The Determinants and Impact of Foreign Direct Investment in Central and Eastern Europe:

A comparison of survey and econometric evidence.

by

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Abstract

This paper considers the evidence that has been collected on the determinants and effects of FDI in Central and Eastern Europe, with a strong focus on Hungary, Poland and the Czech Republic. There are two main sources from which we draw information: survey studies and econometric studies. We consider how each of these can contribute to the field of research, whether they give us complementary or contradictory information, and how this information can best be exploited. We conclude that the findings of econometric studies tend to support survey results. This suggests that market seeking has been the primary motive of investors, and that the presence of foreign firms has increased productivity levels in Central Europe, but only to a limited degree.

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I. Introduction

Since the outset of economic transition in Central and Eastern Europe, there have been widespread expectations that foreign direct investment (FDI) would play an important role in the process of convergence. FDI differs from other forms of international capital movement in the manner and duration of the commitment it involves. Its purpose is to establish permanent commercial relations, and at the same time to exert a noticeable managerial influence over a foreign company (IMF, 1993). Portfolio investment, on the other hand, is drawn towards short-term profit opportunities. The long-term nature of FDI motivates investors to take an active part in the decision making process, and often necessitates basic changes in the targeted firm's structure and strategy.

A major problem faced by the transitional economies was the level of knowledge of new technology. They displayed 'idea' and 'object' gaps (Romer, 1993), which the transition process clearly needed to bridge. This problem can be addressed in a number of ways, such as through education or by importing the missing technology. In addition, the inflow of FDI is widely thought to be an important channel for the diffusion of new ideas, technologies and business skills across national borders. Many 'ideas' are an inherent feature of the technology introduced by foreign firms, and reflect 'ways of doing' that are unique to the firm. Other ideas are more appropriable, but may be kept under the control of their proprietor by licensing. In both cases, direct involvement of the possessor of knowledge enables the flow of information to take place. Inflows of FDI can improve the prospects for growth both by introducing more productive technology and techniques and by increasing the total level of capital investment in the economy. In addition, FDI in tradable sectors helps to integrate a country into the world economy, as nearly two-thirds of global trade is conducted by or with multinational firms.

Prior to the recent transition in the Central and East European countries (CEECs), strict limitations were imposed on access to foreign technology. This suggests that lifting the barriers to foreign capital, combined with an expansion in trade linkages with the major industrialised economies, would create the potential for rapid increases in productivity and introduce necessary reforms to market structures. FDI may, therefore, be of particular importance in the transformation of the formerly centrally planned economies. It can also act as a supplement to domestic savings, as low levels of savings combined with credit rationing and financial market failures are likely to keep investment levels sub-optimal.

If FDI does contribute to the process of transition, it is important to understand what drives the investment decisions. This paper considers the evidence that has been collected on the determinants and effects of FDI in the CEECs, with a strong focus on Hungary, Poland and the Czech Republic. It is a collaborative study, which builds on the work of four research teams. There are two main sources from which we draw information: survey studies and econometric studies. We consider how each of these can contribute to the field of research, whether they give us complementary or contradictory information, and how this information can best be exploited.

The paper is organised as follows: in Section II we examine the theoretical foundations for the analysis of FDI, and evidence from studies in other regions; the following section outlines the available sources of information regarding multinational activity in CEECs; sections IV and V examine the available evidence regarding the determinants and the effects of FDI, respectively; and the final section concludes.

II. Theoretical foundations and evidence from other regions

The analysis of FDI in transitional economies relies upon a variety of theoretical foundations. Multinationals view FDI primarily as a tool to help them improve their competitiveness and as a way of gaining market access. In conventional models, the existence of multinational enterprises is explained by a combination of industrial organisation motives and comparative advantage reasons (Krugman, 1995). In addition, economies of scale are increasingly found at the level of the firm, encouraging FDI to expand over time. Intangible assets, such as knowledge, patents and business practices drive these firm-level scale economies. As such, 'horizontal' (intra-industry) enterprises are becoming increasingly important. Multi-plant firms save on transport costs, and in a world of many countries this encourages the establishment of multinational enterprises (Barrell and Pain, 1997a).

The comparative advantage framework, based on the Hecksher-Ohlin model, developed from the view that location patterns are pre-determined by natural endowments of raw materials and labour, relative prices and transport costs. This suggests that costs in the host country relative to those elsewhere are potentially a major factor in the location decision, particularly for firms seeking to produce labour intensive products for export or compete with imports. In addition to wage costs, labour productivity is important, as this determines the actual cost of producing one unit of output.

Riker and Brainard (1997) found that cross-wage elasticities of labour demand are positive across regions with similar skills, indicating that workforces compete with areas of the same skill makeup. However, they found negative cross-wage elasticities across regions with different skill levels, indicating that activities in different regions are complementary. Workforce skills help determine comparative advantage patterns, and so can influence foreign investors.

Kindleberger (1969) argued that in order for direct investment to exist, there must also be market imperfections or government intervention. Otherwise, individual economies would produce only those goods and services for which they had a comparative advantage, and other goods would be provided through trade. Trade and FDI can be either substitutes or complements, and consequently barriers to trade can have two conflicting influences on FDI. Trade barriers are thought to encourage FDI, by increasing the costs associated with serving a market through exports. This is the fundamental argument behind the location theory of FDI, and is particularly important for investments aimed at serving the host country market, where trade and foreign investment are substitutes. On the other hand, multinationals tend to conduct a high level of trade between parent and affiliate firms. Barriers to trade are likely to deter investors who are dependent on inter-firm trade or where output is export oriented. A number of studies have suggested that investment and growth in developing economies are positively associated with indicators of 'openness' (Balasubramanyam *et al*, 1996). Such findings may suggest that investors prefer countries with relatively liberal trade regimes and few constraints on profit repatriation, possibly within regions with wider supra-national free trade arrangements.

Market imperfections include product differentiation, patents and other limitations on access to technology, trade barriers such as import tariffs and quotas, as well as internal and external economies of scale. Strategic motives for investment are strongly tied to market imperfections. First-mover advantages are gained when a degree of market power is awarded to the earliest investors in the market for a particular good. Ownership of intangible and non-transferable assets introduces incomplete contract and moral hazard issues, which increase licensing costs and encourage FDI. Specialisation due to product

differentiation and economies of scale offers an advantage to placing certain activities under common ownership.

Exchange rate fluctuations may also create incentives for foreign direct investment, as multinationals stabilize profits by spreading exchange rate risk across countries (Rugman, 1979). The location of investments may also be influenced by risk perceptions. Slemrod (1990) found that perceived risk plays an important role in determining FDI in Mexico. The prospects for political and macroeconomic stability together with the transparency of the legal regulations governing factors such as foreign ownership of land and profit repatriation all matter to potential investors (Jun and Singh, 1996), and the risks must be compensated for by higher expected gains.

Large markets and rapidly growing markets can both attract FDI. Although this is generally not built into a formal theoretical model, a variable representing the size of the host country appears in a large number of empirical papers. The intuitive understanding of the market size hypothesis is relatively straightforward. A larger economy affords more opportunities to foreign investors, as there are physically more firms in which to invest. The motive for investment can stem from a combination of economies of scale, whereby unit costs are decreasing in output, and trade barriers, which imply that it is more costly to distribute goods within a region of several small countries than in a single large country of equivalent size.

Markusen (1990) demonstrated that a firm's early decision to invest in a region could promote specialized services, reinforcing the area's attractiveness for other investors. It also acts as a signal of macro-economic stability and reform. Once a critical mass of investment is reached, inflows of FDI are expected to accelerate substantially.

Most West European countries offer incentives to foreign investors, in the form of preferential tax rates, tax holidays, special depreciation schemes, social security relief, special tax deductible items and exemptions from tariff payments. These are all intended to encourage FDI, although the empirical evidence for such an impact has been limited. The existence of incentives can be justified by the externalities that accompany FDI. As Bellak (1998) concluded from the Austrian evidence, there are no alternatives to FDI. FDI is not primarily a capital flow but a flow of managerial, technological and organizational know-how. FDI also brings the culture of advanced markets, market institutions, access to information and participation in the MNCs' networks.

All of the above factors must be taken into account when investigating the determinants of FDI in CEECs. There are several hypotheses to consider. We will want to consider the comparative advantage influences on foreign investment:

- Do unit labour costs relative to the investor country and relative to other potential host countries affect investment decisions?
- Is the sectoral distribution of investment determined by the sectoral structure of the host country?
- Are there differences in the behaviour of export oriented and domestic market oriented investors?
- Do barriers to trade, such as anti-dumping regulations and customs duties, promote or deter foreign investment?
- Does a skilled labour force relative to other potential host countries attract investment?

- Are investments primarily labour intensive, suggesting low cost labour is the main appeal?

We will also want to consider industrial organization motives:

- Is there evidence that foreign investment is affected by the degree of economies of scale?
- Is there evidence that those sectors dominated by brand names, or other intangible assets, attract higher levels of FDI?

The theoretical foundations and evidence from other regions can offer little insight into the impact of certain factors specific to the transition process on flows of FDI. Taken from the behavioural and institutional point of view, CEECs are very different from both developing countries and industrially advanced countries. The speed with which market oriented policies and legal reform conducive to foreign firms were introduced may have an important role to play. The privatisation process should also be taken into account. It acts as a strong signal of the commitment of the government to private ownership. The one-off opportunities offered by the transfer of state monopolies into the private sector give a strong incentive for strategic investments. First-mover advantages are intrinsic in the privatisation of a monopoly, as the new owner is likely to gain a degree of market power even if the monopoly is divided

Certain factors will affect which countries (i) receive higher levels of investment, while other will affect which sectors (j) receive higher levels of investment. For example, political stability may influence the distribution of investment across countries, while the degree of economies of scale associated with production processes may make firms in certain sectors more prone to FDI than others. All these factors can be encompassed in the equation:

$$FDI_{ij} = f(RULCI_{ij}, RULCO_{ij}, VA_{ij}, SKILL_{ij}, BAR_{ij}, REGION_i, RISK_i, AGG_{ij}, PRIV_{ij}, SCALE_j, INTAN_j, INTEN_{ij}, INCEN_i)$$

- **RULCI** is labour costs in the host country relative to the investor country, while **RULCO** is labour costs in the host country relative to other potential host countries. Firms will be attracted to locations where labour costs in their sector of activity are low relative to producing elsewhere.
- **VA** is value added. Country wide GDP can capture market size effects, while gross product by sector is a measure of the demand for goods produced within a certain industry. VA or population size can be used to normalize variables that incorporate size.
- **SKILL** measures the skill level of the workforce. This can be represented by the average years of schooling, the results of test scores such as the TIMSS[1], the ratio of white collar to blue collar workers within a given industry, or the number of technical workers employed in a given field.
- **BAR** is trade barriers. A general proxy for this could be the ratio of total trade to GDP, perhaps adding a correction for the fact that smaller countries tend to conduct relatively higher levels of trade. A detailed proxy would identify the degree to which each sector is affected by various tariffs.

[1] The Third International Mathematics and Science Study, which assessed the mathematics and science performance of students around the world.

- **REGION** represents a range of potential variables reflecting the transaction costs or positive externalities of the country: membership of a free-trade area, proximity to a large market such as the EU, or existing trade linkages. Proximity to the investor country will reduce transport costs, and may give the advantage of cultural proximity and special knowledge of the host country.

- **RISK** is a measure of countrywide risk and its exposure to an institutional failure.

- **AGG** represents agglomeration affects, proxied by the lagged stock of FDI. This can be on either a country-wide or sector specific basis, depending on whether the determining factor is thought to be the existence of competing firms within the same sector or the existence of upstream and downstream linkages

- **PRIV** is a measure of private ownership. On a countrywide level, this can indicate the commitment of the government to private ownership, while the method of privatization is an indication of openness to foreign investors. At a sectoral level, this indicates the share of firms that can potentially be acquired by foreign owners.

- **SCALE** is an indication of the degree of economies of scale associated with a given industry. It can be proxied by the share of output produced by the three largest firms in that industry.

- **INTAN** captures the extent to which intangible assets are important within a given industry. It includes such conditions as human capital, networks, infrastructure and linkages to services serving the industry.

- **INTEN** is capital intensity of production. If K/L ratios differ across countries, there may be scope for introducing labour saving techniques.

- **INCEN** represents special incentives offered by the government to foreign investors, such as the option of setting up a Customs Free Zone in Hungary.

Much of the literature on FDI focuses on the potential impact of foreign investment on growth prospects. Inflows of foreign investment can modernise and expand the stock of physical and human capital in the economy, helping to fill what Romer (1993) termed 'object gaps'. This is particularly important where domestic resources are insufficient to cover the investment required by the economy. It increases the productive capacity of the economy and can influence employment levels. By bringing access to foreign technology and management techniques, and by making available products and processes that embody foreign knowledge, FDI also helps to close 'idea gaps'. This can improve efficiency of production and raise the average productivity level of the entire economy. As domestic firms adopt the new production processes, the productivity advancements introduced by foreign firms will spillover into the domestic economy and productivity levels should increase more quickly.

FDI can also have an impact on growth levels through trade. Many new theories of economic growth emphasise the importance of international linkages in determining the productivity performance of individual economies. Imports of new technology are thought to affect productivity levels in the same way as FDI. Foreign affiliates tend to engage in at least limited trade with parent companies, which can act as a boost to the total trade of the host economy, and help to integrate the host economies into world markets. However the net impact of this trade on the current account is uncertain.

In terms of a simple growth model, there are two routes through which FDI can influence output. The total productive capacity of an economy can be represented by a production function such as:

$$Q = f(A,K(FDI),L,H(FDI))$$

where L is labour, K is physical capital, H is the stock of human capital, and A captures all other indicators of the level of technology. The stocks of human and physical capital are both dependent on the level of FDI. Human capital interacts with physical capital and labour to determine the productive capacity of the economy. Labour augmenting technical progress will reduce the amount of labour required to produce a given level of output, given the size of the capital stock. Similarly, capital augmenting technical progress reduces the amount of capital required to produce a given level of output, given the number of employees. Human capital can also have a neutral impact on output through A, which will not affect the relationship between capital and labour. If we impose a CES production function and assume that the marginal product of labour is equal to its mark-up real price, this can be expressed as:

$$\beta(W/P) = \delta Q/\delta L = \nu(Ae^{\eta H(FDI)})^{-\rho/\nu}(1-s)Q^{(1+\rho/\nu)}(Le^{\lambda H(FDI)})^{-(1+\rho)}e^{\lambda H(FDI)}$$

where β is the mark-up of the marginal product over the real wage, W/P, ν denotes returns to scale, s is a production function scale parameter and the elasticity of substitution (σ) is given by $1/(1+\rho)$. The functional form allows us to estimate the impact of FDI on productivity without a measure of the capital stock. This is very useful, as there is a lack of accurate time series data on the size of the effective capital stock, the user cost of capital and the depreciation rate in transition economies. H can be defined as:

$$H = \delta_1 Time + \delta_2 ln(FDI) + \delta_3 ln(R\&D^{host})$$

This allows the stock of human capital to increase over time due to factors exogenous to the model, and to increase with the stock of FDI and the level of R&D performed by the host country. Assuming constant returns to scale, this reduces to:

$$ln(L/Q) = constant + (\sigma-1)(\eta_1+\lambda_1)Time + (\sigma-1)(\eta_2+\lambda_2)FDI + (\sigma-1)(\eta_3+\lambda_3)R\&D^{host} - \sigma ln(W/P)$$

A single equation of this type will not allow us to distinguish between neutral and labour augmenting technical progress, or to test for capital augmenting technical progress. It will also not allow us to analyse the short-run impacts of such technological advancements on employment. Development studies have shown that in certain sectors foreign investors have squeezed out domestic producers by introducing more efficient technology (Leamer, 1994; Jenkins, 1990). The introduction of labour-saving techniques may not even be desirable in a country with a large supply of labour and little capital. Egger and Pfaffermayr (1999) showed that technological improvements associated with FDI in Austria have been primarily labour augmenting, and therefore suggest that the job creation potential of FDI may be less than generally assumed. Government policy can attempt to increase the benefits accrued by requiring a certain level of inputs to be purchased from host country firms. However, if this condition deters investment the net impact on the economy is ambiguous.

Borensztein *et al* (1998) found that FDI is an outstanding instrument of technology transfer from industrialized states to developing nations, and makes a marked contribution to economic growth, particularly in countries with relatively high levels of human capital. The study also found that FDI has a multiplier impact on total capital accumulation.

Barrell and Pain (1997b) reported evidence of productivity improvements in the UK and Germany due to inflows of FDI. But other studies have been less positive. Lichtenberg and van Pottelsberghe de la Potterie (1996) did not find evidence of technology transfer from inward FDI in industrialized countries, whereas Saltz (1992) found that there is a significant negative correlation between the stock of FDI and economic growth in developing countries.

The transition economies can learn from the experience of both industrialized and less developed countries. The technological level of the capital stock is similar to many of the more advanced developing economies. However, the skill level of the economy, measured as the number of years of schooling of the average worker, is relatively high compared to both developing and technologically advanced economies. Several studies have indicated that the educational attainment of the labour force may influence a country's ability to absorb new technologies. This should place the CEECs at a relative advantage in terms of the potential for productivity improvements through FDI.

III. Available sources of information

There are three main sources of information that address the question of FDI in Central Europe. The first is aggregate data collected by national statistics offices and international sources such as the IMF. The second is firm level sample data collected by official sources. And the third is the responses to detailed sample survey questionnaires of foreign companies operating in the region.

i. Surveys

There has been a wide range of survey-based studies of FDI in individual countries, as well as some cross-country studies. In general, surveys can provide us with more detailed information than aggregate statistics, as they report the results of in-depth interviews with firm managers. Aggregate data presents only the end result, without any qualitative comment on how the end was reached. Surveys can provide us with a range of descriptive statistics, such as: the main function of an investment (i.e. to serve the domestic market, host market or other markets); the sector of investment; whether the investment decision involved the relocation of production or foregone investment in the West; whether it is greenfield investment or an acquisition; whether the investment was motivated by strategic interests; the importance of intangible assets to the success of the firm. Aggregate statistics are better able to determine such things as: the distribution of investment across regions and sectors; the contribution of foreign investment to national income; the share of employment supported by foreign investors.

The interpretation of survey studies must be approached with caution. A degree of subjectivity is normally involved in survey questions, and these value judgements ought to be viewed with some scepticism. A degree of selectivity bias should be expected in the results if the targeted population of respondents is managers of firms with foreign investments in Central Europe. By definition these managers were not deterred from investing by influences such as cost and risk. In general, survey respondents who already had an investment in a country rated its risk substantially lower than those that did not (Lankes and Venables, 1997). The quantitative importance of factors also matters, and this is something that can be further examined by econometric evidence, which can help to establish causal relationships.

ii. Empirical work

Empirical analysis of FDI tends to rely on aggregate data due to the biases that are likely to arise when working with sample survey results. Considerable care is also needed in the

interpretation of these studies. Due to the short time period since the first significant inflows of FDI into the transitional economies, sample size of data sets tends to be very small. There is a wide literature on the likelihood of misleading results when working with few degrees of freedom. A single outlier can have a disproportionate impact on the mean estimate. Outliers are also likely to distort the apparent relationship if data sets are severely skewed or heteroskedastic. Statistical techniques such as Least Trimmed Squares (Benacek and Visek, 1999c) can help to minimize this bias. Procedures to assess the influence of individual panel members, such as countries or industries, are also available (Holland and Pain, 1998b).

As with survey studies, causal inference derived from econometric studies should also be approached with care. Statistical analysis of a data set can lead us to reject a given hypothesis with a degree of certainty. However, it cannot provide definitive evidence in favour of a particular alternative hypothesis. Several alternative scenarios may appear to explain the data. A simple regression equation will indicate the share of total variation in the dependent variable that is captured by the regressors. In order for this to represent a causal relationship, the explanatory variables must do more than covary with the dependent variable. We also have to eliminate the possibility of reverse causality, by showing that the determinant precedes the dependent variable in time. It is also essential to consider whether the relationship is spurious. For example, if both the dependent and explanatory variables are trended over time, they may appear to have a dependent relationship with each other when in fact they do not.

In principle, tests are available to discriminate between different models and to guard against spurious regressions. However, not all can be applied easily when using panel data. This is especially true when the time span is limited. Given all of these reservations, the most credible conclusions can be drawn where both the survey studies and the econometric studies point to the same outcome.

IV. Evidence on the determinants of FDI

The results of the earliest studies on foreign direct investment were collected in EBRD (1994). These surveys tended to suggest that national and regional market access was the primary factor that influenced potential investors, citing first mover advantage and market potential as the dominant factors. Factor cost advantages were not considered an important motive for locating in Central Europe by most investors. This suggests that multinationals did not initially view low labour costs as a sufficient reason for relocating investment to the region. Uncertainty, risk and bureaucracy were all considered a significant obstacle to investment in transition economies, but little weight was given to tax incentives. In general, these early results have been confirmed in more recent studies. Market access is considered the most important factor in the investment decision, with factor costs playing a lesser, although in many cases still significant, role. The results of a collection of recent studies are presented in Table 2.

Market size and growth

Pye (1998) considered a sample survey of investment from the major European and North American countries into the Czech Republic, Hungary, Poland, Romania and Slovakia between 1989 and 1996 (334 firms). The results showed that the primary motive in 34 per cent of the sample is size of market, growth potential and maintaining market share. Strategic motives, which include serving regional and EU markets, were listed second. Lankes and Venables (1997), in a survey of 117 West European firms operating, formerly

operating, or planning to operate in one of 16 EBRD countries, found that market size is the most important determinant for market oriented investors, except in Hungary and the Czech Republic, where political and economic stability dominated.

INDICATOR (1995) found that Poland's attractiveness lies in the size and homogeneity of its market, as well as its high growth level. They have also shown that personal incomes in Poland, Hungary and the Czech Republic, which are the highest in the region, have encouraged investment flows into these countries.

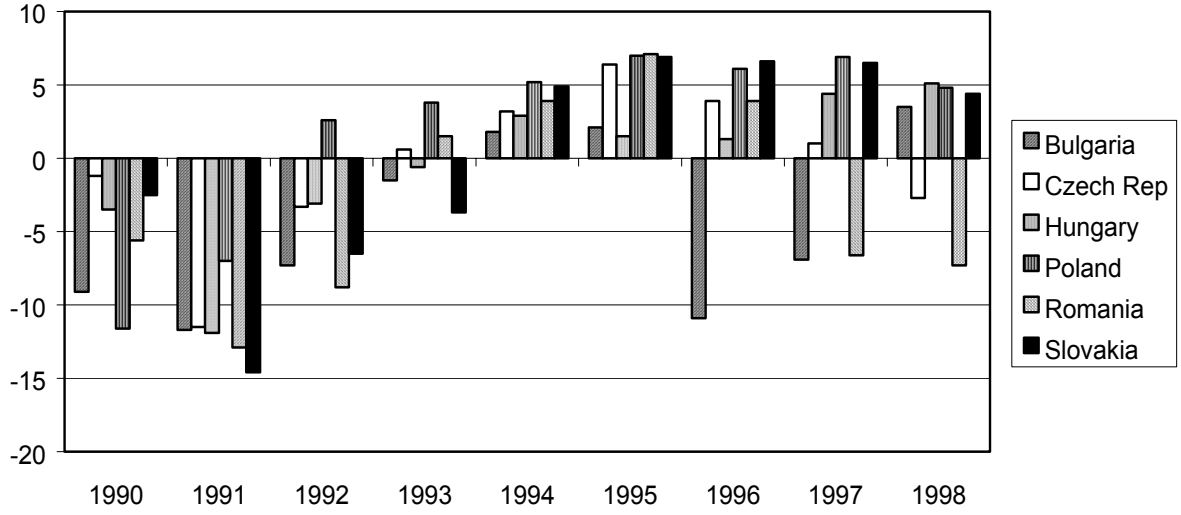
Meyer (1996), which covers 267 British and German companies investing in Hungary, likewise found that the purchasing power of consumers is important to the investment decision for market oriented investors. The most important factor for market oriented investors is found to be the size of the market in terms of population. Factor price oriented investments also find access to local markets to be important, although to a somewhat lesser extent, as would be expected.

Altzinger (1999), in a survey of 150 Austrian firms investing in CEECs, found that market potential is the most important factor for investors. It is especially important for investors in finance and insurance, construction and food and beverages. Savary (1997) showed that the majority of the 22 French industrial firms surveyed find investment opportunities in CEECs more attractive than in Southern Europe from the point of view of market size. In Poland market size was the most important motive for investment. However, in other countries of the region, market size was found to be slightly less important than factor costs.

Konings and Janssens (1996) found expansion prospects to be an important factor in the location decision in Hungary. Market exploration or testing was chosen as the most important factor by 43 per cent of the survey respondents. Elteto and Sass (1998), analyzing the response of 125 joint ventures in Hungary, found that growth prospects and gaining market share are the most important factors to non-exporters in Hungary.

Any econometric analysis of the market size hypothesis must be undertaken with care. The first inflows of FDI coincided with the transitional recession (see Figure 1).

Figure 1. Annual Growth Rates of GDP, 1990-1998



Source: EBRD

Table 3. Primary, Secondary and Other Determinants of Foreign Direct Investment

	Market Size and Growth	Factor Costs	Trade/ Barriers	Stability and Risk	Strategic/ Transition Specific	Other
SURVEYS						
INDICATOR (1995) **Hosts**: Poland **Investors**: Any **Sample**: Results of 2 separate surveys in 1993 and 1995.	Primary in 1993: Growth. Secondary: Size	Primary in 1995: Labour costs	Other: Export quotas and high customs rates deterred investment.	Other: Lack of competition deterred investment.		
Konings/Janssens (1996) **Hosts**: Hungary **Investors**: Belgium	Primary: Market exploration.	Other: Low labour costs.			Secondary: Achieving a strategic position	
Lankes/Venables (1997) **Hosts**: 16 countries in CEE and CIS **Investors**: Any **Sample**: 117 firms and 145 affiliates	Primary for market oriented investors: Local market size, except in Hungary and the Czech Rep.	Primary for export oriented investors: Cheap skilled labour.	Other in Czech Rep. and Hungary: Proximity. Other: Trade barriers deterred investment Not significant: Access to EU/EFTA.	Primary in Czech Rep. and Hungary: Political and economic stability. Other: Progress in transition.	Other: One-off opportunities.	Secondary: Agglomeration
Savary (1997) **Hosts**: CEE **Investors**: France **Sample**: 22	Primary in Poland: Market size.	Primary: Factor costs, except in Poland and Hungary.			Secondary: Privatization process	Primary in Hungary: Technology base Other: Labour skills attracted investment. Poor technology base deterred investment, except in Hungary.
Pomery (1997) **Hosts**: Czech Rep **Investors**: Any, in Manufacturing **Sample**: 163			Secondary: Customs regulations and bureaucracy deterred investment	Secondary: Legal environment deterred investment.		

Table 3. (continued)

	Market Size and Growth	Factor Costs	Trade/ Barriers	Stability and Risk	Strategic/ Transition Specific	Other
Elteto/Sass (1998) **Hosts**: Hungary **Investors**: Any **Sample**: 125 joint ventures	Primary for non-exporters: Growth prospects and market share.		Secondary to exporter: Lack of trade barriers.	Secondary to exporters: Stability		Secondary to exporters: Labour skills
Pye (1998) **Hosts**: Czech Rep, Hungary, Poland, Romania, Slovakia **Investors**: Western Europe and America **Sample**: 334	Primary: Growth potential and market share.	Secondary in Czech and Slovak Reps: Labour costs. Other: Financial efficiency	Other: Size of CEE market.	Secondary in Czech Rep: Overall stability.	Secondary in Poland and Romania: First-mover advantage.	Secondary in Slovakia: Labour skills.
Altzinger (1999) **Hosts**: CEE **Investors**: Austria **Sample**: 150	Primary: Market potential.	Secondary: Lower wages.	Secondary: Proximity.			Not significant: Human capital and know-how of firms.
ECONOMETRICS						
Lansbury *et al* (1996) **Hosts**: Hungary, Poland, Czech Rep **Investors**: 14 OECD countries **Sample**: 126		Significant: Costs relative to other panel members Not-significant: Costs relative to Western Europe.	Significant: Trade with the investor country.	Not significant: Risk.	Significant: Private sector share.	Significant: Technology base.
Holland and Pain (1998a) **Hosts**: 11 CEE and Baltic economies **Investors**: All, 1992-96 **Sample**: 55	Not significant: Growth rate, once market size was taken into account.	Significant: Wages relative to other panel members. Not significant: Wages relative to Western Europe.	Significant: Trade with the EU. Proximity to the EU. CEFTA membership.	Significant: Risk.	Significant: Privatization method. Not significant: Private sector share.	Significant: Productivity relative to the regional average.

Table 3. (continued)

	Market Size and Growth	Factor Costs	Trade/ Barriers	Stability and Risk	Strategic/ Transition Specific	Other
Holland and Pain (1998b) **Hosts**: 8 CEE economies **Investors**: All, 1992-1996 **Sample**: 40		Significant: Wages relative to other panel members. Not significant: Wages relative to Western Europe.	Significant: Trade with the EU. Proximity to the EU. CEFTA membership.	Significant: Risk.	Significant: Privatization method. Not significant: Private sector share.	Significant: Productivity relative to other panel members.
Barrell and Holland (1999) **Hosts**: Czech Rep, Poland, Hungary **Investors**: All, in 11 manufacturing sectors, 1993-1996 **Sample**: 132	Significant: Sector size.	Significant: Long-run cost differentials between the host and investor country.	Not significant: Market orientation.	Significant: Risk.	Significant: Sectoral private sector share.	Significant: Capital intensity.
Benacek and Visek (1999a) **Hosts**: Czech Rep **Investors**: Any, in 91 manufacturing industries **Sample**: 91		Significant: Total factor productivity. Capital intensity.			Significant: Returns to scale.	Significant: Research content of production.
Benacek and Visek (1999b) **Hosts**: Czech Rep **Investors**: All, in 16 manufacturing industries, 1991-97 **Sample**: 112		Significant: Inflation. Profits relative to labour. Total factor productivity K/L ratio.			Significant: Market power and increasing returns.	Not significant: Skill levels within industries.
Gronicki (1999) **Hosts**: Poland **Investors**: All, in 14 manufacturing industries, 1992-97 **Sample**: 84	Significant: Sector size.	Significant: Sectoral wage.	Not significant: Export orientation.	Not significant: Change in risk ratings over time.	Significant: Private sector share of employment.	Not significant: Real exchange rate.

Table 3. (continued)

	Market Size and Growth	Factor Costs	Trade/ Barriers	Stability and Risk	Strategic/ Transition Specific	Other
Sass and Szemler (1999) **Hosts**: Hungary **Investors**: All, in 23 manufacturing industries, 1993-96 **Sample**: 92	Significant: Sector size. Market orientation.	Significant: Unit labour costs relative to Western Europe. Sectoral labour costs.			Significant: Sectoral tendency towards OPT.	Significant: Sectoral proportion of white-collar workers.

This suggests a perverse relationship between foreign investment and output growth. Expected market growth may be a more important factor in determining the distribution of FDI, but such expectations are very difficult to measure. There are several possible ways of overcoming this statistical problem. We can proxy market size by population size, as suggested in Meyer (1996). In a panel regression with fixed effects, this will be captured by the country-specific intercepts. Alternatively, we can use a cross-section analysis, as in Benacek and Visek (1999a), or a time series starting at the point of economic recovery, as in Barrell and Holland (1999). We can also control for market size by looking at inflows of FDI relative to GDP, as in Holland and Pain (1998a,b) and Benacek and Visek (1999b). Benacek and Visek (1999a) approaches this slightly differently, by considering the stock of FDI relative to the total stock of capital, while the latter is an alternative measure of market size. Gronicki (1999), Barrell and Holland (1999) and Sass and Szemler (1999) all found that FDI is strongly tied to market size. Barrell and Holland (1999) found this relationship to be roughly proportional, which indicates that using the ratio of FDI to GDP as the dependent variable should not introduce a distortion.

Factor costs

Wages in the transitional economies are amongst the lowest in Europe. The issue of whether labour costs affect the decision to invest in the transition economies is an important one and the subject of some debate. INDICATOR (1995) showed that labour costs were among the factors influencing the investment decision in Poland, especially in the earlier years. Konings and Janssens (1996) found labour costs to be a relatively important factor in the location decision in Hungary, although less important than achieving a market share. Savary (1997) found that French firms view the CEECs as more attractive in terms of production costs, especially labour costs, than Southern Europe. Except in Hungary and Poland, the low level of production costs proved to be the most important motive of investment. Pye (1998) found that financial efficiency factors account for 10 per cent of the secondary motives of investors. In the Czech Republic and Slovakia, labour cost advantages were considered the most important factors, along with overall stability, profitability and local market access. Elsewhere, labour cost advantage was viewed as less important than market access. Altzinger (1999) found that Austrian investors, with the exception of the engineering sector, view low wage costs as significant, but less important than market potential. Labour costs were of particularly low importance to investors in finance and insurance.

The importance of factor costs seems to depend, not surprisingly, on the purpose of the investment. Lankes and Venables (1997) found that export oriented firms place much greater importance on production costs and cheap skilled labour, as would be intuitively expected. Transport costs were found to be relevant for heavy industry, which is also expected.

Benacek and Visek (1999a) analysed investment in 91 manufacturing sectors in the Czech Republic in 1994. The results indicate that investment prior to 1994 was biased away from capital intensive industries. They attribute this to the lack of functioning property rights, which is essential for capital intensive production. This result was supported in Barrell and Holland (1999), a panel study of investment in 11 manufacturing sectors in the Czech Republic, Poland and Hungary, 1993-96. They attribute the bias away from capital intensive industries to profit opportunities, as industries with a low level of capital intensity offer the greatest scope for the introduction of new capital and labour augmenting technologies. However, Benacek and Visek (1999b), analysing investment in Czech manufacturing over the whole period of 1991-97, found investment attracted to sectors with a relatively high capital to labour ratio, although the explanatory power of this variable was not found to be robust. Sass and Szemler (1999), in a study of investment in 23 Hungarian manufacturing sectors,

1993-1996, found that export oriented investments (which were a minority of investments overall) tend to flow towards capital intensive industries.

The econometric evidence reported by Lansbury *et al* (1996), which considered investment by 14 OECD countries into Poland, Hungary and the Czechoslovakia from 1991-1993, indicates that relative labour costs within the Visegrad economies have influenced the distribution of foreign investment within those economies, more so than costs relative to Southern Europe. Similarly, Holland and Pain (1998a), in a panel of investment in 11 transition economies between 1992 and 1996, found that wages relative to other transition economies have a significant impact on inflows of FDI, although there was no strong evidence to suggest that wages relative to low cost locations in the EU have an important impact on the investment decision. This supports the Riker and Brainard (1997) findings that countries compete for FDI against similar locations, but not against dissimilar locations. Holland and Pain (1998b), in a panel of investment in 8 transition economies, also found that a rise in wages in one country relative to the other panel members will adversely affect investment, unless offset by a corresponding rise in relative productivity per head.

Barrell and Holland (1999) found that investors appear to be driven by the expected long-run cost differentials between the host and investor counties. Sass and Szemler (1999) also found that unit labour costs relative to capital rich countries affect investment in Hungary. Gronicki (1999) and Sass and Szemler (1999) found that the distribution of FDI across manufacturing sectors is partly determined by wage levels in Poland, with low-wage sectors attracting relatively higher levels of FDI.

In the early years of transition, high levels of FDI were expected to flow into the CEECs, mainly due to the relatively skilled workforce, combined with low wages. The expected inflows were not realised early on. This may in part be due to the fact that despite high qualifications, productivity tends to be low in many transition economies. Case studies such as General Electric investment in Hungary also suggest that it takes time for investors to recognize that both skilled and unskilled labour is relatively cheap in the CEECs. Pomery (1997), which details the results of the CzechInvest survey covering 163 manufacturing firms, indicates that the state health insurance scheme in the Czech Republic encourages high absenteeism, which leads to lower productivity and deters investment. However, investors point to excellent prospects for increases in productivity.

The attraction of a skilled labour force was found to be of significant importance only in Hungary and the Czech Republic (Lankes and Venables, 1997) and Slovakia (Pye, 1998). As these countries have a relatively highly skilled labour force, this indicates that investors who care about skills have predominantly chosen to locate there. Elteto and Sass (1997) and Meyer (1996) found that a qualified labour force is one of the most important determinants of foreign investment in Hungary, especially for assemblers and domestic supply based exporters. Labour quality is of lesser importance to non-exporters. Savary (1997) found that French firms evaluated CEECs as roughly equivalent to Southern Europe in terms of labour qualification. In Hungary, the high average qualification of labour was one of the most important attracting factors. In terms of the technological and industrial environment, Southern Europe was thought to be superior to the CEECs. However, in Hungary, the relatively good quality of the technological and industrial environment was also one of the most important factors in attracting FDI. Benacek and Visek (1999b) found that skill levels do not influence the distribution of FDI across sectors in the Czech Republic, suggesting that investors are attracted by the general educational foundations of the country, rather than by specific qualifications in a given industry. Anecdotal evidence from Hungary also suggests that it may take time for investors to recognize the quality of the research base in an

unfamiliar location. Sass and Szemler (1999) found that investors are attracted to sectors with a higher proportion of white-collar employees in the workforce.

Holland and Pain (1998a) found that productivity relative to the regional average is important in both the Baltic States and the CEECs. However, there was no strong indication that investors compared productivity levels between the two regions in their investment decision. This indicates that there is less competition for FDI between the Baltic States and CEECs than there is within the two regions. Benacek and Visek (1999a) found that investors in the Czech Republic prefer sectors where total factor productivity is higher. They also find that investors are biased towards sectors where there is a high level of R&D relative to output. However, they cannot eliminate the possibility of reverse causality.

Lansbury *et al* (1996) found that domestic technology, proxied as the stock of patents granted to residents of the host economy, has a positive impact on the level of foreign investment. This suggests that investors may seek to locate in Hungary to take advantage of its relatively advanced research base.

Trade barriers

In the context of the CEECs, we may find that membership of the Central European Free Trade Area has an impact on the investment decision. There is some evidence that contiguity and proximity to the EU are important factors in observed trade and investment decisions. Knowledge of the local market and existing business linkages may especially help small and medium-sized enterprises in the neighbouring industrialised economies to take advantage of the opportunities presented by a rapidly evolving market structure (Bod, 1997). Agreements with the EU have been reached by most of the Central European countries, establishing timetables for free trade and eventual negotiations about membership. This may encourage investment targeted at sales to the EU. All countries had also accepted international trade obligations required for GATT/WTO membership by the end of 1996, reducing worldwide trade barriers. Hungary and the Czech Republic are considered to have the least barriers to trade, which can help explain why a large portion of FDI has been directed to these two countries. Sectoral differences in terms of openness to trade remain. For example, the car sector is relatively closed and well protected, which helps explain the large inflows of FDI in that sector.

Pye (1998) confirmed earlier findings that export oriented firms are in the minority of firms surveyed. Those that did exist were geared towards supplying neighbouring CEECs. Altzinger (1999) found that the creation of an export base is important to Austrian investors in Central Europe, especially in the food and beverages sector. Nonetheless, 83 per cent of output in this sector was sold locally in 1995.

According to Lankes and Venables (1997), trade barriers are not considered an impediment to investment in Hungary and the Czech Republic, although import tariffs from the EU are thought to deter investment in Poland and other Central European countries. Geographical closeness to the EU was considered important, especially to market oriented investors. However, survey respondents indicated that investment was not primarily motivated to gain access to EU markets, suggesting that proximity was important mainly to enable intra-firm trade. Altzinger (1999) found that proximity to Austria is important to Austrian investors, especially in the finance and insurance sector. He suggests that this is partly due to historical and cultural ties. INDICATOR (1995) found that export quotas and high customs rates impede Polish exports, but that the efficient customs laws in Hungary encourage investment. Pomery (1997) indicates that customs regulations in the Czech Republic were a problem for about half of the respondents. Elteto and Sass (1998) reported that assemblers and domestic

supply based exporters find the lack of trade barriers relatively important to the location decision in Hungary.

A special feature of Hungarian regulation is that of the customs free zones. Every company can set up its own custom free zone inside the country. However, the significance of this is diminishing together with the decreasing role of tariffs in Hungarian trade with her most important trading partners (EU, EFTA, CEFTA). There are more than 100 companies functioning in customs free zones. From the list of biggest exporters, for example, IBM Storage, Audi and Opel operate in a customs free zone. Their very important role in Hungarian foreign trade is underlined by the fact that they accounted for 42 per cent of total exports and 29 per cent of total imports in the first 5 months of 1999.

There are some export oriented sectors (in terms of the high ratios of exports/total sales) where the extent of foreign direct investment in Hungary remains very limited. The reason for that is that foreign investors have opted for outward processing trade (OPT), which is less risky and requires less financial investment compared to direct investment. This is especially characteristic for certain labour intensive sectors, like clothing, textile, footwear, furniture, etc., and some other sectors where the labour intensive parts of the production process can be separated from the whole production process and transferred to a different location (with lower labour costs). Sass and Szemler (1999) found that those sectors likely to attract OPT draw significantly less FDI.

Lansbury *et al* (1996) found that trade with the investor country is positively associated with FDI. Holland and Pain (1998a,b) found that those countries with a contiguous border with the EU (excluding Bulgaria, which borders on Greece) received relatively higher levels of investment after factor costs, risk and approach to privatisation were taken into account. These are also the countries that formed the Central European Free Trade Area, and four out of five of the economies were among the first transition economies to make accession agreements with the EU. Econometric evidence cannot separate fully the impacts of these three factors. However, there is some evidence to suggest that proximity to the EU was the most important factor.

Barrell and Holland (1999) and Gronicki (1999) both found that there is no significant relationship between market orientation, defined as exports relative to total output, and FDI. Poland may present a special case where the trade-off between imports and FDI counterbalances the openness required by many multinational firms. A high level of FDI in Poland is drawn towards closed sectors, such as food processing and the car industry.

Stability and risk

As a group, the transition economies have seen improved international credit ratings over time (UNECE, 1998), helped by greater macroeconomic stabilisation and, in the case of the Czech Republic, Hungary and Poland, by membership of the OECD. However, it is notable that countries such as Bulgaria and Romania have consistently received poor ratings by international credit agencies. Much of the risk associated with working in Central Europe stems from uncertainty and lack of experience. This gives neighbouring countries with close historical and cultural ties to the region, such as Austria, a distinct advantage over more distant investors.

Lankes and Venables (1997) found that risk, as measured by the EBRD transition indicators, effects the likelihood of an investment project being abandoned. Hungary, Czech Republic, Poland, Slovenia and Slovakia are considered to have considerably less risk than other transitional economies (Dabrowski, 1998). The Czech Republic and Hungary are popular partly owing to low inflation throughout much of the transition. Surveys of investors in

Poland show that economic growth trends are among the factors influencing the decision to invest. Elteto and Sass (1998) found that good prospects for economic development are an important secondary factor for non-export oriented firms investing in Hungary. Legal, economic and political stability were also found to be relatively important. Assemblers and domestic supply based exporters put stability in the host country as the most import issue. Meyer (1996) also found that market oriented investors in Hungary regard political and economic stability as an important factor in the location decision. Factor-price oriented investors are less concerned with stability. Pye (1998) found that overall stability of the host country for investment is considered somewhat important, especially in the Czech Republic.

The econometric analysis in Lansbury *et al* (1996) did not find a significant role for the measure of risk used. This may be due to the fact that risk levels are relatively similar across the countries considered: Poland, Hungary and the Czech Republic. Holland and Pain (1998a,b), on the other hand, considered a broader range of countries, with varying levels of risk, and did find a significant impact of the measure used. This was a principal component measure based on consumer price inflation, GDP growth, the reserve cover ratio and the average country score on the EBRD transition indicators. Barrell and Holland (1999) used an alternative measure of risk, reported in Gronicki (1998). This was found to be an important factor in determining the distribution of FDI across Poland, Hungary and the Czech Republic. Gronicki (1999) used this same measure in a study of Poland, but did not find it to be significant. This suggests that investors compare risk levels across countries at a given point in time, but are less concerned with the absolute level of risk in a single country.

Complicated bureaucracy and lack of transparency in the legal system may also deter investment. They both introduce uncertainty, and so increase risk. Pomery (1997) points to the following barriers to investment in the Czech Republic: non-transparent legislation and a poorly performing judiciary system, bureaucratic complications regarding ownership, product innovation and taxation, and over-regulation in greenfield investment. In Hungary, INDICATOR found that the legal system encouraged investment, as there are many laws that are comparable to those in the European Union. The surveys in Poland showed that two-thirds of investors had had non-competitive measures taken against them, such as price fixing of inputs and outputs, deterring further investment.

Investment incentives

Lankes and Venables (1997) found that tax incentives for foreign investment are not considered important to the location decision in CEECs, although individual agreements between the investor and the government are significant for a small group of investors. This is especially the case in Hungary. The Czech Republic has offered little in the way of incentives for foreign investors, according to the 1998 CzechInvest survey. However, new incentives were introduced in April 1998.

Survey results suggested that foreign firms in Poland did not benefit from tax exemptions and privileges. Over two-thirds of firms did not indicate any tax exemptions or privileges. Investors enjoying privileges mainly identified the exemption from profit tax, due to foreign capital regulations of 1989 and 1991. In a separate survey of the Slupsk region in Poland (Kalinowski and Jacaszek, 1996), more than half of the region's localities were found to not provide any incentive for foreign investment. In only 1 of the localities was it reported that tax incentives were taken into account when considering the investment location. However, certain non-tax incentives were offered throughout the region, such as infrastructure development.

Elteto and Sass (1998) found that infrastructural services in Hungary are of some importance to export oriented investors. INDICATOR (1995) also found that an efficient transport system

encouraged investment in Hungary. However, Lankes and Venables (1997) found that local infrastructure appears to be of only minor importance in the location decision.

Privatisation

The privatisation process played a key role in determining the level of direct investment in the early years of transition. The earliest countries to embark upon significant privatisation programmes were those in Central Europe. These economies have also attracted the highest shares of inward investment. One means of capturing the speed of privatisation is through the private sector share of GDP[2]. Estimates reported in EBRD (1998) suggest that several countries have experienced very rapid growth of the private sector during the transition period. The Visegrád economies appear to be converging on a level of about 75 per cent, close to the levels of the market economies in Western Europe. Poland lags behind slightly, with only 65 per cent produced in the private sector. The guidelines introduced in mid-1998 indicate that most of the remaining state assets will be privatised by 2001. The private sector share in the Balkan economies remains lower, at 50-60 per cent. The privatisation process has been notably slower in the Balkan states, partly reflecting a lack of clear political will, as well as the substantial autonomy enjoyed by some enterprises notionally owned by the state in the former Yugoslavia.

The chosen means of privatisation may matter as much as the speed and scale of adjustment (Hunya, 1997a). Certain countries, such as Hungary, have pursued a policy of sales to strategic owners, with few restrictions on the involvement of foreign companies. Other countries, such as the Czech and Slovak Republics, have largely adopted voucher-based mass privatisation schemes, at least in the initial wave of privatisations, directed towards domestic residents. Such schemes offer fewer direct opportunities for foreign investment. A third method of privatisation, largely used in the Balkan countries, has consisted of management-employee buy-outs. Again this approach offers few opportunities for the direct purchase of assets by foreign firms in the initial stages of privatisation.

First-mover advantage appears to have played a strong role in the investment decision, especially for market oriented investors (Lankes and Venables, 1997). Pye (1998) found that strategic advantage are particularly important in Romania and Poland, while Konings and Janssens (1996) found this to be a very important factor in the location decision in Hungary. Meyer (1996) also found that market oriented investors in Hungary are influenced by the lack of competitors in a given market.

Savary (1997) found that French firms view CEECs as more attractive in terms of one-off opportunities, as afforded by the privatisation process, than Southern Europe. This was especially important in Poland. However, Lankes and Venables (1997) found that one-off opportunities are of only moderate importance to the investment decision. The aggregate data indicates that acquisitions of formerly state-owned firms by foreign investors outnumber greenfield investments in the Czech Republic, Hungary and Poland. However, even in the early years Hungary received significant levels of greenfield investment, while bureaucratic barriers curtailed greenfield investment in the Czech Republic. Benacek and Visek (1999d) also indicated that greenfield investment in the Czech Republic is very low. This is confirmed by Pye (1998) who found that acquisitions have dominated greenfield investment in Poland, Hungary and the Czech Republic[3]. However, the share of greenfield investment has increased significantly in Hungary, now that the privatisation process is complete. This strongly suggests that the privatisation process has played an important role in the majority of foreign investments, even if it is considered unimportant by certain managers interviewed in surveys.

[2] This measure captures both the privatised sector and newly established private firms.
[3] In Romania and Slovakia, however, greenfield investment have dominated slightly.

If the firms surveyed were actually dominated by greenfield investments, this indicates that the sample was not representative of the real population of foreign investors.

Lansbury *et al* (1996) found that inward FDI is higher in those Visegrád economies with a higher private sector share. This was supported by the findings of Barrell and Holland (1999) and Gronicki (1999). Holland and Pain (1998a,b) found that the privatisation method is more important than the private sector share of the economy. They attribute this to strong multicollinearity between the private sector share and the measure of risk. The EBRD transition indicator is constructed using several measures of progress in transition, which capture the scale of privatisation among other things. If the method of privatisation is more important than the private sector share, this suggests that the opportunities afforded by one-off investments were more significant to the investment decision than the commitment to private ownership, given the level of risk.

Other influences

Survey evidence of agglomeration effects is very limited. Lankes and Venables (1997) found that about half of investors are positively influenced by similar investments by competitors in the same country. According to the 1998 CzechInvest survey, there has been significant re-investment by FDI manufacturers in the Czech Republic for several years. However, they could not quantify the amount. Anecdotal evidence shows that many companies with foreign participation in Hungary induce their suppliers to establish a presence in the region, in order to supply the Hungarian affiliate with the raw materials or semi-finished products that they usually provide for the foreign company abroad (Sass, 1996). This provides one example of the potential for agglomeration effects.

Benacek and Visek (1999a) found evidence that investors are attracted to industries with increasing returns to scale. This supports the assumption of new trade theorists, that industrial organisation motives such as ownership of intangible assets leads to firm level economies of scale which promotes FDI.

V. Evidence on the impact of FDI

At the outset of the transition period, the CEECs suffered from an increasingly obsolete capital stock, inadequate infrastructure and an industrial structure in need of modernization. Foreign investors were expected to provide a vital source of new physical capital, due to limited domestic resources for investment. In some countries shortages of foreign currency reserves restrict the ability to import new products and equipment, and to establish trading links in order to integrate fully into the world economy.

A wide literature has developed on the impact on incentive constraints of transferring ownership from the State to the private sector. Theory suggests that the new property rights allocation should be a more efficient assignment of ownership, leading to reductions in transaction and information costs. Foreign investors are expected to make the most efficient use of the scope for productivity increases, as they bring with them external expertise. Below we consider the impact of FDI on growth prospects through trade, aggregate investment, and productivity levels.

Trade

Despite the overwhelming evidence that foreign investors in Central Europe tend to be primarily market rather than export oriented, there is a strong indication that firms with foreign participation export more than purely domestic firms do. According to Djankov and Hoekman (1996), the export performance of CEECs is determined by the growth in vertical

intra-industry trade with the European Union, the only significant factor of which was the level of foreign direct investment.

INDICATOR (1995) found that firms with foreign participation in Poland are more export oriented than Polish firms. From a sample of 582 firms, 30.8 per cent indicated that more than 75 per cent of output was exported in 1994. Germany was identified as the main recipient of these exports.

Zemplinerova (1998) confirmed that firms with foreign participation in the Czech Republic are more export oriented than domestic firms. The 1998 CzechInvest survey found that manufacturing firms with foreign participation in the Czech Republic are strong exporters. More than 70 per cent of responding firms expected to export over half of their production, while a third expected to export more than 90 per cent. If this is a representative sample, this suggests that manufacturing firms are motivated by different factors than foreign firms investing in other industries. A clear majority of foreign investments are shown to be export oriented in Czech manufacturing, although foreign investments overall are predominantly market oriented. This can be explained by the fact that investments in services are by definition market oriented.

The role of companies with foreign participation is very important to the export performance of Hungary. The share of Hungarian manufacturing exports accounted for by foreign firms increased from 70 per cent in 1995 to 80 per cent by the end of 1998. The main engine of export growth in recent years has been exports of foreign affiliates in the machinery industry. Again there is an indication that foreign investors in manufacturing behave differently from investors in other sectors. The list of the 9 biggest exporters in Hungary contains almost exclusively companies with foreign participation (Figyelô, 9th of July, 1998, p. 29). The nine biggest exporters accounted for almost one third of Hungary's total exports.

Although foreign firms tend to export more than domestic firms, they also tend to import more, so the net impact on the current account is uncertain. In Hungary, the Privatization Research Institute (1997) evaluated the overall effect of companies with foreign participation on the trade balance as negative[4]. Altzinger (1999) showed that Austrian investors tend to export roughly 1/3 of output, while about 1/3 of inputs are imported from the parent firm. Assuming other inputs are purchased locally, this will not have much of an impact on the current account. Pye (1998) suggested that the general lack of export orientation puts into doubt the proposition that FDI can create a boom in export sales for the benefit of the host country's trade balance. However, Pain *et al* (1998) found that inward investment has a positive effect on net export volumes in the Central European economies. A 1 percent rise in the stock of inward FDI at constant prices is estimated to raise merchandise export volumes by 0.18 per cent, and import volumes by 0.13 per cent. The impact on the current account will depend on the relative changes in import and export prices, as well as the impact on services trade. In general, we would expect those countries that receive high levels of FDI to have a current account deficit, as the positive inflows on the capital account must be offset by current account debits.

Lankes and Venables (1997) found that export oriented investments sell almost half of their output within the corporation, while they import roughly one-third of inputs from parent companies. This suggests a positive impact on the current account. However, market oriented investors were found to export only 3 per cent of their output back to parent companies, while

[4] The method of calculation applied was questionable, as companies with less than the standard 10 per cent foreign ownership were included. This includes the oil and gas monopoly responsible for importing fuel from Russia.

still importing about one-third of their inputs. This indicates a negative impact on the current account.

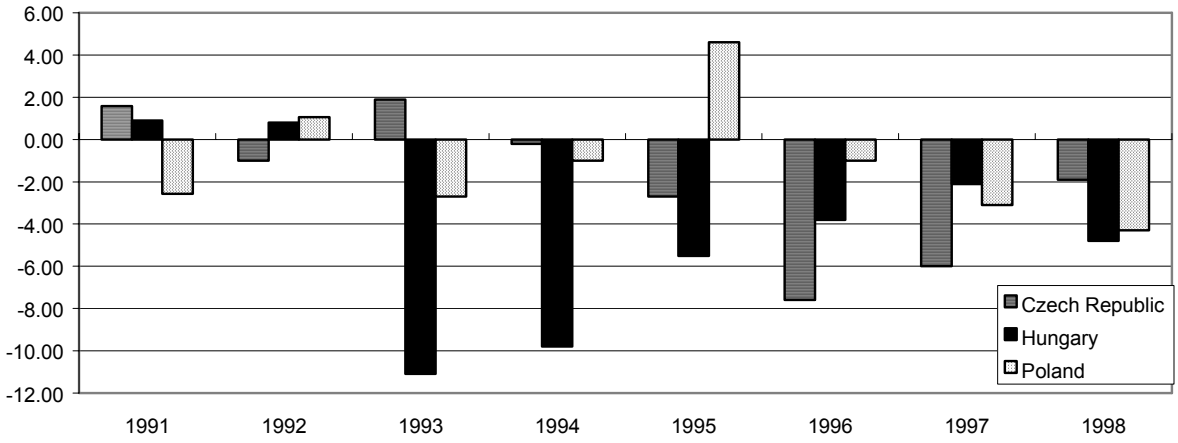
The ownership type of the firm may also affect the impact on the trade balance. Fully foreign owned firms tend to sell a larger share of output within the corporation than joint-ventures, whereas they import roughly the same amount of inputs. Lankes and Venables (1997) showed that joint ventures are more prevalent in locations with higher risk, so FDI in these countries is likely to have a more negative impact on the trade balance.

Investment

The recovery of fixed investment in CEE has been largely financed by the resources of the enterprises themselves, not by the intermediation of domestic savings or by foreign investors. Benacek and Visek (1999a) suggested that the gap for FDI formed by a deficit between savings and domestic investment in the Czech Republic was too narrow. This resulted in a large part of foreign capital acting to increase foreign reserves in the central bank. This puts upward pressure on the exchange rate, which in turn worsens the current account. There has been some concern, particularly in the smaller more open economies, that high inflows of FDI would erode their competitive position, and lead to serious current account deficits.

Net domestic savings is equivalent to the current account balance. If investment is greater than domestic savings, the remaining financing must be obtained abroad. These inflows on the capital account must be offset by a current account deficit. By the same token, if an economy exhibits a current account deficit, this indicates that gross domestic savings is insufficient to cover total investment. Figure 2 plots the current account balance as a ratio to GDP, as an indication of how much investment exceeds savings or vise versa. Savings exceeded investment slightly in the earlier years, but all three countries have exhibited a current account deficit since 1996.

Figure 2. Current Account Ratio/Savings less Investment



Source: Eurostat

Lizal and Svejnar (1998), using a firm level panel of investment in the Czech Republic from 1992-95, found that foreign owned companies invest more than domestic companies. Foreign enterprises are also playing an increasing role in capital investment in Hungary, according to the official data. The empirical evidence (Hunya, 1997b; Szanyi and Szemlér, 1997; Szanyi, 1997) indicates that foreign capital involvement in joint ventures acts as a catalyst and triggers substantial investment. Moreover, investments tend to be financed by the foreign

owners, rather than purely through the reinvestment of profits. Further investment in Poland, on the other hand, has primarily been through the reinvestment of profits. Nearly three-fourths (70.8%) of firms with foreign participation in Poland that gained profits in 1994 reinvested at least a portion of these profits in the firm.

Productivity

In the early years, there did not seem to be any macro impact on growth from FDI. The contribution of FDI to the host's growth appears to be subject to a considerable time lag, and consists primarily in increasing productivity, rather than increasing output through capital investment. In more recent years, foreign enterprises generally have shown higher productivity and more dynamic sales than their domestic counterparts (Aghion and Carlin, 1997). This stems from more efficient technological processes, improved corporate governance and the fact that foreign investors tend to target the more viable businesses. Given time, the more advanced technology of foreign firms should spillover into the domestic economy, as the new ideas introduced by foreign firms add to the human capital stock of domestic managers.

Major (1996a, 1996b) compared the performance of different ownership groups in the Hungarian economy in the period 1988-1995. He did not find major differences in the financial efficiency of the groups of majority foreign, Hungarian private and Hungarian state-owned companies until 1994, as they were all hit by recession in the early years. Modest improvements in productivity relative to domestic firms could be observed in 1994, and this process accelerated in 1995, when financial performance measures generally became positive in most economic branches. Pitti (1996) compared a series of performance measures of companies for the years 1995 and 1996. The results suggest that the improvement of efficiency in foreign firms continued, and that they showed clearly superior performance in 1996. The analysis of 1996 balance sheet data also shows that firms with foreign involvement performed better than the national average overall. Hunya (1998) confirmed that endowments of capital and labour productivity were higher in the foreign investment enterprises than in the domestically owned enterprises.

Zemplinerova and Benacek (1997) and Zemplinerova (1998) confirmed similar findings for the Czech Republic. Firms with foreign participation have shown clearly that they are more efficient, with higher productivity of both labour and capital. They also invest significantly more than indigenous firms. The 1998 CzechInvest survey indicates that three-fourths of firms expect to significantly improve their productivity in the near future. Hunya (1997b) indicated that labour productivity in Polish firms with foreign involvement was higher than in domestic firms in 1993.

Floyd and Morrison (1999), in a survey of 145 manufacturing firms with foreign participation in Poland, found that linkages to domestic firms had increased significantly since the point of entry. About 75 per cent of firms had their major source of supply within Poland. Linkages with firms in other Eastern European countries also increased over the period.

The surveys have indicated several sources of the improved productivity rates in foreign firms. Major (1996b) and Csányi (1997) found that wages accounted for a significantly smaller share of input costs in foreign firms than in domestic firms in Hungary. This indicates the use of less labour intensive production processes, and a quicker and more determined downsizing in companies with foreign participation. This confirms the findings of Novák and Szanyi (1996).

There is also strong evidence that foreign firms pay higher average wages than other companies. This attracts the better trained part of the workforce, which is capable of above average productivity.

Despite the higher levels of productivity, many firms with foreign participation in Central Europe still record low levels of profitability. This apparent contradiction can be explained by: a tax strategy (indicating lower profits in order to pay lower taxes); one-off fixed costs required during the first few years of operation, which often lead to loss making; macroeconomic developments; or transfer pricing. Halpern (1997) analyzed balance-sheet data and the evolution of export and import prices in Hungary, to determine if there was any evidence of transfer pricing. Export prices of FIEs deliveries increased much more slowly than their import prices, which was not the case for Hungarian exporters and importers. Import prices of FIEs proved to be higher than Hungarian importer's prices. These factors make transfer pricing of FIEs, and the transfer of their profits abroad very likely.

Djankov and Hoekman (1998) used firm-level data for the Czech Republic, 1992-96, to analyze the impact of foreign investment on total factor productivity. They found that foreign investment tends to flow to firms of above average size, initial profitability, and initial labor productivity. After controlling for this selection bias, they found FDI had a positive but insignificant impact on total factor productivity (TFP) growth. This suggests that the observed productivity improvements in the Czech Republic depend on the initial conditions of firms, rather than the transfer of new technologies and knowledge from partner firms.

Holland and Pain (1998a) estimated the impact of FDI on technical progress in 8 transition economies over the period 1992-1996. The results indicated that the inflow of FDI has a positive impact on labour productivity in the economy overall. These results suggest that the higher levels of productivity in foreign firms are due to more than just the initial conditions of firms. However, the impact on productivity was found to be small relative to similar studies of the impact of FDI on technical progress in the UK and Germany (Barrell and Pain, 1997b). This might suggest the main impact of foreign firms on the transition economies has arisen from the rapid growth in the number of such firms, rather than from significant spillovers into the technologies and working practices of indigenous firms. Barrell and Holland (1999), in a sectoral level study of FDI in Hungary, Poland and the Czech Republic between 1993 and 1996, found the impact of FDI on labour productivity to be positive in most manufacturing sectors, with the exception of the leather, transport equipment and “other” manufacturing industries. This may be explained by the fact that the model could not capture changes in the quality of goods produced.

The evidence to date indicates that FDI is a major channel of technology transfer to developing countries. Case study evidence indicates the CEE countries do benefit from the transfer of advanced technology, management and marketing knowledge. Macro developments suggest that FDI has contributed to the upgrading of production and export structures, and raised the prospective medium-term growth rate (Pain *et al*, 1998). Evidence of associated spillovers into domestic firms is much less robust. Negative impacts have even been reported in some cases, as well as short-term problems involving capacity destruction, lay-offs, and increasing imports. In the initial stages of transformation, foreign investors were in many instances able to enforce competitive restrictions through their market power, that are found to be detrimental to the host countries.

Some experts say (see e.g. Business Central Europe, 1997 September) that the inflow of foreign capital and the operation of companies with foreign capital has created a kind of duality in the Hungarian economy. A relatively small amount of inputs are purchases from domestic suppliers, so backward linkages with the domestic economy are limited. They

suggest that foreign enterprises operate as a separate, isolated isle in the domestic economy, so that spillover effects remain quite limited. This supports the evidence of Holland and Pain (1998a), which indicates that spillovers from foreign firms to the domestic economy have also been limited in the Czech Republic.

On the basis of a questionnaire survey, the following characteristics were found to be valid for companies with foreign participation regarding their local supplier policy (Sass, 1996). The sample consisted of 125 companies with foreign participation. According to the size of the companies, their country of origin, the geographical and sector distribution, and their foreign share, this sample was very representative of the population of companies with foreign participation in Hungary. The share of domestic suppliers varied between 21 and 30 per cent on average. However, the standard deviation is big: most of the companies rely either very much (above 50 per cent) or to a negligible extent (below 10 per cent) on domestic suppliers. In the first group, mainly privatized companies can be found, while in the second group, greenfield investments dominate. This can be explained by the existing company links in the case of the privatized companies, and by the relatively long time which is needed to build up a local supplier network in the case of greenfield investments. However, in the latter group, there are companies that do not want to raise the local share. These tend to be companies that export most of their products, whereas companies producing mainly for the local market rely on local suppliers. This can be explained by quality differences between demand in the two different markets. Interestingly enough, there are no country differences (in terms of the investing country) in the share of local suppliers. The food industry and electronics seem to attract mostly local suppliers, which may reflect the relatively high level of protection in the food industry. The textile, clothing, footwear industries have the smallest share of domestic links, which can be explained by the fact that companies in these sectors tend to carry out OPT activities.

The limited role of local suppliers - and thus the limited modernization effect of foreign direct investment on other segments of the economy - induced the Ministry of Trade and Industry to initiate a special program to help local firms engage in supplying activities, and to establish the so called Suppliers' Charter. Already 48 multinationals investing in Hungary have joined the Charter, under which the government and the representatives of multinationals together try to increase the role of local suppliers (Világgazdaság (Hungarian economic daily), 22nd of April, 1998). This type of government intervention may dramatically improve the impact of FDI on the domestic economy.

The Polish surveys considered the potential impact of new technologies and equipment introduced by foreign investors. The results showed that foreign firms generally applied equipment and technology that was one to five years old. This indicates that foreign firms tend to use new technologies, although not always the newest ones. More than a quarter (28.6%) of foreign firms were found to also use equipment that was over ten years old. In general, foreign investors from Canada, Austria, the US and the UK apply most of the newest technologies and equipment.

The 1997 CzechInvest survey found that 44% of firms had no foreign staff based in the Czech Republic, and 68% had a Czech managing director. This suggests that the potential for human capital transfers from foreign managers to the domestic workforce is limited. However, there are many other modes of human capital transfer, such as training courses, which may counter balance this finding.

Djankov and Hoekman (1998) found that spillovers associated with a foreign investment presence are negatively correlated with domestic firm performance. This suggests that those industries with the most room for productivity improvements are better able to adopt

productivity improvements from foreign firms. Imports were found to have a significant positive effect on TFP growth of firms. This suggests that trade rather than FDI has had the more important role in increasing productivity in domestic firms.

Holland and Pain (1998b) investigated the cross-sectional relationship between the share of foreign firms in total output in 20 Czech industries and labour productivity in Czech domestic firms in 1994. They found no evidence of a significant link between the two, which suggests that there had not been significant spillover effect by 1994. Evidence from other countries, such as Ireland, suggests that these impacts take time to emerge, and it is important to remember that inflows up to 1994 remained limited. This was confirmed by Guerra (1999) in a cross-sectional study where he compared the FDI spillovers in Portugal, the Czech Republic and Hungary. While the existence of spillovers was evident in Portugal, they were absent in the Czech Republic throughout the period 1993-97. Hungary was found at a turning point, as the model rejected the existence of technological spillovers, but there was evidence of human capital spillovers.

VI. Main Findings

In general we have found that econometric evidence supports the findings of survey studies. Taken individually, a single survey may suggest misleading conclusions. For example, a study that excludes Hungary and the Czech Republic may conclude that political and economic stability is not very important to investors. But a study that does include them will indicate that their relative stability can help explain why such a large share of investment in the transition economies has gone to these two countries. A broad collection of several different studies, such as the ones presented in this paper, offers considerably more insight into the motivations of investors in Central Europe.

Survey evidence suggests that market size and growth potential has been the driving force behind investment in the CEECs, with factor cost advantages playing a lesser role. Econometric evidence confirms these findings, and indicates that the lesser role played by factor costs is nonetheless significant. Labour costs relative to other transition economies are more important than costs relative to other low-cost locations in the EU, such as Spain and Portugal. This suggests a two-stage investment decision, where the investor first chooses to locate in Central and Eastern Europe, and then chooses a location within the region. Costs relative to the investor country also appear to be significant. Both types of studies indicate that trade barriers and membership of free trade areas are considered in the investment decision. Indeed, the relevant measure of market size may be the regional market where trade costs are low. Macro-economic and political stability has also played an important role. Investment incentives have not, in general, had a decisive influence on the investment decision, but the privatization process has had an important influence on the timing of FDI. Evidence on the attraction of the skilled labour force in Central Europe has been more variable.

There is some indication that foreign investment has had a negative impact overall on the trade balance in Central Europe, which supports the evidence that foreign investors have been primarily market rather than export oriented. This is to be expected, as inflows through the capital account must be offset by debits to the current account. The indirect effects from a stimulus to domestic demand and an appreciation in the real exchange rate have offset the direct beneficial effects on export volumes. There is considerable evidence to suggest that domestic market oriented investors and export oriented investors behave differently, and that they can have a significantly different impact on the host economy. Inflows of FDI have improved the overall growth potential of the economies, but primarily through productivity

improvements within the foreign firms, rather than through increased capital investment or technology spillovers into domestic firms.

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