

# Foreign Direct Investment and Export Performance: Empirical Evidence

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## Abstract

We estimate the potential effects of FDI inflows on exports in 12 Central and Eastern European (CEE) economies for the period between 1996 and 2004. We separate the effects of FDI into supply capacity-increasing effects and FDI-specific effects. The supply capacity-increasing effects arise when FDI inflows increase the host country's production capacity, which, in turn, increase export supply potential. The FDI-specific effects arise because the multinational company may have superior knowledge and technology, better information about export markets, or better contact to the supply chain of the parent firm than do local firms. Our empirical results indicate that, for all countries in our sample, FDI has increased domestic supply-capacity and hence exports. However, FDI-specific effects on exports are observed only in the new member states of the European Union.

Key words: Exports, foreign direct investment, European Union, transition economies.

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## I. Introduction

Since the late 1980s Central and Eastern European (CEE) countries switched from a centrally planned economic system to one based on market forces. They privatized many state-owned enterprises, signed foreign trade agreements with other countries in the region, and have generally achieved a significant level of macroeconomic stability with improved growth rates. Some of these countries became full European Union (EU) members in May 2004. They also experienced a significant increase in FDI. . As a consequence, the ratio of inward FDI to the 12 CEE countries studied here in total world FDI inflows increased more than three-fold, from 0.81% in 1994 to 2.89% in 2004.<sup>1</sup> Over the same period, these countries also achieved a substantial increase in their exports, especially towards Western Europe.

The question we address in this paper is whether FDI inflows have been a significant determinant of export growth in 12 Central and Eastern European countries. To do so, we use a pooled data for the period between 1996 and 2004 and attempt to account for the effects of FDI on host economy exports. We separate the potential effects into supply-increasing effects (capacity effects) and FDI-specific effects. The supply-increasing effects arise when FDI inflows induce increases in the host country's production capacity, which, in turn, increases export supply capacity. The FDI-specific effects arise because foreign capital inflows may incorporate different competitive advantages, such as superior knowledge and technology and thus, higher productivity, or better information about export markets as compared to local firms. We believe that differentiating between these two effects of FDI on exports is especially important in terms of policy implications. It is often argued that successful FDI-promoting policies should lead to, among other things, a significant increase in the host country's exports. However, if evidence indicates that FDI increases exports only through increasing export supply capacity, then FDI inflows are not special in that policymakers could increase exports through alternative means as well, such as promoting domestic investment, rather than FDI. If, on the other hand, one finds that there are direct FDI-specific positive effects of foreign capital inflows on exports, this would mean that specific efforts aimed at attracting further FDI would be justified.

In the following section, we provide a discussion of potential channels through which FDI may affect exports. Based on discussion in this section, we present our empirical model in Section 3. The empirical results are presented and compared to those of previous studies in Section 4. The last section concludes the paper.

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<sup>1</sup> For discussions of recent developments and issues regarding FDI in CEE countries, see Galego et al. (2004), Walkenhorst (2004), Brada et al. (2006), and Rutkowski (2006).

## II. Effects of FDI on Exports – Theoretical Arguments

This section discusses some theoretical arguments regarding the different potential effects of FDI on the host country's exports.

### 2.1. *Theory of Multinational Enterprise*

The theory of multinational enterprise (MNE) examines conditions under which firms may undertake foreign direct investment and become MNEs.<sup>2</sup> Such decisions may have consequences for host country's exports and it is a goal of this section to review parts of this theory which predict effects of inward FDI on host country's exports.

Overall, the theory indicates that positive effects of inward FDI on a host country's exports may be expected when the host country and a home country have different factor intensities. In this case, the MNE may outsource some segments of its production process to the host country and export these (intermediate) products back to the home country (as well as other countries). Similarly, when the host country has a cost advantage and costs of trade are low (as compared to the trade costs of the home country), the host country may be used by the MNE as an export platform for serving its home market, as well as other markets.

The starting point for the theory of multinational enterprise is the idea that firms must have certain advantages in order to become multinational companies. Dunning (1993) organized these advantages in three basic groups: (1) *Ownership advantage* which refers to the case where the MNE has a product or a production process that provides it with market power in the foreign market, (2) *Location advantage* which indicates that the multinational needs to locate production abroad to maintain its competitive advantage, and (3) *Internalization advantage* which suggests that the MNE has an incentive to exploit its ownership advantage internally

In order to analyze the effects of FDI on a host country's exports, it is useful to distinguish between horizontally and vertically integrated multinational firms.<sup>3</sup> In the case of horizontal integration, the MNE produces the same product in multiple plants located in more than one country, while vertical integration implies that different segments of the production process are carried out in different countries. Horizontally integrated firms often arise because of trade barriers in the form of tariffs ("tariff jumping investment"), or high transport costs. The multinational firm basically faces the dilemma of either building an additional plant in the host country (FDI) to supply the host country's market, or exporting to host country from

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<sup>2</sup> A detailed overview of theory of MNE, which we mostly rely on here, is found in Markusen (2002), while some important original contributions include Horstmann and Markusen (1992), Markusen (1995), Markusen and Venables (1998, 2000), Zhang and Markusen (1999) and Ekholm et al. (2003). Early contributions to the literature include Hawkins and Walter (1979).

<sup>3</sup> As noted by Helpman (2006), such a distinction has become less important in practice due to the very complex strategies of firms. Still, it is useful in analytical terms.

the (existing) plant in the home country. In a model with oligopoly competition, FDI is favored relative to exports (of home country) under three conditions: (i) high transport and tariff costs, (ii) relatively large firm-level economies of scale, compared to those of plant-level economies, and (iii) countries similar in size and their relative endowments (Markusen and Venables 1998; Markusen 2002, p. 103).

In the analysis of vertically integrated MNEs, which includes trade in intermediary products, models suggest that the production process is likely to be geographically fragmented if the countries have factor-price differences and the stages of production are associated with different factor intensities.<sup>4</sup> Since the segments of the production process occur in different countries, intermediate products need to be traded. As the portion of intermediate products produced by the foreign affiliates in the host country is typically shipped back to the home country (Zhang and Markusen 1999; Markusen 2002, p. 189), it is expected that FDI has a direct positive effect on host country's exports, which arises endogenously under specific conditions within the formal models of vertically integrated FDI.

Most of the models on multinational enterprise investigate the effect of FDI on trade flows between home and host countries. However, it is quite often that a foreign subsidiary of MNE is used to supply the markets of third countries. For example, an US MNE may set up a plant in Hungary and supply all the Central European markets from this production site. In this case, Hungarian exports to third countries would increase. Ekholm et al. (2003) analyze such situation in which the MNE invests in one country and uses this production site as an export platform for supplying other markets.

## *2.2. Potential Indirect Effects on Host Countries' Exports*

This section describes other channels through which FDI may affect host country's exports, in addition to those described in the theory of multinational enterprise.

The impact of FDI on host country exports is not only direct, through the exports of the foreign affiliates, but there may be important side-effects, which may influence the export performance of domestic producers indirectly.<sup>5</sup> The extent of the spillovers and indirect

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<sup>4</sup> However, when differences in endowments become very large, because a (developing) country is extremely scarce in some required input, it receives no FDI (Zhang and Markusen 1999).

<sup>5</sup> Since the terms „direct“ and „indirect“ effects of FDI are quite common in the literature, we also use them in discussion of different channels through which FDI may affect exports. It should, however, be noted that differentiating between direct and indirect effects is by no means equivalent to differentiating between supply-increasing and FDI-specific effects. For example, an export-oriented greenfield FDI project would contribute to increased supply capacity, just like a greenfield FDI inflow which is oriented toward the host country market. However, only the export-oriented FDI will have a direct positive effect on host country exports, while both projects may have indirect effects. If, on the other hand, a domestic company is acquired by an MNE and it uses this acquired company for export production, this is again a direct effect of FDI on exports, although this FDI does not necessarily contribute to increased production capacity (if exports are increased due to increased productivity not incurred by additional investment into fixed assets). As it will be explained below, there may be situations in which FDI increases host country's exports only indirectly, but it also contributes to higher supply capacity (e.g. FDI into a non-exporting industry with linkages to an exporting industry). Similarly, an export-

effects of FDI on exports may depend (at least in some industries) on the initial technological and human capital level of the domestic producers (Girma et al. 2007; Barrios et al. 2005), on the intensity of competition in domestic markets, as well as on the government policies promoting linkages between domestic and foreign firms (Barry and Bradley 1997).<sup>6</sup>

As noted in Helpman et al. (2004), multinational enterprises tend to have higher productivity than other companies, including exporters, which are, on the other hand, more productive than non-exporters.<sup>7</sup> This higher productivity of MNEs may be viewed as a reflection of their firm-specific competitive assets which create the ownership advantage of MNEs. Such assets, which include production process, innovative products, human capital of employees, or patents, are often referred to as MNEs' superior technology or knowledge (Girma et al. 2007; Markusen 2002, p. 18). Thus, when an MNE transfers its competitive assets to its affiliate in the host economy, there is the possibility of knowledge spillovers to domestic firms in the host country (indirect effect, which is specific for FDI). One specific channel through which domestic firms may increase their productivity and export competitiveness in tradable goods and services industries is simply by copying the operations of the foreign producer. This may be facilitated by the mobility of workers previously trained in the MNE's affiliate.

Some of the other potential channels of MNE's influence on domestic companies have been analyzed theoretically, but not in the specific context of exporting domestic companies. One of the potentially important indirect MNE's effects on domestic producers is the competition effect. The entry of an MNE in one sector of the host economy increases the intensity of competition in this sector, which may force some domestic companies to leave the market (Markusen and Venables 1999; Barrios et al. 2005). Such an effect is less pronounced with export-oriented MNEs and domestic producers, but, in the case of exporting domestic companies, this may lead to negative effects of inward FDI if the loss of exports by domestic companies is not compensated for by new exports of the MNE's local affiliate. However, MNE entry may also have positive indirect effects on the export performance of domestic companies. For example, an additional channel through which productivity of local firms may be increased is the so-called forward linkages, which occur when foreign affiliates sell goods or services to domestic firms. Improved products and services (and/or lower prices) in the downstream sector of a domestic firm (incurred through more intense competition due to an MNE's entry in that sector, or because of higher quality of inputs produced by foreign producer) may improve the domestic firm's own productivity and competitiveness as well.

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oriented domestic investment increases supply capacity, but cannot induce any FDI-specific effects on exports since it does not incorporate any of the MNE's competitive advantages.

<sup>6</sup> For a survey of technological spillovers from FDI, see Fan (2002).

<sup>7</sup> Melitz (2003) provides a theoretical model with heterogeneous firms yielding predictions that fit well with these empirical observations.

This implies that FDI inflows into a non-exporting sector may improve performance of domestic exporters.

Another type of linkage between foreign and domestic producers consists of backward linkages to the suppliers. If the presence of foreign producer creates additional demand for local inputs, then the supply industries may be strengthened. Markusen and Venables (1999) show that strengthening the supply industries may benefit the domestic producers in the MNE's industry, through the mechanism of forward linkages, and that this positive side-effect can be stronger than the competition effect in the MNE's sector. In a similar setting, Barrios et al. (2005) show that despite the initial negative competition effect of MNE's entry, the indirect positive effect may prevail when the number of foreign firms is sufficiently high. They also argue that these positive indirect effects are more likely to dominate over the negative competition effect if domestic companies are export-oriented.

In addition, MNEs may facilitate access to foreign markets for the domestic producers by processing information about their home economies, or by lobbying for favorable treatment of exports from the host economy in their home countries (UNCTAD 1999, p. 240). All this may reduce the costs of entering foreign markets for domestic producers. Also, there is a possibility that the links of foreign affiliates to MNE's intra-firm markets spread to (some of) the local suppliers.

### III. Empirical Model

The above discussion suggests that FDI may have an impact on exports. FDI may contribute directly to increased domestic supply and it may strengthen other producers even in related sectors in the host economy. To this end, FDI is no different than domestic investment which increases supply and potentially changes the demand and supply conditions in related domestic industries. However, the impact of FDI may be particularly important due to the MNE's superior knowledge about foreign markets or technology and its contacts to parent firm and intra-firm markets. These are the FDI-specific effects. We believe that differentiating between these two types of effects of FDI on exports is especially important, since it is often argued that successful FDI-promoting policies will boost host country exports. However, if one finds that FDI increases exports only by increasing export supply capacity, then any policy that promotes domestic investment will lead to higher exports as well as FDI inflows do. If, on the other hand, one finds that there are additional FDI-specific positive effects on exports, then countries' efforts in attracting FDI are warranted.

In this section, we try to capture the above effects by using a popular empirical model of exports. In our model, based on the theoretical discussions above, we include a proxy for the supply capacity of host countries that positively affect export supply capacity. We use FDI stock data to capture the FDI-specific effects. We propose to include both variables in the

same specification to see whether FDI has an additional impact on exports beyond its impact on exports through the domestic supply capacity variable.

To test the impact of FDI on exports, it is important that we control for the other determinants of exports. We use a parsimonious model and include, besides a proxy for domestic supply capacity, a measure of the real effective exchange rate (REER), a trade liberalization index, and a measure of the persistence of exports (see data Appendix for sources and definitions of variables). Accordingly, we employ the following model specifications:

$$EXR_{it} = \alpha_i + \beta_1 REER_{it} + \beta_2 PGDP_{it-1} + \beta_3 TLI_{it} + \beta_4 EXR_{i(t-1)} + \varepsilon_{it} \quad (1)$$

$$EXR_{it} = \alpha_i + \beta_1 REER_{it} + \beta_2 PGDP_{it-1} + \beta_3 TLI_{it} + \beta_4 EXR_{i(t-1)} + \beta_5 FSR_{it-1} + \varepsilon_{it} \quad (2)$$

where subscript  $i$  stands for countries ( $i=1\dots 12$ ) and  $t$  denotes time. For all variables we take natural logarithms. In both specifications the dependent variable is the natural logarithm of real exports ( $EXR$ ).

Equation 1 is our benchmark equation. As standard macroeconomic theory suggests, relative prices are important in explaining country's exports. Although previous studies use export prices, instead of real effective exchange rate index (REER), there is no comprehensive export prices series for our sample countries. We assume that countries in our sample are small, open economies and hence exporters take prices as given. We believe that REER is an adequate alternative measure that captures the competitiveness of our sample countries. Thus, our empirical specifications include the natural logarithm of  $REER$  to capture the influence of relative prices. The index of real effective exchange rate is constructed in a way that an increase in REER denotes a real appreciation of the currency. Thus, it is expected that the coefficient  $\beta_1$  is negative. We include the natural logarithm of potential output ( $PGDP$ ), which is a trend of real domestic GDP, as a proxy for supply capacity. This variable is expected to capture the effects of increased supply capacity (partly) due to FDI flows.<sup>8</sup> The potential output variable enters the regression with one year lag since it may take some time before additional supply capacity is reflected in increasing exports. In addition, in both model specifications, we include another explanatory variable - a natural logarithm of an index used as a proxy for trade liberalization ( $TLI$ ). The reason for including this variable is to account for the potential impact of trade liberalization measures undertaken by the countries in the sample. The index can take values between 1 and 4.3, where the lower value stands for less liberalized regime so that we expect a positive coefficient. The next explanatory variable

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<sup>8</sup> Whether, and to what extent, FDI contributes to increased potential output is tested using a supplementary regression of potential output on FDI stock. See the next section.

which appears in both specifications is the lagged exports, since the export performance in one year should be good predictor of the next year's exports.

Along with three variables described above, in the second model specification we add the natural logarithm of the stock of FDI (*FSR*) to Equation 1 to test the FDI-specific impact on exports with impact of increased supply capacity held constant. The FDI variable enters the model with a one-year lag. This is suggested by the empirical results in Girma et al. (2007) which show lags in the effect of FDI on acquired domestic companies. Also, even for an export-oriented greenfield foreign investment, one can assume that building a new plant and achieving a desired level of production takes time. That cumulative stock variable is a better choice than FDI inflows is implied by the results of Barrios et al. (2005), which show that the sign and intensity of the effects of FDI on domestic producers changes as the number of foreign companies in the host economy increases. Thus, it is the cumulated FDI that matters. The same effect could possibly be achieved by using FDI inflows, but this would require using many lags of FDI variable, reducing the number of observations. Also, there is a potential endogeneity issue, when regressing exports on FDI. Hence, using FDI stock with a one year lag should alleviate this problem.

#### IV. Empirical results

We use pooled data for the period between 1996 and 2004. Data sources are provided in the appendix. All estimations are presented for two country groups: the first sample includes 8 countries which belong to the group of new European Union (NEU) members, and additional 4 countries which are Southeast European countries, while the second sample consists only of the 8 new EU member states. Two samples are used in order to check for robustness given the (potentially) heterogeneous sample of all countries.

A GLS estimation method, with country dummies, is used to estimate the model specifications above. The use of country dummies is appropriate because of some unobserved (and/or omitted), country-specific variables, which influence countries' export performance. The most important examples are geographic location and infrastructure (accessibility), or natural resource endowments, but there may also be relevant policy variables not included in any of the above specifications. The estimations are robust with respect to heteroskedasticity and serial correlation.

##### 4.1. *Benchmark Results*

Table 1 contains the estimates of Equation 1 to capture the effects of FDI via changes in the supply capacity of the host economy. Real effective exchange is significant, with the expected sign, for both country groups. Potential output has a significant and positive effect on export

performance of countries in both groups. Trade liberalization index turns out not to be significant. One possible explanation is that the majority of countries in the sample (primarily NEU countries) implemented trade liberalization measures earlier in the transition, and that there is not so much variability in the index. Also, the export performance is strongly and positively affected by the last year's exports. In the model specifications without FDI variable, we observe fairly close estimated coefficients for both samples. The simple supplementary regressions of potential output on FDI stock (Table 2) show that in both samples, FDI inflows significantly contributed to increasing potential output, and that for the group of NEU countries, this effect has been more pronounced.

#### 4.2. *Supply-Increasing and FDI-Specific Effects on Exports*

Table 3 reports the results when FDI stock variable is added to the model. This provides evidence whether FDI has both supply-increasing and FDI-specific effects. For this to be true, both the supply capacity and FDI variable should be statistically significant and have positive signs. The real effective exchange rate variable in Table 3 continues to be significant with the expected sign, for both groups of countries. The supply capacity variable is also positive and significant for both countries, indicating supply-increasing effects of FDI on exports. Note that the coefficient is larger for all 12 countries than for NEU countries only, indicating smaller effects on NEU exports. Trade liberalization variable is still insignificant in both groups. The FSR variable, which captures the FDI-specific impact on exports, is significant but only for the new member states of the EU, suggesting that this kind of impact of FDI on exports exists only in NEU countries. We note that there exist relatively high differences in estimated coefficients for the two samples of countries, revealing heterogeneity incurred by the different effects of FDI inflows.

The results imply that, for all the countries in our sample, FDI has significantly contributed to higher exports, through increased supply capacity, i.e., potential output. When potential output is controlled for, the contribution of FDI is statistically significant only for the group of new EU countries, however. This implies that, for these countries, the positive impact of FDI goes beyond increasing supply capacity in that there are additional indirect, positive effects from inward FDI. As it can be seen from the results, for the NEU countries, a 1% increase in FDI stock leads to 0.16% increase of exports in short term, and 0.42% [ $.16/(1-.62)$ ] in long term, through FDI-specific effect only.<sup>9</sup> Possibly, the foreign investment into new EU countries created a higher level of competitive advantage which spread to the domestic producers. Another factor that may explain the different results for the two groups of countries is that the official statistics on FDI inflows may be misleading because they may

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<sup>9</sup> We thank Paul Wachtel for suggesting the interpretation of the FDI coefficient in this (short- and long-term) fashion.

include the inflows of capital of local owners, which may be returning back into the country in terms of FDI to hide the identity of its owners. In this way, the owners are more strongly protected against having their property expropriated by the government if it was acquired in illegal way.<sup>10</sup> These capital inflows, however, cannot be expected to have the same impact on local companies as an investment by some multinational companies.

#### 4.3. *Comparison with Other Studies*

We conclude this section by briefly summarizing empirical evidence from related studies and comparing it to our findings. The papers from Sun (2001), Zhang and Song (2000), and from Goldberg and Klein (2000) are especially related to this study, because they try to capture overall effects of FDI on trade at the macroeconomic level.<sup>11</sup> Sun (2001) examines the different impact of foreign investment on exports in three regions of China in a period from 1984 to 1997 and finds that the effects of FDI vary across the three regions. The impact is positive and the strongest in the coastal region. Zhang and Song (2000) address the same research question for China at the provincial level. They also find that higher levels of FDI are consistent with higher provincial exports. It is worth noting that the positive effect of FDI on exports in China has mostly been due to the fact that China has largely been used as an export platform by MNEs. Goldberg and Klein (2000), on the other hand, analyze the impact of FDI from the United States in the manufacturing sectors of individual Latin American countries on the net exports of those and other sectors. The results vary across sectors and host countries, reflecting the importance of the specific conditions in individual countries and industries. The fact that the results are mixed makes it impossible for the authors to draw a strong and clear conclusion on the relationship between the FDI flows and trade.

Unlike the above econometric studies, Barry and Bradley (1997) analyze the effects of FDI on Irish exports in a more descriptive way. They conclude that there has been a significant direct contribution of foreign producers to increasing Irish exports because the FDI in Ireland has mostly been export-oriented.<sup>12</sup> They also mention the possibility of additional influence through spillovers, but no attempt was taken to show it empirically. As for studies on spillovers, Görg and Greenaway (2004) review the recent relevant literature. Out of 40 studies concerned with intra-industry productivity spillover effects from FDI on domestic firms in developed, developing and transition economies, 19 report statistically significant and positive spillovers, 15 studies do not find any significant effects, while 6 papers find some evidence of negative effects. Interestingly, many studies on FDI spillovers in transition

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<sup>10</sup> We are indebted to an anonymous referee for this observation.

<sup>11</sup> However, they do not explicitly differentiate between supply capacity increasing effects and FDI specific effects. Sun (2001) and Zhang and Song (2000) control for the effects of domestic investment on exports, thus, isolating the influence of FDI.

<sup>12</sup> Ekholm et al. (2003) also note that many of the inward FDI to Ireland are pure export-platform investment.

countries find some evidence of negative spillovers. The evidence of positive horizontal, i.e., intra-industry spillovers, is even weaker if one considers some methodological drawbacks such as potential bias of the cross-section estimates used in many of the reviewed studies. The evidence on positive FDI productivity spillovers on forwardly and backwardly linked industries is somewhat more convincing than for the horizontal effects.

Two recent studies of indirect effects of FDI on domestic producers are especially important in the context of our study. Girma et al. (2007) explicitly test the effect of inward FDI on the productivity of exporters in the UK that have been acquired by the foreign companies. This is important since much of the FDI inflow in the transition countries was for the acquisition of existing companies (mostly through privatization). This study shows that FDI affects the productivity of acquired firms; however, the magnitude and significance of this impact depends on the time elapsed since acquisition, nor was it even for companies with different productivity levels prior to acquisition. Without controlling for the initial productivity, Girma et al. (2007) find that, one year after acquisition, FDI has had significant and positive influence on average productivity growth of acquired companies (no significant effect was found in the year of acquisition). When controlling for pre-acquisition productivity, only the acquired firms with relatively high productivity before acquisition experienced productivity gains in the year of acquisition, reflecting the importance of absorptive capacity for (immediately effective) effects. The companies with lower initial productivity, on the other hand, benefited more from FDI two years after acquisition. This shows that it takes time for the acquired firms to benefit from FDI, especially for the domestic firms with lower initial productivity, which is important in the context of the present study. In addition to Girma et al. (2007), we would like to stress the empirical findings of Barrios et al. (2005). They tested their theoretical prediction that, at first, negative competition effect from FDI is stronger, but with more inward FDI, the positive externalities dominate the initial negative effect (the *u-curve* overall effect of FDI on domestic companies). This is empirically confirmed on their sample of Irish companies implying that the sufficient accumulation of foreign capital plays a crucial role for the effectiveness of indirect effects on domestic companies.

Our results show that, as in China, Ireland, or in some industries in some Latin American countries (Sun 2001, Zhang and Song 2000, Barry and Bradley 1997, Goldberg and Klein 2000), FDI contributed to increasing exports of host transition economies. Since other studies do not differentiate between supply-increasing and FDI-specific effects of FDI inflows on exports, a direct comparison of results is not possible. Our results on FDI-specific impact, which is significant only in NEU countries, reveal the importance of findings by Girma et al. (2007) and Barrios et al. (2005) which suggest that indirect impact of FDI on host countries (which, to some extent, should coincide with FDI-specific effects) depends on the initial situation in the host economies, i.e., initial productivity of acquired firms (Girma et al. 2007), and on the accumulated amount of FDI inflows (Barrios et al. 2005). Since NEU countries

are, on average, more developed than the Southeast European countries, they are expected to have relatively more productive companies. Also, they have received more FDI, which can additionally (at least partly) explain why such effects are significant only for this group (NEU) of countries.

## V. Conclusion and Suggestions for further Research

In this paper, we estimate the impact of FDI inflows on export performance in 12 transition economies, including some new member states of the European Union. Foreign direct investment can contribute to higher exports by increasing supply capacity and/or through FDI-specific effects as multinational enterprises may have better knowledge about foreign markets, superior technology, lower production costs, and better ties to the supply chain of the parent firm than do local firms. It is important to distinguish between these types of effects, since the supply-increasing effects may arise as a consequence of domestic investment as well, making an FDI promoting policy reluctant in the absence of FDI-specific impact.

We find that, during 1996-2004, FDI inflows contributed to higher supply capacity in all 12 countries, leading to more exports. On the other hand, evidence for FDI-specific effects is mixed. The results suggest that this effect has been present mainly for the new EU member states, reflecting, among other things, the higher amount of FDI inflows received by these countries relative to Southeast European countries, as well as the potentially higher initial productivity of domestic companies acquired by MNEs.

Our results have important implications for policymakers and other transition economies. First, our results support the notion that the MNE has important advantage over local firms that it brings to the host economy. Hence, policymakers need to support FDI inflows by designing appropriate policies and reforms. However, it seems that the amount of FDI stock accumulated over time matters for the positive FDI-effects on exports. In our sample of countries, the new EU countries received the larger amount of FDI relative to other transition economies and hence have been able to better take advantage of the FDI-specific effects than the rest of the countries, leading to more exports.

An important issue that we did not study in this paper is the impact of FDI inflows on import behavior. If the FDI is a substitute for imports of goods or services, it should further improve the balance of trade of the host country by reducing imports. We believe that this is an important research agenda that we plan to tackle in the near future.

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## Appendix: Definitions and sources of data

The countries in the sample are: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia FYR, Poland, Romania, Slovakia and Slovenia. This choice and the sample period (1996-2004) has to a great extent been determined by the availability of data, but also by the potential problem of sample heterogeneity if we would include e.g. Russia or Ukraine, given some specific characteristics of these countries. Two terms are used interchangeably to refer to this group of countries: transition countries or the countries of Central and Eastern Europe. The variables are constructed as follows:

**EXR** denotes natural logarithm of real exports. Data on exports are deflated using GDP deflator (in millions USD, year 2000 prices). Data source: UNCTAD database: “*Handbook of Statistics On-line*”, available from: [www.unctad.org](http://www.unctad.org).

**REER** denotes natural logarithm of real effective exchange rate index (CPI based). Base year is 2000. Data source: IMF and Central Banks of Estonia, Latvia and Lithuania.

**PGDP** stands for natural logarithm of real GDP trend. Trend is obtained by applying Hodrick-Prescott method on real GDP data (in millions USD, year 2000 prices). Data source: UNCTAD database.

**TLI** – natural logarithm of Trade Liberalization Index. The index was constructed by EBRD and it is called: “Index of forex and trade liberalization”. Data source: EBRD –Transition Reports.

**FSR** – natural logarithm of real FDI inward stock. Data on FDI stock are deflated using GDP deflator (in millions USD, year 2000 prices). Data source: UNCTAD database. The definition of FDI used in this paper is that of the IMF. FDI is “... international investment in which a resident entity in one economy (the direct investor) acquires a lasting interest in another economy (the direct investment enterprise)” (IMF, 1996). A lasting interest is implied if 10% or more of the ordinary shares or voting power is acquired by the investor. Only trade and exports of goods is considered in this paper (as in most of the related literature), while trade in services is omitted. On the other hand, total FDI, i.e. FDI in all sectors of the host economy is relevant.

Table 1: Supply-Increasing Effects of FDI on Exports  
Parameter Estimates of Equation 1

Variable	ALL COUNTRIES		NEU COUNTRIES	
REER <sub>t</sub>	-0.405***	(0.119)	-0.455***	(0.147)
PGDP <sub>t-1</sub>	0.789***	(0.142)	0.822***	(0.194)
TLI <sub>t</sub>	0.260	(0.260)	-0.065	(0.454)
EXR <sub>t-1</sub>	0.636***	(0.066)	0.693***	(0.076)
Obs.	120		80	

Note: Standard errors are in parentheses. \*\*\*, \*\*, \* indicate significance at the 1 percent, 5 percent and 10 percent levels, respectively.

Table 2: Supplementary Regressions  
Impact of FDI stock on Potential Output

Variable	ALL COUNTRIES		NEU COUNTRIES	
FSR <sub>t-1</sub>	0.098***	(0.005)	0.149***	(0.008)
Obs.	120		80	

Note: Standard errors are in parentheses. \*\*\*, \*\*, \* indicate significance at the 1 percent, 5 percent and 10 percent levels, respectively.

Table 3: FDI-Specific Effects on Exports:  
Parameter Estimates of Equation 2

Variable	ALL COUNTRIES		NEU COUNTRIES	
REER <sub>t</sub>	-0.409***	(0.119)	-0.673***	(0.142)
PGDP <sub>t-1</sub>	0.753***	(0.172)	0.385**	(0.185)
TLI <sub>t</sub>	0.244	(0.265)	-0.399	(0.427)
EXR <sub>t-1</sub>	0.635***	(0.066)	0.620***	(0.075)
FSR <sub>t-1</sub>	0.008	(0.022)	0.160***	(0.041)
Obs.	120		80	

Note: Standard errors are in parentheses. \*\*\*, \*\*, \* indicate significance at the 1 percent, 5 percent and 10 percent levels, respectively.