

Investigating the growing attractiveness of the EU candidate countries of Central and Eastern Europe

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Abstract

In a globalized environment, where intense competitive pressures comprise the main feature, Central and Eastern Europe is emerging as a promising investment host offering inbound-location specific advantages. This paper develops a novel approach to the analysis of inward foreign investments in the area, combining elements from Vernon's Product Cycle Theory and Dunning's Investment Development Path. Following the main lines of these theories, a theoretical model is formulated and two main corollaries are posed according to which both market-oriented and export-oriented MNCs exploit the country specific advantages, i.e. cheap, however high skilled labor force and prospective markets. Based on this analysis, a complementary relationship between FDI and Exports is claimed to hold for the region. Finally, empirical tests are carried out which give support to our hypotheses.

Keywords: CEE, product cycle, investment development path, inward FDI, imports.

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1. Introduction

In a world characterized by an ongoing degree of globalization where accelerated technological progress, new production, organizational and management systems and a constantly growing role of competition comprise the main features, it is imperative for countries and enterprises to be internationally competitive in order to survive and grow.

The key challenge facing countries, in particular developing ones, is how to meet intense global competitive pressures while sustaining growth. At the same time, enterprises need to develop elaborated corporate systems in response to economic and technological forces.

It is in this global setting that Central and Eastern European (CEE) countries have emerged as an important locus for foreign investors. The issue is of particular significance as Foreign Direct Investment (FDI) is considered to be a vehicle through which new technologies and knowledge are transferred. These, in their turn, affect the production functions of firms and help boost the economy, contributing further to their transformation from centrally planned to open-market economies and consequently, to their meeting the pre-accession criteria required for their joining the EU-15.

It is interesting to mention that although global FDI inflows declined by more than 40% following the global economic slowdown, flows into this region grew by 2% in 2001, while its share of world inflows rose from 2% in 2000 to 3.7% in 2001 (World Investment Report, 2002). The above mentioned stylized facts indicate that CEE is considered a stable and promising location for FDI, strengthened by the fact that its overall economic growth has been affected less by the global economic slowdown than any other region.

Whilst the above hold for the region as a whole, the distribution of FDI is uneven among the countries due to their different transition progress. The vast majority of FDI has been received by the Czech Republic, Hungary and Poland, which are the first to begin liberalization and the largest among the region, although during the time span, Hungary, the Czech Republic and Estonia have had high inflows relative to GDP for some years, whereas Poland and Latvia have been experiencing growing inward investment only recently (Holland and Pain, 1998). On the contrary, Bulgaria and Romania receive much lower levels of FDI due to their relatively poor progress in meeting the economic conditions for their accession to the EU (Bevan *et al.*, 2001).

Major investors in the region are Western European countries, especially Germany and Austria, and the US. Austria has a special relationship with the region based on personal ties and links and this is clearly illustrated by the fact that of total Austrian new direct investment abroad, nearly 40% were allocated in CEE countries in 2000, a figure which rose to 80% in 2001 (Hunya, 2002). Germany too, has traditionally had close ties of culture, tradition and language, as well as tight economic integration with the countries of CEE (Holland and Pain, 1998). US investors are registered to hold a significant role in these states especially in Poland where more than 30% of capital is of American origin (Meyer, 1998).

The present paper focuses on the ten EU candidate countries of CEE and suggests a novel framework within which they emerge as attractive hosts for foreign investors. To date, investigation of the CEE region has still been scarce due to data limitations. The studies that have already been carried out are of limited time horizon for which no determinate conclusions could be drawn. We instead use an extended time span dataset including even the more recent years up to 2000, which enables us to explore the FDI motivations during the whole period of nineties.

Building on Vernon's Product Cycle (VPC) Theory and Dunning's Investment Development Path (IDP), the paper presents a theoretical approach with which the path of Multinational Corporations (MNCs) activities in the region can be explained, whilst at the same time it addresses the issue of the interrelationship between FDI and exports, i.e. complementarity vs. substitutability. Following the theoretical formulation, the econometric specification uses the three-stage least squares technique developed by Zellner and Theil (1962). This allows us to draw conclusions on both FDI and exports' driving forces as well as on the existing link between the two.

2. Relevant literature and empirical evidence

There is a similarity between the relevant literature on the transition economies and that on less developed countries (LDCs). Both lines of research distinguish the market-seeking and efficiency-seeking motives as the key features of investing abroad. Lecraw's (1991) analysis of GNP-normalized inflows in LDCs during 1974-86 concluded that investments oriented towards domestic markets are largely affected by the growth of domestic demand, whereas labor costs adjusted for quality seem to affect only the export-oriented investments. Caves (1996) reports that MNCs in these countries fall into two categories; either producing primarily for exports or catering the local market and states that they are mostly active in sectors that undertake labor-intensive stages of processing.

Moving to the countries under consideration, it is worth mentioning that these belong to a different economic process characterized by their transition from a centrally planned political system to a market-oriented one in the light of their accession to the EU.

Specifically, the analysis of the motives that drive foreign capital into the transition economies builds on the work of Lucas (1993) and Jun and Singh (1996), whose focus is on the business environment, trade integration, labor costs and the form of privatization process. Most authors seem to agree that, as in other developing economies, political and economic factors have a key role to play in attracting FDI across the region.

Cost factors are at the heart of the traditional trade theory where foreign investments are considered to be motivated by production cost differentials, which investors try to exploit in order to increase their profits by reducing their cost of production, notably, labor cost and capital cost. Dunning (1993,) too, in his typology for the natural resource seekers, mentions real labor costs as one motive, as manufacturing and service-sector MNCs use facilities “in countries with lower real labor costs” from their own home countries in order “to supply labour intensive intermediate or final products for exports”.

Wage differentials are obviously more relevant for the CEE countries since labor is regarded as having relatively high levels of skills and training compared to other developing economies, whilst, although unit labor costs have risen considerably, they are still far below West European, especially German levels. Labor costs have been found to exert a significant effect on foreign investments in the region, either when examining solely the wages (Holland and Pain, 1998) or even when taking labor productivity into consideration (Bevan and Estrin, 2000)¹. Nonetheless, it is argued that FDI into the CEE countries are not motivated exclusively by low labor costs but to a great extent, in relation to the market access motive (Meyer, 1998, Boeri/Brücker *et al.*, 2000). However, taking advantage of the wage differentials may be an

important factor for at least some tradable sectors, given the high labor intensity of FDI into the region (Weise *et al.*, 2001).

Large markets are considered a significant determinant of FDI both from the traditional trade theory and the new trade theories, as they reflect the potential of the countries to absorb production on the one hand and to capture scale economies on the other (Krugman, 1980, Culem, 1988, Amiti, 1998a).

In what regards the CEE markets, they are potentially attractive to many Western European investors, who search for new opportunities for expansion (Lankes and Venables, 1996). Consumers in CEE countries had no access to many consumer goods that were available to people at similar per capita incomes. For consumer durables and manufactures of fast-moving consumer goods, trade liberalization opened growth opportunities for firms whose established markets in the West were saturated (Meyer, 1998). Boeri/Brücker *et al.*, (2000), claim that quite often an important investment motive is to supply the markets of the FDI host country and to exploit the first-movers advantages in markets with no or limited competition. Market factors, and in particular, “capturing local market” and “to gain market share” were reported to be the primary motive for FDI in Pye’s investigation of major western investors in Central Europe, whilst Bevan and Estrin (2000), provide sound empirical support for the market size hypothesis, a hypothesis which is even further stressed in Meyer’s (1998) business survey.

The decision to engage in multinational activity into developing economies is directly linked to the risk of the environment under consideration and much more to its macroeconomic stability. Uncertainty with regards to macroeconomic conditions, for example, the interest rate, the inflation rate, the exchange rate, the government balance, the external debt stock or the end of year reserves, inhibits the undertaking of

FDI in these economies and drives investors to locations that are credit-worthy. Macroeconomic stability can be measured in a number of ways and each investor has a different perception of it, but in general, we would argue that the above mentioned measures may very well indicate how stable an economy is. Performing a principal components analysis, both studies of Holland and Pain (1998) and Bevan and Estrin (2000) for the periods 1992-1996 and 1994-1998 respectively, identify several factors, i.e. interest rates, industrial development, government balance, inflation and corruption among others, as determining the perceived country risk of their samples and exerting a significant effect on the region's inward FDI.

Geographical proximity to other markets is argued to affect inward FDI positively on the grounds of existing business linkages and knowledge of the markets (Brainard, 1997). In addition, within the *international production systems* of MNCs which seek to tap into global value chains and take advantage of the new markets and lower labor costs, producers of advanced economies may undertake production in developing countries positioned close to them, with the aim of exporting back goods to home and other markets.

Meyer (1998) and Ebbers and Todeva (1999), mention the increased attractiveness of Hungary, Czech Republic and Slovak Republic to Austrian and German investors, as well as the attractiveness of the Baltic states to the Nordic countries (also Boeri/Brücker *et al.*, 2000). The latter, i.e. Latvia, Lithuania and Estonia, are of particular interest because though geographically distant from most potential investors, they are psychologically much closer as their traditions, languages and institutions are linked to the Baltic basin, primarily Scandinavia (Bevan and Estrin, 2000).

In accordance with the above, exports have been tested in the literature in order to explore their role in creating linkages with CEE markets. 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). A direct test of the argument is carried out in Brenton, Di Mauro and Lücke, (1998), the gravity model of whom provides strong empirical evidence of a complementary relationship.

Within the framework of intense competitive forces arising from globalization, even labor-intensive activities do not any more search for unskilled workforce, but rather, processes require some technical and creative abilities, an argument consistent with new trade and new economic geography theories which consider skilled labor as an important agglomeration factor. As education levels rise from very low levels, this would initially be perceived as an improving location-advantage, hence would attract MNCs offering them a better environment for the use of their existing ownership-advantages (Papanastassiou and Pearce, 1991). From then onwards, the existence of high educational levels signals the ability of domestic labor force to support competitive and developed production procedures.

Finally, it has been proved that announcements regarding the EU accession progress of the countries under consideration have significant implications for the region's inward FDI (Bevan and Estrin, 2000).

3. Theoretical formulation

3.1 Description of IDP and VPC

In this section we depict our theoretical corollaries in regards to the FDI - Exports relationship in the EU candidate countries of CEE. Later on we will use these corollaries for the econometric specification of our model.

We build mainly on the grounds of two previously established theoretical works, the VPC Theory and Dunning's IDP. These two approaches offer a number of explanations for the relation of FDI and exports whilst they also describe their time pattern.

Let us consider the VPC first. The relation between FDI and exports is a function of two particular elements: the nature of the product and the development status of the country. Vernon distinguishes among three stages of product development: New product, Maturing product and, finally, Standardized product. During the first stage the product is produced in a single advanced country where "communication between the market and the executives directly concerned with the new product is swift and easy, and in which a wide variety of potential types of inputs that might be needed by the production unit are easily come by" (Vernon, 1966). This first stage is followed by the "maturing product" stage where a certain degree of standardization both in the production process and in the characteristics of the good takes place, whilst the need for flexibility declines. During this second stage some foreign production of the product begins. Finally the product enters the last stage of its "life" becoming fully standardized. It is at this particular stage that production can take place even in less developed economies, which can now offer competitive advantages in terms basically of cheap labor inputs and new markets for absorbing production. Another means of

expanding the market of the product is by exporting it first to similar developed countries and then to less developed ones.

VPC can be further enriched by the plausible assumption that for the foreign production of the product not only FDI is needed but also some kind of exports of goods that are used in the production function. These exports on the one hand can take the form of sophisticated inputs available only in the advanced home country, which produced the good in the first place and, on the other hand, they may consist of special services (management skills, technology) exported to the less advanced country that takes over production. Through this enrichment the VPC Model suggests that substitutability or complementarity of FDI and Exports is based on the product's nature, which determines the production function and the possible "special" inputs needed, as well as on the level of development of the host country or countries.

However, this is less than the full picture. There is still something missing and this is the dynamic aspect. Development process is not independent of inward FDI. Transfers of new technology and new ways of production enhance the growth and the development process of the host economy. This process is described in Dunning's IDP which is an application of the OLI (Ownership, Location, Internalization) Paradigm to explain the changing level and pattern of the MNCs' activity and its interaction with a country's investment path. This theory fills in the puzzle by posing the missing dynamic element into the theory of international production. IDP describes five stages of development² through which countries are distinguished by their propensity to be outward and/or inward investors. According to this, the transition CEE economies fall into the second stage of development, where domestic markets may have grown either in size or in purchasing power. This, in turn, induces undertaking of some local production by foreign investors as a viable and profitable

alternative. The L advantages of the potential host³ are decisive especially for export-oriented industries, which basically exploit natural resources and primary commodities, creating forward vertical structures in their production into labor-intensive low technology and light manufactures (Dunning and Narula, 1997, Venables, 1998).

A simple theoretical framework based on a Leontief production function enriched by these two aspects can provide plausible explanations about both the FDI and exports pattern and their interrelationship. Our main assumption is that a firm has mainly two ways of servicing a foreign market. Through producing at home and then exporting the product or through direct production in the host economy⁴. A firm can choose one of the two or use both ways simultaneously. Given the way of servicing a market, one can draw conclusions on the relationship of FDI and exports since these two means must cover the residual demand of a country for a particular product⁵.

3.2 Development of theory

Local demand and cost factors determine the way of servicing a foreign market. The firm seeks to minimize its cost function, which consists of three components: local production for domestic consumption, local production for foreign consumption and production abroad for foreign consumption⁶. More precisely:

$$C = c_D(Q_D)Q_D + c_E(Q_E)Q_E + c_F(Q_F)Q_F \quad (1)$$

Where C and c denote total and unit cost respectively and Q is the output produced. The subscripts D, E, F denote domestic production, exports and foreign production. The goal of the firm is to minimize the above function and, at the same time, satisfy total demand. This is the constraint facing the firm:

$$\bar{D} = D_d + D_f \quad (2)$$

Where \bar{D} is the total demand and D_d and D_f the domestic and foreign demand respectively. We then rewrite equation 2 as:

$$\bar{D} = D_d + D_f = Q_D + Q_E + Q_F \quad (2.1)$$

The problem solution will be given by the equalization of marginal costs for all types of production. Solving the system⁷ for Q_F and Q_E we have the following system of equations:

$$Q_E = \alpha_1 \bar{D} - \alpha_1 Q_F + \alpha_2 (c_D - c_E) \quad (3)$$

$$Q_F = \alpha_3 \bar{D} - \alpha_3 Q_E + \alpha_4 (c_D - c_F) \quad (4)$$

$$\bar{D} = Q_D + Q_E + Q_F \text{ by (2.1)}$$

Where $\alpha_1 = \frac{c'_D}{c'_E + c'_D}$, $\alpha_2 = \frac{1}{c'_E + c'_D}$, $\alpha_3 = \frac{c'_D}{c'_F + c'_D}$, $\alpha_4 = \frac{1}{c'_F + c'_D}$

Q_E and Q_F are simultaneously determined by (3) & (4).

This system specifies a substitutability relation between Q_E and Q_F because it treats the two ways of servicing the market as direct substitutes. The Q_E variable is the volume of exports, so the volume of exports is directly represented. On the other hand Q_F is the quantity of the product produced abroad. We therefore need to specify a production function which will determine FDI. Adding now the hypotheses of the two previously analyzed models, i.e. VPC and IDP, we can specify another relation between FDI and Exports, by adding another factor to the production function, which represents an intermediate good or a specific factor of production.

The production function of the Q_F can take a Leontief form:

$$Q_F = \min[L_F^\alpha K_F^\beta, R]$$

where R is a factor that may represent technology, managerial skills or even special, elaborated inputs of production in the form of intermediate goods which incorporate specific know-how and other intangible income-producing proprietary assets (Hirsch,

1976). This factor is directly related to the stage of IDP of this country. In countries that fall into the first stages of IDP this factor is very scarce, whilst in advanced countries this factor is easily come by. Moreover, this factor can be exported, adding to the model the complementary relation of FDI and Exports. Finally, the cost of exporting this product can also be a function of that process. Hence, we define:

$$R = k(CDS, tcs)$$

where CDS is the Country Development Stage and tcs is the trade cost⁸ of this specific factor.

We can now distinguish among the three production phases:

1. New Product

$$\frac{\partial Q}{\partial R} > 0, \quad \frac{\partial Q^2}{\partial^2 R} > 0$$

In this phase the production is extremely sensitive to the existence of the factor R , so that production occurs only domestically. In addition, costs of transporting R are very high due to the unspecified -yet- nature of R . Thus, there is no FDI and only exports of this product take place. So,

$$Q_E > 0, R_E = 0$$

where R_E denotes exports of the specific factor R).

2. Maturing Product

$$\frac{\partial Q}{\partial R} > 0, \quad \frac{\partial Q^2}{\partial^2 R} \leq 0$$

As a specific degree of standardization takes place, the need for flexibility declines while concern for about production costs arises. Transportation costs of R are lower. Moreover, this factor can be found in some amounts at least in host countries,

especially those that are in an advanced stage of development. The relation between FDI and Total Exports (Q_E and the exports of R) may be a complementary or a substitutable one. In advanced countries we would expect them to be substitutes

$$Q_E = 0, R_E = 0 \text{ or very low}$$

whilst between advanced and less advanced countries we would expect them to be complements

$$Q_E > 0, R_E > 0$$

3. Standardized Product

$$\frac{\partial Q}{\partial R} > 0$$

In this phase investors are primarily concerned with low-cost captive markets, whilst standardized product and process characteristics are put forth. Nonetheless, products still require a particular amount in order to be produced. Furthermore, transportation costs of R are even lower. The relationship between foreign production and exports of a final product will be substitutable, whilst the one between FDI and exports of the specific factor R will be complementary. Overall, however, FDI and Exports will be complements as R is a requisite for production and is not easily come by to less developed countries.

$$Q_E = 0, R_E > 0$$

3.3 Econometric Specification

Based on our theory specification, we formulate our system of equations as:

$$\begin{bmatrix} Y_1 \\ Y_2 \end{bmatrix} = \begin{bmatrix} X_1 & 0 \\ 0 & X_2 \end{bmatrix} \begin{bmatrix} \beta_1 \\ \beta_2 \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \end{bmatrix}$$

where Y_1 represents inward FDI, Y_2 stands for imports, X_1 and X_2 are a set of explanatory variables defined from our model, such as demand, cost and agglomeration factors.

We use Zellner and Theil (1962) 3SLS (Three-stage Least Squares) estimator to get consistent and efficient estimators of our system. 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 efficient⁹.

The estimated model is of the following form¹⁰:

$$FDI_{it} = \alpha_1 + \alpha_2 IMP_{it} + \alpha_3 GDP_{it} + \alpha_4 ULC_{it} + \alpha_5 RP_{it} + \alpha_6 WG_{it} + \alpha_7 SEC_{it} + \alpha_8 TERT_{it} + \alpha_9 CP_{it} + \alpha_{10} ENLRG_{it} + \varepsilon_{1it}$$

$$IMP_{it} = \beta_1 + \beta_2 FDI_{it} + \beta_3 GDP_{it} + \beta_4 GDPC_{it} + \beta_5 OPEN_{it} + \varepsilon_{2it}$$

where FDI_{it} and IMP_{it} stand for the inward FDI flows and imports to country i in year t respectively and comprise the dependent variables of our system and the independent variables are in accordance with our corollaries stated below, which emerge from the discussion in the previous section.

Corollary 1: According to IDP, the ten EU candidate countries fall into the second stage of their development when they receive increasing inflows of foreign investments and these inflows regard production of standardized products according to VPC.

Corollary 2: There is a complementary FDI – Exports relationship, as the production of standardized products in the region requires inputs from advanced origins.

3.4 Description of variables

In particular, the imports equation is basically standard, according to which imports are affected by the GDP of the importing country (GDP), GDP per capita (GDPC), the openness of the underlying economy (OPEN) and the level of foreign investments taking place in line with our theoretical analysis (FDI).

On the other hand, the FDI equation is a function of imports (IMP), the size of the market measured by the economy's GDP (GDP), labor costs as shown by wages (WG), the sophistication of the labor force as indicated by enrollments in secondary and tertiary ratios of the relevant population age (SEC and TERT respectively) and a risk factor (RP). The risk factor is accounted here as the difference between lending and deposit rates, thus, may stand for a risk premium of the economy on the grounds that a higher difference implies a non-credible and non-stable market. FDI also is assumed to differ in the Baltic region first due to their being far away from the rest of Europe and second because they receive flows from particular origins due to cultural factors. To account for cultural proximity of the Baltic States to the Nordic countries

we include a dummy variable, CP. FDI flows are also considered to be influenced by the reaffirmation of the Madrid European Council about EU's enlargement in 1995, thus, we incorporate a dummy variable from 1995 onwards, namely, ENLARG.

4. Empirical Evaluation

At a first stage, we estimate the model without the dummy variables, i.e. without controlling for the cultural proximity of the Baltic states with some countries and the impact of the enlargement reaffirmation in 1995. At later stages, we include the Baltic dummy, the enlargement dummy and both dummies at the same time respectively.

Insert Table 1 here

The results confirm our hypotheses about the relationship of FDI – Exports, providing a complementary and very significant sign, thus, justifies our simultaneous equations technique. Wages turn out to exert a great impact on FDI taking place in the region and an important effect, although less significant than wages, is attributed to the hypothesis of market size. Here, it is very important to comment on the entire model, which is completely in accordance with our corollaries in the above section. The secondary enrollment ratio, which stands for medium workforce capabilities and skills, provides a positive sign, though insignificant, whilst the tertiary enrollment ratio, representing high education and expertise appears to be negative. At the same time, in the imports equation, GDP per capita gives a very strong positive impact. GDP per capita may be perceived as having demand-side and supply-side influences and the way it affects imports may alter as it changes. On the one hand, taken as a measure of consumer taste, it indicates the appropriateness of foreign production for

host country markets, whilst on the supply-side GDP per capita ‘may well be related to the technological and managerial capability of the host country’ (Papanastassiou and Pearce, 1991). Rising GDP per capita is expected to affect imports positively on the grounds that consumers desire more advanced and qualitative products produced elsewhere in the world, which local industrial structures cannot support.

Combining these results, it is evident that FDI is directed to Central and Eastern Europe mainly to take advantage of the new markets producing goods already saturated in western markets, where they cannot sell anymore, exploiting the cheap cost of labor. However, although saturated in advanced countries, these goods need some intermediate products which require sophisticated labor and expertise and advanced techniques. These intermediate products are still produced in advanced economies and are then exported to CEE countries for the final stage of production in order to serve local and adjacent markets. Our results are consistent with the above even when we add the cultural proximity dummy to the model, which, nevertheless, doesn’t indicate any particular effect. A slight differentiation emerges when the announcement of the EU enlargement is included. The variable seems to have influenced to a great extent inward foreign investments in the region, which is actually expected. Reaffirming commitment to EU enlargement is really an indication that all applicant countries have been doing well in their development, hence, it is a reassurance for a stable and not risky any more environment. In addition, the perspective of being included in the EU acts as an ‘umbrella’ for the region offering it protection and prospects for the future. A plane look at the table with the descriptive statistics of the years prior to 1995 compared with the years afterwards, simply confirms this outcome (Appendix 1). Our SEC variable turns out to be significant now confirming that fact that medium workforce capabilities are mostly required for the

production of the particular goods. In this model, the OPEN variable is also affecting imports significantly, a normal outcome for our imports equation.

5. Concluding Remarks

Central and Eastern Europe has recently been a hot topic of discussion within both academic and political circles, just a step before their joining European Union. The developments in the region have, not surprisingly, raised interest from the part of foreign investors who now detect viable and profitable opportunities.

This paper develops a novel approach to the analysis of inward foreign investments in the region, combining elements from Vernon's Product Cycle Theory and Dunning's Investment Development Path. Following the main lines of these theories, we build a theoretical model based on a Leontief production function in which we specify the region's development stage and the type of foreign activity attracted and, consequently, the relationship between Inward FDI and Imports.

In particular, we argue that local production by MNCs regards standardized, saturated in advanced economies products in their final stage of production. Nonetheless, the production function requires specific inputs imported by home countries, either in the form of intermediate goods or in the form of expertise and know-how, which, in turn, provides a complementary inward FDI-Imports relationship. This holds true not only for market-oriented, but also for export-oriented activities with the only difference that the first seek to exploit new markets primarily, whilst the latter take advantage of lower labor costs, exporting final goods either to advanced or less developed countries (or both).

Notes

¹ See also Lansbury *et al.* (1996a, b), Meyer, (1998, 2001) and Hardy (1994).

² IDP, in its original form, distinguishes among four stages of economic development.

³ The L specific characteristics of a country (L standing for location) refer to location-bound capabilities and resources of a host, such as transportation, skilled and unskilled labor and communication facilities. L is one of the three elements of Dunning's OLI Paradigm.

⁴ There are some other ways of servicing the foreign market, like franchising, licensing etc. but are beyond the scope of the present analysis.

⁵ As residual demand we mean the difference between domestic consumption and production by domestic producers.

⁶ FDI may be undertaken for export purposes as well. However, we make this assumption here for simplicity reasons.

⁷ We must form the Lagrange function and take the first order conditions with respect to Q_E , Q_F and Q_D . This will give us a system of equations that implies the equalisation of marginal costs of production.

⁸ We define trade cost as representing transport and communication costs.

⁹ See Schmidt (1976) for a detailed analysis of the 3SLS efficiency relative to 2SLS.

¹⁰ Collinearity diagnostics of the model are found in Appendix 2.

Table 1. Econometric Results of various models tested

	(1)	(2)	(3)	(4)
FDI				
IMP	0.0818*** (4.43)	0.0864*** (4.56)	0.0713*** (3.57)	0.0807*** (4.08)
GDP	0.0108* (1.86)	0.0104* (1.82)	0.0128** (2.14)	0.0118** (2.04)
RP	-1.0667 (-0.23)	-1.2417 (-0.27)	-0.2908 (-0.06)	-0.4696 (-0.09)
WG	-0.1747*** (-2.67)	-0.1484* (-2.04)	-0.1577** (-2.46)	-0.1139 (-1.53)
SEC	35.8909 (1.52)	27.4437 (1.1)	38.6341* (1.7)	21.5837 (0.85)
TERT	-5.2980 (-0.26)	-4.2012 (-0.21)	-26.2327 (-1.06)	-23.3407 (-0.98)
CP		377.7651 (0.73)		605.1908 (1.11)
ENLARG			957.1861** (2.18)	942.2606** (2.25)
C	-2691.7890 (-1.56)	-2376.2620 (-1.4)	-2931.3610* (-1.81)	
Obs	83	83	83	83
R-sqr	0.77	0.77	0.79	0.79
Chi-sqr	285.72***	295.75***	309.3***	327.6***
IMP				
FDI	5.7015*** (2.87)	5.4957** (3.01)	4.6823*** (3.81)	4.6789*** (4.18)
GDP	0.0923 (1.28)	0.1001 (1.5)	0.1294 (2.82)	0.1301*** (3.09)
GDPC	2.2027*** (4.64)	2.2334** (4.92)	2.3457*** (6.11)	2.3406*** (6.29)
OPEN	169.0603 (1.53)	192.6480 (1.7)	209.4219* (1.91)	233.3387** (2.11)
C	-13368.7000* (-1.87)	-14812.7700 (-2.04)	-16505.8800** (-2.45)	-17711.6400*** (-2.62)
Obs	83	83	83	83
R-sqr	0.87	0.88	0.89	0.89
Chi-sqr	569.1***	599.24***	722.14***	746.19***

t-statistics in parentheses

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

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APPENDIX 1. Descriptive statistics

Table 1. Statistics for the full sample.

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI	90	2498.922	3457.252	108.0104	15510.46
IMP	90	31744.61	28768.34	3700.152	121146
GDP	90	72009.17	78268.19	5807.566	326210.4
RP	83	15.05301	31.10814	-0.300	269
WG	90	6552.117	3146.118	1999.856	14547.2
SEC	90	88.85624	10.08356	66	110.8861
TERT	90	28.62424	9.56181	11.8	59.8304
GDPC	90	6960.967	3126.858	3209.93	12981.74
OPEN	90	50.06686	8.450781	40.41967	78.37455

Table 2. Statistics for sub-samples

ENLARG = 0					
Variable	Obs	Mean	Std.Dev.	Min	Max
FDI	30	1245.824	1537.079	108.0104	5395.574
IMP	30	25592.51	19158.51	3700.152	64853.44
GDP	30	64997.75	66375.14	5807.566	236678.1
RP	25	20.556	20.15135	5	77.9
WG	30	6022.907	2732.406	2500.225	12335.86
SEC	30	84.46667	6.7555	68	96
TERT	30	22.4203	6.052101	11.8	34.3
GDPC	30	6467.012	2767.765	3209.93	11693.44
OPEN	30	50.2622	7.384636	41.93354	76.3015
ENLARG = 1					
Variable	Obs	Mean	Std.Dev.	Min	Max
FDI	60	3125.47	3958.692	181.5	15510.46
IMP	60	34820.66	32235.98	4092.57	121146
GDP	60	75514.88	83891.53	6057.292	326210.4
RP	58	12.68103	34.67228	-0.300	269
WG	60	6816.721	3323.794	1999.856	14547.2
SEC	60	91.05102	10.78198	66	110.8861
TERT	60	31.72622	9.516176	14	59.8304
GDPC	60	7207.944	3285.922	3319.965	12981.74
OPEN	60	49.9692	8.994186	40.41967	78.37455

APPENDIX 2. Collinearity Diagnostics

Variable	VIF	VIF^2	Tolerance	Eigenvalue	Condition Index	R-Square
GDP	1.55	1.25	0.6433	2.8298	1.0000	0.3567
GDPC	6.39	2.53	0.1566	1.3616	1.4416	0.8434
OPEN	1.70	1.30	0.5899	1.0763	1.6215	0.4101
RP	1.25	1.12	0.7986	0.7892	1.8936	0.2014
WG	5.72	2.39	0.1749	0.6157	2.1439	0.8251
SEC	2.27	1.51	0.4400	0.2460	3.3916	0.5600
TERT	2.38	1.54	0.4201	0.0814	5.8958	0.5799
Mean VIF	3.04			CI	5.8958	