and second stages, FDI and trade are very likely to be in different sectors.

Indeed, our results indicate a differential pattern among the three sectors. The relationship appears to be complementary for manufacturing and services but substitutable for agriculture. In addition, these results highlight the dynamic structural change of the CEE economies during the period we are examining which is strongly manifested in the changing factors that attract FDI investors during different time periods.

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