



# THE IMPACT OF FDI ON EU EXPORT PERFORMANCE IN MANUFACTURING AND SERVICES. A DYNAMIC PANEL DATA APPROACH<sup>1</sup>

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## Abstract

*The purpose of this paper is to explain the export capacity in the EU countries based on FDI and domestic investment. We are interested to emphasize whether FDI contribute to export growth or the export performance is mainly explained by the domestic efforts. In this respect, we employ a dynamic panel data model using the GMM approach in the EU member states during the period from 1999 to 2012. As compared to other similar studies, our analysis checks for differences regarding the impact of FDI on trade in both the manufacturing and the services sectors. Also, the countries' sample is divided into two groups: the new EU member states, which share a common history of economic transition, and the old EU member states, usually the most developed in the EU. In this way, we identify the potential disparities in the types of FDI and are able to suggest how public policies should be designed in order to foster both FDI and exports. Our empirical results suggest that the effect of FDI on exports is different depending on the group of countries and the type of economic activity.*

**Keywords:** exports, foreign direct investment, dynamic panel data, GMM, public policies

**JEL Classification:** F14, F23, C33

## 1. Introduction

The transition economies in Central and Eastern Europe (CEE) proved to be an interesting field for assessing various economic experiences. Later, these countries became members of the European Union (EU), playing in the league of the more developed states and trying to catch up with them. Among the most important engines for improving the economic development we find the capacity to export and to attract foreign direct investments (FDI).

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Although the CEE countries experienced significant increases in FDI and exports after the 1990s, and even more after joining the EU, their performances are not comparable with the ones in Western Europe.

In this paper, we are interested in the determinants that enhance the export performance. Are the export experience and, therefore, the already established relationships among countries that stimulate new exports or are they motivated by the value added created in the country? Moreover, are foreign companies supporting the exports? The answer to these questions will provide public policymakers with the overview they need in order to further enhance the competitiveness of their countries.

Therefore, the purpose of this paper is to explain the export capacity based on FDI and domestic investment in the CEE countries as compared to the old EU member states (MS). We consider that such a distinction is still important, even ten years after the EU accession. The rest of the paper is organised as follows: in the next section, we provide some insights in the theory regarding the general impact of FDI on exports and we assess several empirical results in the literature. Section three deals with the data and the empirical model, while the results are presented in section four. In the conclusion section, we also present some potential public policies measures for improving the export capacity.

## **2. Literature Review**

### **2.1 Theoretical Issues**

The research question of this paper points towards two important strands of theory: the theory of the multinational enterprise (MNE) and the theory of international factor movements. According to the literature, the factor movements and international trade can be complements or substitutes. Therefore, the impact of FDI on exports is not straightforward, as we explain below.

The FDI presence in the host countries affects the volume of the exports not only in the host countries, but also in the home countries. The influence on the home countries' exports depends on the motivation of FDI. The literature distinguishes, in general, among four types of motivations of foreign investors: resource-seeking, market-seeking, efficiency-seeking and strategic asset-seeking FDI.

In resource-seeking FDI, the MNE could be implanted in the host country with the aim of using the low costs of resources or labour in order to produce the needed goods, and then to export them to the home countries. In this way, the exports of the host country will increase. In market-seeking FDI, the MNE will serve the host market, thus having a lower or no impact on the export volume. Of course, a better distinction should take into account the type of the country where FDI is located, whether it is developing or developed. For less developed or developing countries, the most prevailing type of FDI is resource-seeking. In this case, FDI will increase the volume of exports. Also, if the countries are large enough for becoming a significant market for the MNE, FDI could be market-seeking. The case of the EU is an interesting one: due to the free movement of goods and capital between the Member States, it is frequent way to locate a MNE in a country and then to serve a wider regional market, composed of several (sometimes more similar) countries. In the developed economies, FDI could seek efficiency and strategic assets for producing goods, which will be delivered to the same developed countries (for example, FDI in Western Europe) or to other similar economies (United States).

Hedlund and Ridderstrale (1997) apud Makino and Yeh (2002) noticed that an important part of the main theories regarding international business were focused more on asset exploitation than on asset creation. Starting in late 1990s, the researches began to take into account other motivations of foreign investors in choosing the location of their investment, such as learning or gaining access to strategical resources available in the host country (strategic asset-seeking FDI as an alternative to asset-exploiting FDI). Makino and Yeh (2002) develop a study in which assessed the capacities and the motivation of 328 companies in Taiwan in choosing the investment location in developed or less developed countries. They find that companies in the newly industrialized countries invest in developed countries when they are interested in strategic assets or markets and in less developed countries when they search for labour market. The process of decision making takes into account the specific conditions in that host country, while FDI are developed in order to exploit assets that provide comparative advantages to the company. Also, the motivation of the foreign investor is influenced by its capacities. Companies endowed with technological advantages and that are strategic-asset-seeking will invest in the developed countries.

Literature also distinguishes between vertical and horizontal FDI for better explaining their impact on exports. The aim of vertical FDI is to serve the international markets (Beugelsdijk *et al.*, 2008) by taking advantage of the lower costs of production in different host countries and then exporting those goods (Sharma, 2000; Gu *et al.*, 2008). Horizontal FDI is seeking to obtain market shares (Gu *et al.*, 2008) and, due to their characteristic of replicating the activities in the home country in different locations, is considered as being a substitute for trade. The reason for such an investment is to avoid the high costs that could appear in the case of exporting such goods due to commercial barriers or transportation (Protsenko, 2003). For vertical FDI, the production process is geographically fragmented. Some phases in the production process are located in host countries in order to take advantage of the lower costs generated by the cheaper production factors or the abundant and low-skilled labour. Companies engaged in such types of activities will harness the differences in the production factors prices. In practice, it is difficult to distinguish between these types of FDI, because both of them are present in the host countries.

The influence of FDI on the export performance, which is analyzed in this paper, is only a part of the FDI effects; one should also take into account the “domino effect” of spillovers, *e.g.*, by the increase in exports, which affects different types of markets. For example, Călin (2015) investigates the effects of the announcements in trade variations on the financial markets. Therefore, the conclusion of Wang *et al.* (2007) is utterly important: “FDI plays an important role in reallocating global economic resources and stimulating productive capabilities” (p.125).

In the case of services, the specific manner of delivering them – which implies a more intensive contact between the service supplier and the customer than in the case of the manufactured good or the simultaneity of production and consumption – could imply different motivations for FDI. The literature is not very extensive in emphasizing the differences between FDI in services or in manufacturing, although FDI flows in services surpassed FDI in manufacturing (Yin *et al.*, 2014). The explanation for FDI in services can also be integrated into the OLI framework developed by John H. Dunning for interpreting the aggregate FDI flows. Yin *et al.* (2014) conduct a study for assessing the FDI determinants in services in China. Their conclusion is that FDI in services is motivated by market-seeking and client-following purposes. In this case, FDI will not have an important impact on the exports of the host country. Guilin (2011) finds that most FDI in services are horizontal, while vertical FDI

are more common for the manufacturing sector. Still, the motivations of the foreign investors mostly depend on the region than on the sector of activity.

Leichenko and Erickson (1997) reveal three perspectives regarding the impact of FDI on export for the US economy. The first one indicates that the trade performance could suffer due to the increase in imports needed to produce the goods in the multinational companies (MNEs) established in the country. By contrast, the second view points to an improvement in trade performance as a consequence of improved international competitiveness due to FDI inflows. This would lead to a higher volume of exports. Finally, there is a neutral, macroeconomic view on the impact of FDI on exports. In terms of aggregate impact, at national level, there is no effect of FDI on exports, but only at regional level.

FDI is welcomed in an economy even with the sole purpose of increasing the production capacity, especially in post-crisis times. Firstly, FDI inflows could create new jobs. Secondly, it is an investment source that does not put pressure on public budgets, while domestic investments become harder to make since the economic crisis. But despite the effective investment in the production facilities of the host country, FDI proved to be an important inflow of new skills, technology, innovation, etc.

Gu *et al.* (2008) further mention some indirect effects of FDI on the host countries' exports. FDI characteristics of being not only a simple transfer of capital, but also of knowledge, technology, industrial organization and so on (Negrițoiu, 1996 or Dunning and Lundan, 2008) amplify this indirect impact on the indigenous companies, also known as spillover effects. On one hand, this impact may be shown in the modification of behaviour of the local firms that adopt the practice employed by MNEs in their export activities or by the transfer of technology and know-how (Gu *et al.*, 2008). On the other side, there is the risk that domestic companies be affected by the more competitive MNEs and leave the market.

The effects of FDI on exports are thoroughly examined by Kutun and Vuksic (2007). In their opinion, FDI could foster exports due to their supply capacity-increasing effects or through their specific effects. In the first case, the FDI flows into the host country increase the production capacity which subsequently leads to an increase in exports. In the authors' opinion, this type of evolution would not require more public policy measures for attracting FDI, because similar effects could be obtained by simply increasing the size of the domestic investment. Instead, they are interested if exports are encouraged by the FDI-specific effects which also are responsible for inputs of dematerialized (nonmaterial) factors, such as knowledge and know-how, productivity etc. If such effects are encouraging exports, then there is a need for particular policies in attracting FDI.

## **2.2 Assessment of Results in the Empirical Studies**

Leichenko and Erickson (1997) assess the impact of inward FDI on trade in the manufacturing sector in the USA regions from 1980 to 1991. The direct exports of a state is the dependent variable, while the authors use as independent variables the FDI stocks in that state, the new capital expenditure and the export volume, all of them completed in the preceding year, due to the influence of past trends on the actual performance. Moreover, the model includes a variable which takes into account exchange rate fluctuations. The model is applied to the whole volume of goods exported and to five distinct groups of goods (food, chemicals and allied products, primary and processed metals, industrial machinery and electronics and other manufacturing). As regards the whole manufacturing sector, the author found a positive and significant effect of FDI and previous export on the dependent variable, but a lack of significance for the capital expenditures. Still, FDI has a positive and significant impact only when the metal products, industrial machinery and electronics and other

manufacturing are considered, while the previous value of exports is significant in all the specifications of the model. A potential explanation resides in the objectives of the FDI activity: for selling the goods on the domestic market or on the international markets. For the new capital expenditures, the results are heterogeneous: the coefficient is either positive and significant, or negative and not significant. Also, for three groups of goods, the exchange rate was not significant. The conclusion of the study supports the improvement of the foreign trade performance due to the inflows of FDI in the manufacturing sector: a one percent increase in FDI generates a 0.14 percent increase in the export volume in the following year.

Camarero and Tamarit (2004) study the relationship between manufactured products foreign trade (both exports and imports) and FDI inflows and outflows. The authors use a panel data model for 13 countries, out of which 11 member states of the European Union, to which the authors add United States and Japan. The analysis period starts in the first quarter of 1981 and ends in the third quarter of 1998. The model contains either the real manufacturing exports, or the imports as the dependent variable, while the independent variables are similar in both approaches and composed of: real income, relative prices and the real stocks of inward and outward FDI. The authors find that, generally, there is a complementary relation between FDI and foreign trade, due to a positive and significant relationship between the two variables, pointing to efficiency-seeking FDI in these countries. Still, for some countries, the negative coefficients for the stock of FDI indicate a substitutability relationship.

Damijan *et al.* (2008) check for the motives behind the export performance in the CEE countries, focusing on transition economies. The interest of the authors is to identify whether the causes of the exports lie in the market access gained once with the EU accession or in an increase in the supply capacity and to find if there is any difference between the first group of countries that joined the EU in 2004 and the other three that became EU members several years later. The supply capacity improvements were the main cause of export growth in the first part of the analysed period in both groups of countries, followed by easier market access after the EU accession. The first eight countries that became EU members were more advantaged by this situation. Another important contribution to the literature is the evidence that, in these countries, higher levels of FDI contribute to increasing exports, due to their involvement in restructuring the manufacturing sector.

Vural and Zortuk (2011) conduct a study on the export performance in Turkey during the 1982-2009 period using three-stage least squares (3SLS) method. While FDI are significantly improving the export volume, the appreciation of the Turkish Lira had a negative effect. Zheng *et al.* (2004) assess the impact of FDI on the Chinese exports derived from indigenous firms and find a rather low influence of the exports of these companies as compared to the whole companies. The result is available for the 1985-1999 period.

Gu *et al.* (2008) deal with a similar issue in the manufacturing sector in China from 1995 to 2005. The model retains, as dependent variable, the export volume, while the explanatory variables are, like in other studies, the FDI, the exchange rate and the domestic investment. Still, Gu *et al.* (2008) prefer to add some new independent variables that might influence exports, such as the firm size, the labour costs, the innovation, the productivity and performance of each sector of activity measured by the Gross Sectoral Product and the world demand. The conclusion of the study is that FDI represent an important tool for fuelling the export performance in thirteen out of fourteen manufacturing sectors analysed.

On the contrary, the export growth in India during the 1970-1998 period was not influenced by the presence of FDI, according to Sharma (2000); the coefficient of the variable is positive, but not significant. Instead, the export supply is determined by the evolution of the domestic relative export price.

Wang *et al.* (2007) do not distinguish between manufacturing and services sectors exports, but between exports in labour-intensive goods and capital-intensive goods. The authors assess the impact of total FDI on these types of exports. Their results indicate that, although there is a positive impact of FDI on both types of exports, the impact (seen in the coefficient size) is higher for the labour-intensive export than for the capital-intensive ones. A similar approach would be appropriate in future studies.

### 3. Empirical Specification

#### 3.1 Data

We compose two panels comprising, firstly, 7 old EU members (Ni=7: Austria, Finland, France, Germany, the Netherlands, Sweden and the United Kingdom) and, secondly, 8 countries that joined the EU in 2004 and 2007 (Ni=8: Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Poland, Romania and Slovakia). The main reason for the selection of the countries sample was the data availability of FDI.

We analyse the 1999-2012 period (T=14 years) due to the fact that, for the new EU MS it is the period comprising the EU accession process and we are interested to see whether such an event increases the export volume. We end our analysis in 2012 due to lack of data. The variables considered are presented in Table 1.

**Table 1**

**Variables Used in the Empirical Model**

Variable	Notation	Definition	Source
Exports	EX	Total volume of merchandise and services exports, US Dollars at current prices and current exchange rates in millions.	UNCTAD
Foreign investments	FDI	Total FDI stocks in industry and services, million euros.	EUROSTAT
Domestic investments	GFCF	Gross fixed capital formation, percentage of GDP.	UNCTAD
Real effective exchange rate	RER	Real Effective Exchange Rate (deflator: unit labour costs in the total economy - 37 trading partners). Index, 2005=100	EUROSTAT
Labour cost index	LCI	The cost pressure of the labour; it comprises wages and salaries in industry and construction and in services of the business economy, respectively. Index, 2012=100	EUROSTAT
Trade freedom	TI	Measure accounting for the absence of tariff and non-tariff barriers that affect imports and exports of goods and services.	Heritage Foundation
Dummy variable	DUM	The variable takes the value 1 if the country is a MS of the EU and 0 otherwise.	

The dependent variable is the total volume of either the merchandise exports, or the services exports. As regards the dependent variables, we make the same distinction between

merchandise and services for FDI and LCI, while we use the same value for GFCF and RER for lack of data. Also, as GFCF is a proxy for domestic investment, *i.e.* the goods purchased to be used in production; we consider that it influences both the production capacity of industry and of services. Literature reveals the significance of reducing the trade barriers for enhancing exports, and we use in our model the trade freedom index (TI) provided by the Heritage Foundation. Therefore, we expect a positive sign for the coefficients of these variables in the both groups of countries. We employ the RER to account for the influence of relative prices and also for competitiveness of the countries in the sample. Additionally, we employ the labour cost index for reasons of competitiveness. For these variables, the expected sign of the coefficients is negative. We also use a dummy variable for the group of the new EU MS, in order to check whether the EU membership has any influence on exports. Based on the distinction between old and new EU MS and type of economic activity, we apply the same econometric methodology on four panels. For each panel of countries, we use four specifications (S1 to S4) in order to assess the robustness of the model. The baseline specification is S1, where we test the impact of previous exports and FDI, of GFCF and RER on the present level of exports. In S2, we add the index of trade liberalization and in S3, the labour cost index. Finally, S4 includes all the variables mentioned above.

We make several transformations in order to compose the data series that are used in the empirical model. The FDI series are built based on the Eurostat data provided by sector of activities; since the methodology for assessing FDI changed in 2008, we take into account the average values in the overlapping years; then, the FDI stocks series are transformed into dollars. Both EX and FDI series are adjusted by inflation. For the empirical model, we use the natural logarithm of EX, FDI, GFCF, RER due to stationarity requirements. The descriptive statistics and unit root tests are presented in Annexes.

### 3.2 Econometric Methodology

The use of a panel model in this case is supported by the low number of observations. The panel model expands the set of the analysed data as compared to the common cross-section or time-series data (Baltagi, 2005) by integrating both the common and the individual characteristics of countries in a single model (Heij *et al.*, 2004)

$$y_{it} = \beta * x_{it} + \varepsilon_{it} \quad (1)$$

$$\varepsilon_{it} = \mu_{it} + v_{it} \quad (2)$$

where:  $y_{it}$  is one country's exports and  $x_{it}$  is a vector of  $k$  independent variables,  $i=1, \dots, N$ ,  $t=1, \dots, T$ , and  $\varepsilon_{it}$  is the error term, formed, as shown in (2), from the  $\mu_{it}$  representing the specific effects and  $v_{it}$  the stochastic error term, which is uncorrelated over all  $i$  and  $t$ . The independent variables contained in the  $x_{it}$  vector are the FDI level, GFCF, RER, TI, LCI and DUM. It is normal to suppose that the value of exports in the past year also influence the present values of exports. The export capacity is not built from scratch each year, but relies on the one available in the past year.

Therefore, for estimating the determinants of export performance, we use a dynamic panel model, where the lagged dependent variable is introduced as a regressor among the explanatory variables, as in (3)

$$y_{it} = \alpha * y_{it-1} + \beta * x_{it} + \mu_{it} + v_{it}, |\alpha| < 1 \quad (3)$$

The parameter  $\beta$  measures the short-run effect of  $x_{it}$  on  $y_{it}$  taking into consideration the  $y_{it-1}$ , while the long-run effect is given by  $\beta/(1-\alpha)$  (according to Carstensen and Toubal, 2004).

The main disadvantage of specification (3) is the presence of autocorrelation between the lagged variable  $y_{i,t-1}$  and the error term  $\mu_{it}$ , given that both  $y_{it}$  and  $y_{i,t-1}$  are function of  $\mu_{it}$  (Baltagi, 1988). This type of inconsistency is known in the literature as the “Nickell bias” and studies show that the problem is amplified if  $T$  has a small size (Carstensen and Toubal, 2004; Blattner, 2005), as in our case. Therefore, estimating the model by simply using OLS will provide biased results. One suggestion for avoiding this correlation is proposed by Anderson and Hsiao (1982), who indicate the first difference transformation as in (4), together with the employment of  $y_{i,t-2}$  as an instrumental variable.

$$\Delta y_{it} = \alpha * \Delta y_{i,t-1} + \beta * \Delta x_{it} + \Delta v_{it} \quad (4)$$

In this case, the instrumental variable is not correlated with the disturbance term,  $\Delta v_{it}$ . Although this method could lead to achieving consistent estimators, these could be inefficient (Baltagi, 1988; Blattner, 2005; Carstensen and Toubal, 2004) for several reasons: it does not take into account all the available moment conditions (all the available orthogonality restrictions); neither has it considered the differentiated structure of the disturbances. As a solution to such drawbacks, Arellano and Bond (1991) suggest to use the general method of moments (GMM) estimator, further described in Judson and Owen (1999) and so on.

The orthogonality restrictions are generated by using the lags of  $y_{i,t-1}$  and of  $x_{it}$ , therefore the moment conditions are:

$$E[x_{i,t-1} \Delta v_{is}] = 0, \text{ for } t \leq s \quad (5)$$

and

$$E[y_{i,t-2} \Delta v_{is}] = 0 \text{ for } t \leq s, \quad (6)$$

where:  $t, s = 1, 2, \dots, T$ .

Additionally, the system GMM estimator of Blundell and Bond (1998), apud Blattner (2005) include two other additional conditions:

$$E[\Delta y_{i,t-1} \varepsilon_{it}] = 0 \quad (7)$$

and

$$E[\Delta x_{i,t-1} \varepsilon_{it}] = 0 \quad (8)$$

## 4. Empirical Results

The results of the estimations are presented below, grouped by type of economic activity. We also provide the results for the Sargan test and the corresponding p-values. The Sargan test is used for over-identifying restrictions in GMM dynamic panel data model. In  $H_0$ , the overidentifying restrictions are valid, so we expect p-values that indicate we cannot reject the null hypothesis. As provided in Tables 2 to 5, our results indicate that there is no problem with the instruments used in modeling.

### 4.1 The Manufacturing Sector

As expected, in all the EU countries, the FDI coefficient is positive, meaning that an increase in FDI will draw an increase in exports. Still, there is a different impact of FDI, depending on the group of countries. For the new EU MS, a 1% increase in FDI leads to a growth in exports from 0.18% to 0.21% in the following year, depending on specification (Table 2). The impact on exports is barely high in the old MS, ranging from 0.12% to 0.216% (Table 3). Wang *et al.* (2007) find an elasticity of 0.2% for the growth in the Chinese exports, as a result of a 1% increase in FDI.



The domestic investment (proxied by the GFCF) also has a positive impact on exports, but the size of the coefficients for the two groups of countries is notably different. The new created production capacity seems more important for the old EU MS than for the new ones. A 1% increase in GFCF leads to a maximum increase of 0.068% in exports (for S4) in the new MS, while the maximum increase for the old MS is almost 0.43% (for S3). This type of situation could explain the low level of exports in the new MS as compared to the ones in the old MS.

The RER coefficient is negative, as expected, for the new EU MS and is significant in three out of the four specifications. This means that an appreciation of the currency, as compared to a group of countries will have a negative impact on exports. Instead, for the old EU MS, the RER coefficient has the expected negative sign in most cases, but it is not significant; only S2 indicates a positive and significant impact of RER on exports at 10%.

**Table 2**  
**Export Performance in the Manufacturing Sector, New EU Member States**

Independent variables	S1	S2	S3	S4
Log(EX <sub>t-1</sub> )	0.637714*** [226.0440] (0.0000)	0.623295*** [130.1663] (0.0000)	0.663988*** [47.86779] (0.0000)	0.651466*** [47.30139] (0.0000)
Log (FDI <sub>t-1</sub> )	0.179536*** [8.080751] (0.0000)	0.211723*** [15.37194] (0.0000)	0.196153*** [8.893774] (0.0000)	0.207151*** [8.293870] (0.0000)
Log(GFCF)	0.033418 [1.596940] (0.1139)	0.053876*** [4.224091] (0.0001)	0.053923*** [4.400319] (0.0000)	0.068160** [2.521233] (0.0135)
Log(RER)	-0.414151*** [-5.971297] (0.0000)	-0.282069*** [-4.427070] (0.0000)	-0.179294* [-1.854366] (0.0671)	-0.169134 [-1.656848] (0.1012)
DUM	0.140501*** [4.240006] (0.0001)	0.142082*** [5.516720] (0.0000)	0.160026*** [4.630992] (0.0000)	0.160506*** [4.937224] (0.0000)
TI		-0.004519** [-2.969012] (0.0039)		-0.002223 [-1.089672] (0.2789)
Log(LCI)			-0.173048*** [-2.738341] (0.0075)	-0.138958** [-2.597420] (0.0110)
Number of obs.	93	93	93	93
Sargan test	70.52147 (0.240722)	68.67692 (0.261498)	68.72899 (0.260080)	68.21001 (0.245564)

Note: The  $p$ -values are in () and t-statistic in []. \*\*\*, \*\*, and \* denote significance of parameters at 1%, 5% and 10%, respectively.

For the group of the new MS, the introduction of TI and LCI in the model do not impart on the previous results. The sign for the TI coefficient is not the expected one; still, a clear conclusion cannot be drawn, as in one specification the TI impact is significant, while in the other it is not. This can also be caused by the presence of the DUM variable. The dummy variable expressing the years as a EU member could also capture a specific type of

economic liberalization with impact on exports. In all of the four specifications, the dummy variable used for the new EU group of countries points out that the EU accession process was significant for increasing the volume of exports and the quality of being an EU member is important for exporting more.

The labour cost index is significant for the performance of exports, as a 1% increase in LCI will decrease exports by 0.17% in S3 and by 0.14% in S4.

**Table 3**  
**Export Performance in the Manufacturing Sector, Old EU Member States**

Independent variables	S1	S2	S3	S4
Log(EX <sub>t-1</sub> )	0.518801*** [21.19562] (0.0000)	0.488620*** [47.91845] (0.0000)	0.504850*** [16.40597] (0.0000)	0.503555*** [40.08485] (0.0000)
Log (FDI <sub>t-1</sub> )	0.212253*** [6.689475] (0.0000)	0.122310*** [5.731578] (0.0000)	0.193154*** [5.857949] (0.0000)	0.216276*** [18.32919] (0.0000)
Log(GFCF)	0.329882 [1.476659] (0.1440)	0.280217*** [8.131083] (0.0000)	0.426728* [1.993591] (0.0499)	0.208688* [2.345181] (0.0218)
Log(RER)	-0.158044 [-1.449171] (0.1515)	0.184875* [2.528825] 0.0136	-0.146945 [-1.208914] (0.2306)	-0.064283 [-0.599130] (0.5510)
TI		0.012883*** [16.53602] (0.0000)		0.018677*** [26.12901] (0.0000)
Log(LCI)			0.082558*** [3.603603] (0.0006)	-0.502486*** [-11.21151] (0.0000)
Number of obs.	78	78	78	78
Sargan test	61.41906 (0.320699)	59.99502 (0.333032)	60.26313 (0.324305)	57.35528 (0.387885)

Note: The *p*-values are in ( ) and t-statistic in [ ]. \*\*\*, \*\*, and \* denote significance of parameters at 1%, 5% and 10%, respectively.

In the new MSs, the export performance is mostly influenced by the values obtained in the previous years. In descending order of the impact, the second place is assigned to FDI in most cases (specifications 2-4), followed by GFCF. The EU accession also had an important impact on export performance. The competitiveness seen as reduction in the labour costs has a considerable potential for expanding the volume of exports. Therefore, in the interpretation provided by Kutan and Vuksic (2007), the FDI-specific effects are more important in enhancing exports than the supply-increasing effects. The need for attracting FDI is acute for the improvement of the export performance; therefore, public policies must be directed for creating a favourable environment for foreign investors.

For the group of old EU MS, we obtain the expected sign as regards the coefficient of TI. More exactly, an increase of trade freedom by 1% will lead to an increase by almost 0.02 in exports (in S4). This time, we do not include a dummy variable that capture an increased trade freedom, therefore the coefficient of TI acts as expected. The labour cost index has a negative sign only in S4, when TI is introduced.

The previous export performance is also vital for increasing the present export volume in the old EU MS. Still, its impact is lower than on the new EU countries. Also, there is a difference in the impact ranking on the export performance: we notice the higher impact of GFCF instead that of FDI in increasing exports. The old EU countries count on their production capacity and the domestic investment for supporting their level of exports. The advantages that FDI bring to the new EU MSs, such as technology transfer or know-how, are less prevalent in this group of countries. Instead, reducing trade barriers appear as a positive effort for increasing the volume of exports.

#### 4.2 The Services Sector

For the services sector, the impact of FDI and GFCF on exports is again positive and generally significant for both groups of countries. Still, the FDI coefficients are smaller than their counterparts in the manufacturing sector.

A 1% increase in FDI leads to a growth in exports in the new EU MS from 0.14% to 0.19%. For the old EU MS, the impact is far lower, ranging between 0.05% and 0.14%.

The services exports in the new EU MS (Table 4) are mostly influenced by the value of the previous exports, *i.e.* the previously business bounds. Still, their influence is lower than in the case of manufacturing exports.

Table 4

#### Export Performance in Services, New EU Member States

Independent variables	S1	S2	S3	S4
Log(EX <sub>t-1</sub> )	0.532420*** [7.756916] (0.0000)	0.539461*** [7.344808] (0.0000)	0.522935*** [6.671668] (0.0000)	0.529665*** [6.744040] (0.0000)
Log (FDI <sub>t-1</sub> )	0.151075** [2.269863] (0.0257)	0.142425* [1.792689] (0.0766)	0.193600*** [3.604238] (0.0005)	0.175284*** [2.935068] (0.0043)
Log(GFCF)	0.355680*** [18.17696] (0.0000)	0.358472*** [19.18484] (0.0000)	0.335654*** [11.73454] (0.0000)	0.332554*** [11.13346] (0.0000)
Log(RER)	-0.135712** [-2.111371] (0.0376)	-0.130764* [-1.760776] (0.0819)	-0.142801** [-2.048569] (0.0436)	-0.134527* [-1.908386] (0.0598)
DUM	0.131268*** [3.738122] (0.0003)	0.128782*** [4.290233] (0.0000)	0.143438*** [4.663829] (0.0000)	0.138413*** [5.730392] (0.0000)
TI		0.000566 [0.209294] (0.8347)		0.001618 [0.624276] (0.5341)
Log(LCI)			-0.087504 [-1.354496] (0.1792)	-0.091949 [-1.425361] (0.1578)
Number of obs.	91	91	91	91
Sargan test	63.71434 (0.451141)	62.89403 (0.480062)	65.43454 (0.358468)	64.95231 (0.340733)

Note: The *p*-values are in ( ) and t-statistic in [ ]. \*\*\*, \*\*, and \* denote significance of parameters at 1%, 5% and 10%, respectively.

This time, the impact of GFCF – positive and significant – is more important than the impact of FDI. A 1% increase in GFCF leads to a maximum increase of 0.358% in exports, while a 1% increase in FDI counts for an increase by 0.19 in exports. Both an increase in RER and in LCI will have a negative impact on exports; still, while the coefficient of RER is significant for every specification, the influence of LCI, in this case, is not important. The TI coefficient has the expected sign but again, it is not significant in none of the two specifications. The EU membership has a positive impact on services exports. For the old EU countries, the results vary quite significantly from the expected ones (Table 5).

**Table 5**

**Export Performance in Services, Old EU Member States**

Independent variables	S1	S2	S3	S4
Log(EX <sub>t-1</sub> )	0.697594*** [21.45764] (0.0000)	0.666641*** [24.98396] (0.0000)	0.571579*** [16.43194] (0.0000)	0.592759*** [16.39874] (0.0000)
Log(FDI <sub>t-1</sub> )	0.140379*** [4.272836] (0.0001)	0.072013*** [3.054099] (0.0031)	0.052172 [1.638042] (0.1054)	0.054603*** [3.044125] (0.0032)
Log(GFCF)	-0.205011** [-2.168952] (0.0331)	-0.039835 [-0.304503] (0.7615)	0.215647** [2.264340] (0.0263)	0.207451** [2.537861] (0.0131)
Log(RER)	0.678376*** [11.46036] (0.0000)	0.812897*** [6.761990] (0.0000)	0.609084*** [5.879178] (0.0000)	0.747334*** [7.913738] ***
TI		0.015543*** [7.450670] (0.0000)		0.010107*** [6.735918] (0.0000)
Log(LCI)			0.709262*** [4.978551] (0.0000)	0.451869*** [4.396875] (0.0000)
Number of obs.	84	84	84	84
Sargan test	69.11124 (0.278691)	67.33912 (0.187898)	65.81159 (0.224719)	66.34230 (0.185936)

Note: The *p*-values are in ( ) and t-statistic in [ ]. \*\*\*, \*\*, and \* denote significance of parameters at 1%, 5% and 10%, respectively.

Similarly to the case of the manufacturing sector, the impact of GFCF on exports is higher than the FDI one. The sign of the coefficient varies from negative (in the first two specifications) to positive, in the last two specifications. Also, this time the RER coefficient is positive and significant, contrary to expectations. In fact, the scholars warn on the decrease in competitiveness in the European developed countries which affects their exports. LCI has the same unexpected behaviour. To clarify this situation, either a variable encompassing the intensity of research and development or the training of human capital should be added to the models for further researches, or the variable expressing the exports should be divided by type of service exported. It is possible that the increase in the labour costs is associated with an increase in the training of human capital, therefore enhancing a growth in the export of services that are intensive in research and development or need high level skills.

Also, the volume of the previous exports has a greater impact on services than on industry. Using the interpretation proposed by Kutan and Vuksic (2007) for the role of foreign or domestic investments in enhancing exports, it seems that old EU countries count on their own capabilities in order to promote the export of services.

## 5. Conclusions

In this paper, we try to explain whether the export performance of several new and old EU MS is mostly influenced by foreign or domestic investments from 1999 to 2012. We used a GMM dynamic panel data model for assessing trade in the manufacturing and the services sectors.

Some general considerations can be emphasized. Firstly, both foreign and domestic investments have a positive impact on the exports registered in the following year. Still, there are important differences both among the EU groups of countries and among sectors.

Foreign investment seems to have a higher impact on increasing exports in the new EU MS than in the old ones, irrespective of the economic sector. Instead, in the old EU MS, the domestic investment is the main instrument for increasing the export performance. In all the four cases, there is a virtuous circle: more exports in manufacturing or services will draw a higher volume of exports in the following year. This evolution is more important than the increases in domestic or foreign investments in every specification of the models. Still, previous business bounds are more important for the manufacturing exports in the new MS and for the services exports in the old MS.

Secondly, the segregation based on the type of sector offers interesting results: although the positive relationship is preserved, the exports in the manufacturing sector are more sensitive to the impact of foreign and domestic investment, seen in the size of the coefficients. Instead, the exports in the services sectors are primarily affected by the evolution of domestic investments.

The higher importance of FDI for the export performance in the new EU MS point to the fact that these countries benefited the most from the FDI-specific effects (such as the transfer of technology and know-how, as mentioned before). Therefore, the efforts of the policymakers should focus in designing attractive measures for foreign investors, as already emphasized in other studies (Paul et al., 2014; Popovici and Calin, 2012). Intensifying efforts in attracting foreign investors seems to have a higher impact on these countries' exports than the investments in the production capacity. The higher importance of domestic investments for increasing exports in the old EU MS could also point to the fact that these countries are also significant FDI providers and important markets for market-seeking FDI.

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## Appendix

**Table 1**  
**Descriptive Statistics for the Manufacturing and Services Sectors, New EU Member States**

	Manufacturing sector			Services sector			Common for both sectors		
	EX	FDI	LCI	EX	FDI	LCI	GFCF	RER	TI
Mean	35612.79	15208.01	68.27885	6991.237	20961.70	68.96923	25.14885	104.9005	80.12768
Maximum	157783.9	76142.55	107.6000	32619.95	110454.0	102.8000	38.40437	158.5400	87.60000
Minimum	2155.922	465.4012	13.00000	1105.006	1493.015	13.30000	16.15213	66.55000	46.80000
Std. Dev.	40313.49	18451.32	23.74165	6973.238	25208.81	23.99266	5.005476	17.84862	8.629994
Observations	112	109	104	112	107	104	112	112	112

**Table 2**  
**Descriptive Statistics for the Manufacturing and Services Sectors, Old EU Member States**

	Manufacturing sector			Services sector			Common for both sectors		
	EX	FDI	LCI	EX	FDI	LCI	GFCF	RER	TI
Mean	359049.0	127718.6	84.13474	100240.8	288895.6	84.32947	21.45990	99.21327	81.93571
Maximum	1356084.	426856.2	100.0000	276081.9	816683.1	100.0000	25.80268	109.5600	87.60000
Minimum	44661.53	9005.395	61.40000	7128.106	15959.06	62.90000	16.05040	82.84000	63.60000
Std. Dev.	316108.3	108609.5	10.50304	74833.46	248789.3	10.13669	2.066353	4.983867	4.589011
Observations	98	91	95	98	97	95	98	98	98

**Table 3**  
**Results of the Unit Root Tests for the Time Series, Using Levin, Lin & Chu Method**

Variable	Statistic	Prob.	Cross-sections	Obs.
<b>New EU MS – Industry</b>				
Log(EX)	-2.82968	0.0023	8	96
Log(FDI)	-5.37268	0.0000	8	93
<b>Old EU MS – Industry</b>				
Log(EX)	-2.38807	0.0085	7	84
Log(FDI)	-3.09371	0.0010	7	76
<b>New EU MS – Services</b>				
Log(EX)	-2.26307	0.0118	8	96
Log(FDI)	-7.85082	0.0000	8	91
<b>Old EU MS – Services</b>				
Log(EX)	-3.23963	0.0006	7	84
Log(FDI)	-3.23983	0.0006	7	83
<b>New EU MS, common variables for industry and services</b>				
D(GFCF)	-6.98473	0.0000	8	88
D(RER)	-2.47532	0.0067	8	88
<b>Old EU MS, common variables for industry and services</b>				
D(GFCF)	-6.12389	0.0000	7	77
D(RER)	-3.54908	0.0002	7	77