

# The Dynamic Links between Exports, Foreign Direct Investment and Economic Growth: Evidence from European Transition Economies

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**Abstract:** By applying time series and panel data cointegration analysis, this study investigates the causal relations between exports, inward FDI and GDP for fifteen European transition economies over the period 1995-2014. Our study goes beyond previous empirical works by employing two auxiliary variables in the above nexus, namely domestic investment and government spending. Empirical findings suggest that though the impact of openness is beneficial to all economies of the region, the presence of Export-led Growth and FDI-led Growth hypotheses are validated mainly for the group of economies that entered the EU in 2004. Conversely, for the remaining economies our results confirm the prevalence of a culture for saving over spending which eventually provokes the beneficial expansion of their local investment and export capacity.

**Keywords:** FDI, exports, GDP, transition economies, time series analysis, panel data analysis.

**JEL classification** – C32, C33, E22, O11, F14, F15, F21

## 1. Introduction

Economists, scholars and policy experts have shown significant interest in the relationship between economic growth, trade and foreign direct investment (FDI), particularly in developing countries. It is a generally established argument that the openness of an economy enhances economic progress irrespectively of its level of economic development. The two aspects of openness are free international capital flows and open trade policies in goods and services. This explains why a number of major international organizations, such as the World Bank, IMF, United Nations and the Organization for Economic Cooperation and Development (OECD), encourage especially developing countries to accept more liberalized dogmas with respect to international trade and foreign direct investment.

The countries of Central-Eastern, South Eastern Europe and the Baltics have flourished in attaining notable economic development during the last 20 years. Prior to the 1990s, these economies were characterised by significant incompetencies of the former central planning system such as scant capital accumulation, weak domestic consumption and unproductive labor utilization. However, during the transition

period, they have evolved into attractive regions for foreign direct investment and international trade transactions.

In a broad approach, though the growth model of these transition economies is relatively recent -only 25 years old- it is however generally accepted that it was based on three specific pillars: the Washington Consensus, the IMF-supported programs and the EU integration process. As a consequence, these emerging economies were accustomed to the principal guidelines of the above organisations, namely relaxing transactions and prices, liberalising their financial markets, forming institutions and conducting prudent macroeconomic management.

In fact, prior to the global financial crisis in late 2008, the transition economies of the Baltics, Central Eastern and South Eastern Europe, registered persistently high growth rates combined with strong surges in FDIs and expanded exports. However, with the eruption of the crisis both exports and foreign capital dropped significantly. In the aftermath of the crisis, the resumption of growth rates alongside with FDI inflows and trade volumes was not vigorous and most importantly there are significant variances in the growth rates between the economies of the region. As a consequence, many doubts and questions have emerged concerning the pre-crisis development model as well as the future growth prospects of the economies of this region.

A review of the existing empirical literature in the context of European transition economies indicates that most empirical studies examine either the nexus export-economic growth (e.g., Gries and Redlin 2012, Cetintas and Barisik 2009), the nexus FDI-economic growth (e.g., Kornecki and Raghavan 2010, Mehic et al. 2013) or the FDI-trade nexus (e.g., Kinoshita 2011, Dritsaki and Dritsaki 2011), while few attempts (e.g., Varamini and Kalash 2010, Josifidis et al. 2012), have been made to test these three relationships under the same framework. In fact, the core bulk of studies that have examined these three linkages simultaneously are concentrated mainly in South East Asian and African Economies (e.g., Ahmed et al. 2010, Feeny et al. 2014). More importantly, the relevant empirical literature shows mixed results on the direction of causality between FDI, exports and income. This ambiguity has been partly associated with different methodologies and model specifications, as well as differences in the countries analyzed and/or the period included. In response to these

issues, our study will examine the relationships between exports, inward FDI and national income in the context of European transition economies.

There are also some other important features of our study that distinguish it from previous empirical studies. First, considering that economic development is an extremely complex procedure based on many factors, there is a strong motivation to employ more variables than just trade and inward FDI in a growth model. Thus, we introduce two other significant growth dynamics, namely domestic investment and government spending. To the best of our knowledge, this is the first empirical research in the transition empirical literature that compares the growth dimensions of both outward-looking (exports and FDI) and inward-looking (domestic investment and government consumption) dynamics as well as the various links between them. Second, contrary to most existing literature in European transition economies, we apply both disaggregated time series analysis as well as heterogeneous panel cointegration analysis to allow for heterogeneity of dynamics and time effects and to receive more comprehensive results. This procedure is similar to the seminal studies of Hsiao and Hsiao (2006) and Ahmed et al. (2011), who investigated the causal links between trade, FDI and GDI in South Eastern Asian and African economies respectively. Finally, previous empirical works have not incorporated significant data for the post-crisis period. Hence, the present study's aim is to broaden the existent empirical works by covering this research gap. The logic behind the above implications is to draw significant inferences and strategies for government authorities in their quest for a more dynamic pattern to stimulate sustainable economic development by managing effectively both outward-looking and inward-looking growth dynamics.

The rest of the paper is structured as follows: Section 2 presents key macroeconomic trends in transition economies of Europe. Section 3 covers the relative literature review. Section 4, reviews the empirical literature. Section 5 describes the analytical framework. Section 6, provides a description of the dataset. Sections 7 and 8 present the econometric investigation and empirical results of the time series and panel data analysis respectively. Section 9 refers to the conclusion and policy recommendations.

## 2. Key Trends of GDP, FDI and Exports Performance in European Transition Economies

During the course of the past twenty-five years the emerging European economies have faced four phases of development: Initially a transformational stagnation after the fall of the communist system at the start of the 1990s; afterwards a period of prosperity and strong development especially during the 2000s; a huge contraction following the crisis in 2009; and again a resumption of positive growth rates in most of the transition economies in the aftermath of the global financial crisis (see Table 1).

In particular, during the first period of development in the 1990s, they exploited the domestic market dynamics resulting from internal factor redeployment and architectural reforms in favour of an open market economy (Darvas 2010). In the second phase over the 2000s they benefited from significant foreign direct investment influx; the evolution of international trade as a result of a commodity price bubble and close relations mainly with the European Union (Landesmann 2013). However, the effect of the global financial crisis in the transition European economies was extremely severe comparing to other emerging economies of the world. In the aftershock of the global crisis in 2009, the recovery has been gradual and varied widely across individual emerging economies.

### **Table 1: GDP Indicators in European Transition Economies**

More importantly, looking at the data of Table 1, we find compelling evidence that despite the solid growth of the past twenty-five years in South Eastern Europe, economic progress has not been as significant as in the Central East European and Baltics economies. Income per capita has increased in South Eastern Europe never reached the levels of its Central East European peers.

As we can easily identify from the data of the next Table 2, there is a deep gap between foreign investments in the Central Eastern and Baltic states and the South Eastern European countries. In line with the global trend that FDI converges mainly into the most developed economies, the same pattern occurred at a regional level in the transition European area.

## **Table 2: Inward FDI and Exports Indicators in European Transition Economies**

Broadly speaking it appears from the data (Table 2), that the large proportion of FDI stock in GDP points out that foreign capital movement has played a major role towards their transformation into market economies and their economic progress in the last 25 years. However, in the aftermath of the crisis, it seems from the same table that in the South Eastern European region, inward FDI as a share of GDP has started to exceed the corresponding share of its Central Eastern and Baltic counterparts.

Considering the export performance of these economies, from the right columns of Table 2, we can identify that after 2000, in the Central Eastern European and Baltics economies, exports as a percentage of GDP have exhibited a robust continued upward trend and by 2014 the corresponding share amounted to virtually 80 percent of their GDP. On the other hand, South Eastern European economies have exhibited a weaker trade performance and the corresponding ratio was around 40 per cent by the end of 2014.

### **3. Literature Review**

#### **3.1. Inward FDI and Economic Development**

FDI is widely considered to be a net addition to the domestic country's income (Sandancilar and Altiner 2012). In fact, FDI is usually associated with the quality upgrade of the domestic product base arising from the fact that MNE's products are usually superior to those of indigenous firms (Wang et al. 2010). It is also pointed out that FDI is a unique bundle of capital that not only facilitates physical capital acceleration but can supplement domestic investment by means of enhancing the available domestic capital stock in the form of advanced technology and business operation knowledge (Chowdhury and Mavrotas 2006). Additionally, Makki and Somwaru (2004) report that domestic investment in local infrastructure facilitates the entry of MNE's in the local economy as they minimize the entry and start-up costs. This suggests higher possibilities for profitable foreign investments schemes.

Other theoretical contributions attest the notion of FDI spillover effects which exemplifies the stock of knowledge that can be transmitted from MNEs to indigenous firms and to the entire economy, through different conduits. In reality, these conduits are outlined as: 1) the competition effect (the indigenous firms are forced to operate more efficiently to keep the domestic market shares) 2) labor mobility effect (the flexible workforce conveys advanced technological and management skills from foreign to domestic firms) 3) demonstration effect (local firms study and adopt new management practices and cutting edge technology) 4) backward and forward linkages (the former refers to the benefits that stem from the links between MNE's with local suppliers and clients while the second from the linkages with local competitors) (Merlevede et al. 2014, Gui-Diby 2014).

However, De Mello and Fukasaku (2000) assert that the technological gap between the foreign and indigenous enterprises should not surpass a threshold level owing to the fact that technologically lagging countries may not be able to use efficiently the foreign advanced technology. Additionally, it is argued that the quality of native human capital i.e. in the realms of skills and knowledge is a catalyst for the technology and knowledge diffusion fuelled from FDI (Borensztein et al. 1998).

### 3.2. Exports and Economic Development

Several arguments suggest the necessity for an export-led strategy. First, it is widely accepted that the small domestic markets of the transition economies, as well as the low disposable income of the inhabitants, do not permit many indigenous firms, to develop competitive economies of scale production (Buturac et al. 2010). Second, in periods of high uncertainty and volatility in the international financial markets, the increase or even the close of the spigot of foreign borrowing could result in weak domestic liquidity. As a result, the plummeting of domestic demand inevitably triggers the shift towards more export-oriented activities for indigenous firms as the only solution for longevity. Third, since the early 1990s and until the outbreak of the global crisis in 2008, (with the most prominent example that of the south Eastern Asian countries), the export-led growth strategy has evolved into the main factor contributing to global economic growth (Freund 2009). Finally, and perhaps most importantly, is the fact that in addition to the internal to the firm increasing returns,

exports can influence total output by means of social increasing returns owing to: knowledge spillovers via labor mobility or monitoring of the procedures of other businesses; efficiency gains stemming from the size of the goods market; quality upgrade of the local workforce originating in increased competition in the enlarged labor market; optimal provision of social goods , services and institutions due to the increased demand by private businesses over policy governance (Venables 2009).

### 3.3. Inward FDI and Exports

In the empirical literature, the case where FDI leads to exports in a host country is called “FDI-led export hypothesis”. The principle is briefly as follows: FDI boost the exports of host countries by: (a) complementing domestic capital for exports; (b) infusing knowledge about international markets and global distribution networks not necessarily available to indigenous firms; (c) augmenting local firms’ competitiveness through the transfer and diffusion of technologies, management know-how, entrepreneurial skills and labour quality upgrading in terms of general education and training, technical skills etc. (Caves 1996).

On the other hand, the opposite causality from exports to FDI can also be found; actually, FDI is attracted to countries with a better trade outlook both in terms of imports and exports, and as a consequence, the adoption of an export promotion strategy promotes FDI inflows and the cycle resumes (Ponce 2006) which is in accordance with Vernon’s (1966) product cycle framework.

## 4. Review of the Empirical Studies

The following review of the empirical works is organised in line with the econometric approaches that have been applied to European transition economies which include: 1) individual time series analysis; 2) panel regressions studies based on production function models and; 3) panel cointegration approaches.

### 4.1. Times Series Studies

An issue of major concern is the expected heterogeneity among the countries of the data set. Given the fact that each economy presents different policy regimes and growth patterns, time series analysis can provide more insight and reveal even

possible outliers regarding the design of specific growth dynamics. From an econometric point of view, individual economy's cointegration analysis can ensure the presence of at least one cointegration relationship among the variables for each economy.

In this sense, Trost and Bojnec (2015) examined the causal interplays between exports, economic growth and public wage bill in Slovenia for the period 2001:1-2014:2 by applying real quarterly data. The results suggest a unidirectional relationship running from the public wage bill to real output and exports. The findings also support the ELG hypothesis for the case of Slovenia. In a similar vein, Dritsaki and Dritsaki (2010) examined the causal links between government spending and total output for a set of twelve new members of the EU. They got diverse and incomplete results owing to the absence of integration relationships for some economies. In particular, in the cases of Bulgaria and Cyprus, the outcomes of the Granger causality tests confirm that public expenditure produces national income. On the other hand their findings, in the cases of the Czech Republic, Malta, and Slovenia, reveal that national income causes public expenditure.

Fidrmuc and Martin (2011) studied the causal links between exports, industrial production and inward FDI by applying monthly proxies over the period 1995:1-2009:9 for 11 CESEE countries. Their results suggest that in almost all the economies under analysis both exports and inward FDI exert a positive influence on industrial growth performance. Acaravci and Ozturk (2012) examined the links between exports, FDI and GDP for ten European transition economies over the period 1994-2008. Their results support the FDI led growth hypothesis for the Czech Republic and Slovakia while the growth led FDI hypothesis is validated merely for the case of Poland. They also validate a bidirectional link between exports and GDP for Latvia and the Slovak Republic and a reciprocal relation between exports and FDI for Latvia. Finally, Weber (2011) analysed the effect of FDI, exports and domestic capital on GDP in a group of five Central Eastern European economies and the three Baltics States over the period 1994:1 to 2009:2. Overall, the results confirm that both exports and FDI positively influence GDP even in the aftermath of the global crisis.

However, the findings of these studies should be examined carefully. In the case of the European transition economies, a major issue of concern is the lack of sufficient

time series to examine both the long run and short relationships between the variables. Moreover the application in these studies of only one cointegration method, namely the Johansen-Juselius (1990) system-based cointegration technique which incorrectly discards the null hypothesis of no cointegration in small samples can eventually bias the estimated results (Reinsel and Ahn 1992). According to Campbell and Perron (1991), the efficiency of a cointegration method can be improved only in the case of an enlarged sample rather than by raising the number of observations via monthly or quarterly data.

#### 4.2. Panel regression studies

In general the prime benefit of panel studies is that it allows a meaningful empirical research to be conducted even in the case of limited data. In reality, panel regressions studies can consider unobserved country specific effects (i.e. Fixed Effects Models), or develop dynamic models (i.e. G.M.M. approach) which enable control for endogeneity bias.

For instance, Lejko and Bojnec (2012) examined the effect of internalisation by means of FDI and trade openness on national income for ten new EU members by applying panel data analysis over the period 2000-2008. The results indicate a modest positive influence of FDI and a neutral impact of trade openness on GDP. They also find a positive influence of local investment and employment on economic growth while the impact of government spending and inflation on national income was registered as negative. Further, Nath (2009) applied a fixed effects panel data approach and reports that FDI plays a two-fold function: (1) it leads to capital accumulation and (2) it raises the total productivity of investment, in a study that covered 13 transition economies of Europe over the period 1990-2005. Similarly Kinoshita (2011) confirmed the positive influence of FDI both on export and import volumes in a study for a group of 15 transition economies over the period 2000-2007.

Trpkova and Tashevskaja (2011) examined the growth determinants for the set of seven economies of South Eastern Europe over the period 1995-2007. The results indicate that factors related to macroeconomic stability and solid economic policies like general government consumption, government fiscal and current account balance and price liberalisation are the main growth determinants for South Eastern European

economies. Finally, Josifidis et al. (2012) applied a set of dynamic panel data models of growth determinants over the period 1997-2009 in fifteen economies of Emerging Europe. Their findings suggest that though macroeconomic balance and structural reforms still affect economic growth, inward FDI exerts the most prominent role towards sustained growth rates.

However, the main criticism regarding panel regression studies is related to the pooling of heterogeneous production function data across economies, which eventually leads to doubtful implications. Furthermore, the application of growth rates or first differences of variables such as FDI and exports a-priori can result to misspecification issues and can prejudice the empirical results (Ericsson et al. 2001).

#### 4.3. Panel Cointegration Studies

Considering the limitations of previously mentioned econometric studies, selected recent studies have employed well established panel cointegration methods that effectively considered the issue of heterogeneity in the case of European transition economies.

For example, Hudea and Stancu (2012) examined the causal relationship between FDI and economic growth in seven Eastern European Economies for the period 1993 to 2009. The results revealed a bi-directional causal link between national income and FDI. Cetintas and Barisik (2009) studied the relationships between export, import and economic growth for 13 transition economies. The results confirmed the presence of a unidirectional causality link running from GDP to exports. Apergis et al. (2008) examined the causal relationships between FDI and GDP for a set of twenty seven transition economies over the period 1991-2004. The findings suggest that FDI exert a significant causal effect on GDP mainly in high income economies and economies with fertile privatization schedules. Dritsaki and Dritsaki (2011) examined the causal links between exports and FDI for a set of twelve new members of the European Union over the period 1995-2012. Their results validate a reciprocal relationship between inward FDI and exports both in the short and long run.

### 5. Analytical Framework

Traditionally, most of the empirical studies that examine either the FDI or/and Export-led growth hypotheses follow a conventional paradigm, i.e. the application of an augmented general production function with the two main factors such as the amount of *Labor* (signified by  $L$ ) and amount of *Capital* (represented by  $K$ ) alongside with *Exports* (symbolized by  $X$ ) and *Inward FDI* (signified by  $FDI$ ) as additional factors influencing the total output and productivity of an economy:

$$Y = f(L, K, X, FDI) \quad (1)$$

However, in our case and in line with previous empirical studies focusing on the same group of transition economies (see, e.g., Weber 2011, Borys et al. 2008), the Labor variable was dropped from our paradigm owing to the fact that in our specifications it was either negatively signed or positive but highly insignificant. Considering that Labor Force, according to the ILO (International Labor Organization) definition, consists of both the employed and unemployed population, it is envisaged that the persistently high unemployment rates in the whole of transition Europe exert a detrimental effect on the applicability and efficacy of this variable.

On the other hand, a number of studies focusing on the transition economies of Europe (see, e.g., Apergis et al. 2008, Kherfi and Soliman 2011) selected to apply the average years of secondary schooling as an indicator of the quality of human capital and in accordance with the endogenous growth paradigm (see, e.g., Lucas 1988). Still, we evaluate that this control variable does not show any dynamism as it remains almost the same (with negligible variances in the case of transition economies) over time. Accordingly it may not be applicable and probably will fail to excel our empirical analysis.

Nevertheless, recent empirical works dealing particularly with South Eastern Asian and African economies (see, e.g., Gui-Diby 2014, Kotrajaras et al. 2011) have employed two more precise measures of the quality of human capital, the secondary gross school enrollment rate and the public expenditure on education as a percentage of GDP. However, data constraints with the last two indicators in Western Balkan Economies and the pursuit of the objective to include these economies in our analysis has entailed the need to determine other growth dynamics such as the Government Final Consumption. The selection of this variable for our model is due to the

following factors: 1) The attainability of long series for all the economies of our dataset; 2) Government expenditure encompasses spending on education and health services which actually indicates the quality of the human capital; 3) Public expenditure is critical in transition economies, when private investment is lacking; 4) In fact, in periods of economic turbulence with extra spending it can affect growth by stimulating aggregate demand; 5) It is also an indicator for macroeconomic stabilization policy, as excessive public spending may induce prolonged budget discrepancies which eventually may turn into an impediment for other growth dynamics.

Considering the above arguments the model of our study is specified as:

$$GDP = f(GGC, GFC, EXP, FDI) \quad (2)$$

Where: *GDP* typifies the total real GDP; *GGC* implies total general government final consumption expenditure; *GFC* symbolises the total gross fixed capital formation; *EXP* connotes the total real exports of goods and services and *FDI* indicates total Inward FDI.

The primary goal of this empirical study is to find a long run relationship between, exports, inward FDI, GDP, gross capital formation and government spending. It is widely considered that a log-linear specification provides consistent and reliable empirical proof compared to linear modelling, thanks to the provision of elasticities or growth rates lead to more applied findings for policy makers (Shahbaz and Rahman 2010).

Hence, the time series econometric form of Eq. (2) is specified as follows:

$$LGDP_t = \beta_0 + \beta_1 LGGC_t + \beta_2 LGFC_t + \beta_3 LEXP_t + \beta_4 LFDI_t + u_t \quad (3)$$

Considering that our study will also employ the panel data approach, Eq. (2) can be written as:

$$LGDP_{it} = \beta_0 + \beta_1 LGGC_{it} + \beta_2 LGFC_{it} + \beta_3 LEXP_{it} + \beta_4 LFDI_{it} + u_{it} \quad (4)$$

Where  $\beta_0$ =Constant Term,  $\beta_1$ =Regression Coefficient of *GGC*,  $\beta_2$ =Regression Coefficient of *GFC*,  $\beta_3$ = Regression Coefficient of *EXP*,  $\beta_4$ = Regression Coefficient

of *FDI*, and  $u_{it}$  = disturbance term and is independent for all time and units. The subscript  $i= 1, \dots, N$  stands for the country (in our study we have 15 countries);  $t=1, \dots, T$  suggests the time period (our time frame is 1995-2014).

## 6. Selection of the Data

Our sample consists of the three Baltic Economies (Estonia, Latvia, and Lithuania), five Central Eastern European Economies (Czech Republic, Hungary, Poland, Slovakia, and Slovenia) which in our study are henceforth identified as CEEB-8 and seven economies of South Eastern Europe (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYROM, Romania, and Serbia) which henceforth are identified as SEE-7. The data for the analysis are annual and cover the period 1995-2014.

Concerning the time span under observation, the period prior to 1995 is characterized by considerable volatility in the relevant macroeconomic series, which would bias the results of the causality analysis. Additionally, the early transition period is characterized by objectionable data inaccessibility for most of the South Eastern Economies. Hence, for all the European transition economies we narrowed our sample period to the most recent period 1995-2014 for relative reasons of comparison. More importantly, this specific time period has evolved to be the most dynamic chapter of their economic history, linked to vigorous growth rates, the evolution of international trade and significant surges in FDIs.

The variables applied in our study, are total inward Foreign Direct Investment (*FDI*), total Exports of goods and services (*EXP*), total Gross Fixed Capital formation (*GFC*), total General Government final Consumption (*GGC*) and Gross Domestic Product (*GDP*) (see Appendix A on the series sources). All the variables are converted into constant prices of 2005 and transformed into logs, consistent with previous studies. For example, Hsiao and Hsiao (2006) and Ahmed et al. (2010) applied the log of total measures of the variables to investigate the causal linkages between exports, FDI and GDP for the case of South Eastern Asia and Sub-Saharan African economies respectively.

## 7. Individual Time Series Analysis

In general terms, time series analysis entails three steps: First, stationarity check for each individual time series; Second, cointegration analysis to investigate the long run relationships between the selected variables. Third, Granger test can be applied to check the causality between the variables.

### 7.1. Time Series Unit Root Tests

We conducted the Augmented Dickey-Fuller test (ADF) (Dickey and Fuller, 1979) for all the series and for all economies covered in the study. The results in Table 3 indicate that the null hypothesis of a unit root in logarithm is not rejected in levels. However, as we can see from the same table, all the variables are stationary in first differences. Thus, we proceed with the investigation of the long run relationship among the five variables for each economy of our dataset.

**Table 3: Time Series Unit Root Tests**

### 7.2. Time Series Cointegration Tests

In this study, we applied the Johansen-Juselius (1990) multivariate cointegration method for each economy in order to capture the dynamic relationship among the five variables and the results are presented in Table 4. Both trace statistics and maximal eigenvalue statistics indicate that each economy has, at least, one cointegration vector and thus, we validate that there is a long relationship between the variables of our model for each economy of our sample.

**Table 4 Time Series Cointegration Test**

### 7.3. Time Series Granger Causality

The results from the previous section indicate that the causality tests should be performed in a VECM framework for each economy. The enriched form of the Granger Causality procedure is expressed in a multivariate  $p^{\text{th}}$  order vector error model as presented below:

$$\begin{bmatrix} \Delta \ln(EXP_t) \\ \Delta \ln(FDI_t) \\ \Delta \ln(GDP_t) \\ \Delta \ln(GFC_t) \\ \Delta \ln(GGC_t) \end{bmatrix} = \begin{bmatrix} a_1 \\ a_2 \\ a_3 \\ a_4 \\ a_5 \end{bmatrix} + \sum_{i=1}^{k-1} \begin{bmatrix} \beta_{11i} & \beta_{12i} & \beta_{13i} & \beta_{14i} & \beta_{15i} \\ \beta_{21i} & \beta_{22i} & \beta_{23i} & \beta_{24i} & \beta_{25i} \\ \beta_{31i} & \beta_{32i} & \beta_{33i} & \beta_{34i} & \beta_{35i} \\ \beta_{41i} & \beta_{42i} & \beta_{43i} & \beta_{44i} & \beta_{45i} \\ \beta_{51i} & \beta_{52i} & \beta_{53i} & \beta_{54i} & \beta_{55i} \end{bmatrix} \begin{bmatrix} \Delta \ln(EXP_{t-1}) \\ \Delta \ln(FDI_{t-1}) \\ \Delta \ln(GDP_{t-1}) \\ \Delta \ln(GFC_{t-1}) \\ \Delta \ln(GGC_{t-1}) \end{bmatrix} + \begin{bmatrix} \psi_1 \\ \psi_2 \\ \psi_3 \\ \psi_4 \\ \psi_5 \end{bmatrix} ECT_{t-1} + \begin{bmatrix} u_{1t} \\ u_{2t} \\ u_{3t} \\ u_{4t} \\ u_{5t} \end{bmatrix} \quad (5)$$

Where  $\Delta$  is the difference operator, while ECM is the error correction term resulting from the long-run cointegrating equation using the Johansen-Juselius (1990) approach. The constant terms are denoted by  $\alpha$  ( $i=1, 2, 3, 4, 5$ ) in the VECM equations and  $u$  ( $i= 1, 2, 3, 4, 5$ ) residual term is assumed to be normally distributed. Considering that each economy<sup>1</sup> of our sample has only 20 observations<sup>2</sup> of annual data we have selected to apply one-lag for all the variables of our model.

A summary of the results in Table 5(a) indicates that, in the case of the Baltic States, the export-led growth hypothesis is present for all the economies of the region. However, in the case of Lithuania, it appears that the export-led growth hypothesis is valid both in the short as well in the long term. Additionally, the results indicate that in the case of Lithuania inward FDI plays a more important role in GDP both directly (at the 1% level of significance) as well as indirectly via exports (at the 15% level of significance) and local investment (at the 1% level of significance). Conversely, in the short-run and in the case of Estonia and Latvia government spending exerts a significant causal link both on export volumes as well as total output. The results also suggest that in the case of the Baltics States it is the export expansion that provokes a boom in local investment both in the short term and long term. Finally, we can infer that in the three Baltic States, internal growth mechanisms act as a stimulus for more government spending.

Next, we observed the causality mechanisms for Central Eastern European countries. For the Czech Republic we find three interesting unidirectional causalities: FDI causes GDP, exports and local investment both in the short and long term. For Hungary we confirm the FDI led growth hypothesis only in the short run. Unidirectional causalities from FDI to exports and local investment both in the long and short run suggest the important role of FDI in the Hungarian economy. For Slovakia, the results support the FDI led growth hypothesis both in the short and long

term. Additionally for the same economy we reveal bidirectional causality between FDI and exports.

The findings also reveal the validity of the Export-led growth hypothesis only in the case of Poland, the largest economy of the region. This finding is consistent with the notion that the positive impact of exports on total output appears only when the enduring enlargement of the local market size surpasses a certain threshold level (Tsitouras, 2016). Furthermore, for Poland the results confirm that FDI causes GDP directly and indirectly only via local investment and not via exports.

#### **Table 5(a): Time Series Granger causality tests**

In the case of Slovenia the findings suggest that exports and inward FDI did not exert any significant causal effect on GDP. In fact, our estimated results validate that there only exists a bi-directional causality between GDP and government spending both in the short and in the long run as F- statistic and t-values are significant in the relative equations. In particular, Slovenia has been an outlier since the general investment policy has not been strong towards foreign penetration resulting from the fervent belief that it was already an advanced and competitive economy in comparison to the other new EU members (Kornecki, and Raghavan, 2011). More importantly, according to Trost and Bojnec (2015), the sizeable public wage bill in Slovenia stems from the solid influence that public sector unions exert on government authorities.

Finally, we observed the causal mechanisms in the case of the five South European Economies (Bulgaria, Romania, Albania, Croatia and FYROM). From Table 5(b) we can infer that the validation of FDI-led growth hypothesis is supported only in the medium term in Bulgaria and Croatia. Additionally our results confirm that only in the cases of Croatia inward FDI plays an important role in the expansion of both local investment and export volumes in the short run. Furthermore, we can strictly identify a short-run causality running from FDI on exports in the case of FYROM (at the 10% level of significance) and Bulgaria (at the 15% level of significance). On the other hand, in the cases of Romania, Albania and FYROM we identify that government spending exerts a significant causal effect on export volumes both in the short and long run. Thus, it seems that besides its role in stimulating demand, government spending can exhibit a positive influence on indigenous factor productivity by making

it necessary for native established businesses (both home-grown and foreign affiliates) to pursue larger markets in order to dispose of their augmented production.

### **Table 5 (b): Time Series Granger causality tests**

In most cases we can infer that the individual time series analysis can contribute to reveal country specific casual relationships among the variables of our model. However these results should be interpreted wisely for the following reasons: First, each economy of our sample has only 20 observations of annual data to insure that we can establish robust short- and long-run links between the variables. Second the number of 20 observations for each economy corresponds exactly to the lower critical bound of available MacKinnon's (1996) critical values<sup>3</sup> for the time unit root tests. Third we have not been able to conduct causality tests (in a VECM framework) for the cases of Serbia and Bosnia and Herzegovina due to limited observations (see note 1). Certainly, a more comprehensive picture of South-eastern Europe would undeniably require the inclusion of these two economies in our analysis. Finally, as the causal relationships vary from economy to economy we are not able to provide sound development policy recommendations. These challenges motivate our next empirical examination of applying panel data cointegration analysis.

## **8. Panel Data Analysis**

In the light of the above issues, the panel data analysis can be efficient if we take into account the heterogeneity of each cross-section unit and enable singular distinct effects (Davidson and MacKinnon, 2004). A closer examination leads to the taxonomy of the targeted economies into different sets of emerging economies in Europe, those of Central Eastern Europe and the Baltics States (*CEEB-8*) in one group and those of South Eastern Europe (*SEE-7*) in the second group.

Namely, our motivation for splitting the sample of fifteen transition economies into two taxonomies, that of CEEB-8 and SEE-7 originates from the following motives:

- 1) The vast majority of empirical panel studies focusing on emerging economies has examined the impact of FDI and Exports on GDP by explicitly assuming that the

level of economic development has evolved at a similar pace in all the economies throughout the period of each study. Arguably the added knowledge coming from these studies is beneficial but these studies failed to provide sound comprehensive policy recommendations for the reason that the effects of FDI and exports can actually vary according to the tangible level of economic development (see Section 3.1).

- 2) South-eastern Europe is an area not thoroughly included in econometric works in transition economies, to a certain extent owing to the absence of comprehensive data. The majority of econometric papers focus mainly on Central Eastern Europe and comprise limited countries from South-eastern Europe in the pool of data, usually Bulgaria and Romania, and more rarely Croatia.
- 3) In the midst of accession to the EU, the transition economies of Central Eastern Europe made great improvements in many aspects of economic policies and legislation framework that differentiate them significantly from the group of economies of Southeastern Europe.
- 4) By applying the income per capita as a proxy for the stage of economic development (see Table 1 in Section 2), in line with previous studies, (see, e.g. Apergis, et al. 2008, Kotrajaras et al. 2011) we identify that actually there are two distinctive groups of economies in the CEEBSEE-15 region, that of *CEEB-8* and *SEE- 7*.
- 5) Each of these two regions has a different geographical proximity with the advanced economies of Europe, distinctive cultural legacy and a different influence from the European Union. However, each region shares a great perspective for sustainable economic development mostly by means of regional coherence and collaboration despite the past regional political conflicts essentially in the case of South-eastern Europe. This latter principle of regional cooperation is especially critical in this study.
- 6) The recent global crisis in late 2008 has given rise to the question whether it signifies a seminal moment in connection with the possibility for the emerging economies to continue their catching up process as a group or as sub-clusters over the long run.

Accordingly we construct two groups for panel estimation over the period 1995-2014. The first one consists of the eight economies of Central Eastern Europe and the

Baltics (*CEEB-8*) that joined the E.U. in 2004, and the second panel consists of the economies of South Eastern Europe (*SEE-7*) with some of the countries that joined the E.U. at a later stage and others still are in the run-up to EU accession (see Figure 1).

### **Figure 1: Map of the Sample of Economies**

Panel data analysis will be conducted in the following four steps. Firstly, we examine the order of integration of our variables by applying newly established panel unit root tests. Secondly, we would apply two panel cointegration tests: Pedroni's (1999) and Kao's (1999). The third step is to estimate the long run dynamics for equation (4), by applying the DOLS estimator suggested by Mark and Sul (2003). The last step involves the detection of the direction of causality among our variables.

#### **8.1. Panel unit root tests**

In our study, we employ three different tests, ADF-Fisher Chi-square test, proposed by Maddala and Wu (1999), Im, Pesaran and Shin (2003) and Breitung (1999) panel unit root test in order to identify the presence of unit roots on panel data. The Panel Unit Root results are reported in Table 6. As can be identified all the variables contain a unit root in levels but are stationary in first differences. Thus, we can proceed by conducting panel cointegration checks to confirm a long-run relationship between the variables of our model.

### **Table 6: Panel Unit Root tests**

#### **8.2 Panel cointegration methods**

In our analysis, we employ two types of panel Cointegration tests: Pedroni's (1999), and Kao's (1999), which are based on Engle-Granger (1987) two-step (residual-based) cointegration. In fact, Pedroni's (1999) enable for heterogeneity amongst individual members of the panel, as well as heterogeneity in both the dynamics and long-run cointegrating vectors.

The results of Pedroni's and Kao's cointegration tests for the two subpanels are reported in Table 7. Most of the test statistics reject the null hypothesis of no cointegration. In fact, the rejection is particularly strong for the ADF and PP tests. Consequently, the results confirm that there is a robust long-run relationship between exports, domestic investment, government spending, inward FDI and GDP for both subpanels.

### **Table 7: Panel Cointegration tests**

#### **8.3 Estimation of the panel long run relationships**

In fact, the panel cointegration techniques do not support an estimation of the long-term relationship between the data variables. Thus, we proceed by estimating the cointegrated parameters by applying the dynamic ordinary least squares (DOLS) procedure suggested by Mark and Sul (2003). The main gains of the DOLS estimator are that it operates better in small datasets and controls conventional OLS for bias generated by endogeneity and serial correlation (Kao and Chaing 2000).

Considering the latest macroeconomic trends in the CEEBSEE-15 region (presented in Section 2) it is motivating to evaluate whether the impact of the financial crisis has emerged as a turning point in the growth dynamics of the region. In pursuit of this objective, we estimate the magnitude of the long-run elasticities of our model both for the period until 2008 as well as for the period 1995-2014.

### **Table 8: Panel DOLS Results (Dependent Variable is lnGDP)**

Table 8 reports the results for panel DOLS for equation (4), where GDP is the dependent variable. All variables are denoted as natural logarithms and the variances concerning the two time periods and the two groups of economies are fairly important with regards to the magnitude of the coefficients and their statistical significance.

In fact, we find that the growth effect of exports is greater for the Group A (CEEB-8) of economies than for Group B (SEE-7) for the pre-crisis period. However, we identify that this influence has gained a momentum in the post crisis period for the SEE-7 region whereas for the CEEB-8 region this influence has slightly weakened.

Namely, for the period 1995-2014, 1% increase in exports results from about 0.15 % increase in GDP in the CEEB-8 area while in the SEE-7 area the average influence corresponds to a rise of 0.19 %

With regards to the positive contribution of FDI to GDP, we can stress that the influence of FDI seems to be greater in the SEE-7 region as compared to the CEEB-8 region before the crisis. However, in the aftermath of crisis, it seems that the influence of FDI has faded merely for the SEE-7 region. In particular for the period 1995-2014, a 1% increase in inward FDI results in an increase of 0.039 % in GDP in the CEEB-8 area, whilst the same influence for the SEE-7 area is accounted for by a 0.043% increase.

Furthermore, we can identify, that local investment is more beneficial to economic development in the CEEB-8 than in the SEE-7 area but its influence has significantly dropped in the post-crisis period for both regions. In fact for the period 1995-2014, in the CEEB-8 region, a 1% increase in GFC triggers around 0.28 % increase in GDP while a 1% increase in GFC results in 0.17% increase in GDP in the SEE-7 region.

Concerning the impact of government spending on growth, we find that it is more beneficial in the CEEB-8 than in the SEE-7 area in both periods. Remarkably, in the CEEB-8 region, the global crisis triggered the exaggeration of the influence of government spending on GDP (from 0.19 % prior to the crisis, to 0.36 % in the post-crisis). Hence, it is apparent that governments in these economies in the aftermath of the crisis have provided increased public funds as a stimulus to augment aggregate demand to maintain the positive growth rates, at least in the short run. In the case of South-eastern Europe, the influence of government expenditure on economic development remained equal for the two sub-periods, and a 1% increase in government spending results in an increase of merely 0.090 % of GDP. Thus, it seems that the governments in the SEE-7 area have not been able to adequately use government funds, probably due to high corruption levels and misallocation of funds.

#### 8.4 Estimation of the direction of the panel causalities

The results from section 8.2 indicate that the causality tests should be performed in a VECM framework for each of the two subpanels.

The enriched form of the Granger Causality procedure is expressed in a multivariate  $p^{\text{th}}$  order vector error model as presented below:

$$\begin{bmatrix} \Delta \ln(\text{EXP}_{it}) \\ \Delta \ln(\text{FDI}_{it}) \\ \Delta \ln(\text{GDP}_{it}) \\ \Delta \ln(\text{GFC}_{it}) \\ \Delta \ln(\text{GGC}_{it}) \end{bmatrix} = \begin{bmatrix} a_{1i} \\ a_{2i} \\ a_{3i} \\ a_{4i} \\ a_{5i} \end{bmatrix} + \sum_{j=1}^p \Gamma_j \begin{bmatrix} \Delta \ln(\text{EXP}_{it-j}) \\ \Delta \ln(\text{FDI}_{it-j}) \\ \Delta \ln(\text{GDP}_{it-j}) \\ \Delta \ln(\text{GFC}_{it-j}) \\ \Delta \ln(\text{GGC}_{it-j}) \end{bmatrix} + \begin{bmatrix} \psi_1 \\ \psi_2 \\ \psi_3 \\ \psi_4 \\ \psi_5 \end{bmatrix} \text{ECT}_{t-1} + \begin{bmatrix} u_{1it} \\ u_{2it} \\ u_{3it} \\ u_{4it} \\ u_{5it} \end{bmatrix} \quad (6)$$

Where  $\Delta$  is the difference operator, while ECTs are the error correction terms resulting from the cointegrated equations. The constant terms are denoted by:  $\alpha_{1i}, \alpha_{2i}, \alpha_{3i}, \alpha_{4i}, \alpha_{5i}$ , in the VECM equations and the  $u_{it}$  ( $i= 1, 2, 3, 4, 5$ ) residual terms are assumed to be normally distributed. We apply three lags for all the variables of our model for the subpanel A of economies and two lags for the subpanel B, with the distinctive exception of the error correction term. The significance of the lagged ECM terms using the t-test confirms the existence of a long-run causality, and a short-run Granger causality is seized by the significance of the F-statistic or Wald test.

The results of the Granger Causality Test for the system of equations are presented in Table 9. We start with the discussion on the causality findings from the subpanel A (CEEB-8) of economies. Table 9 (upper segment) shows that in the case of the CEEB-8 countries there is a long-run bidirectional causality between exports and inward FDI. It is noteworthy that an increase in FDI inflows will result in an increase of exports volumes and an increase in export volumes will lead to more foreign capital penetration. Hence, it appears that a large inflow of FDI occurs due to the proximity of the CEEB-8 region to the advanced economies of Western Europe. Conversely, the well-established export markets in these regions make it more attractive for foreign firms. Mutual causal relationships both in the long and short run, between exports and inward FDI, were also identified by Kinoshita (2011) and Dritsaki and Dritsaki (2011), in studies referring mostly to new EU countries.

Table 9 also shows that in the case of the CEEB-8 countries, in the long run, economic expansion, exports, government spending and local investment exert a common significant causal effect on FDI flows. On the basis of this result, we can infer that internal growth mechanisms act as a stimulus for increased foreign capital penetration.

Additionally, the results suggest that the FDI-led Growth Hypothesis is confirmed both in the short run and the long run in the context of the CEEB-8 region. This result is in accordance with the findings of Apergis et al. (2008), who report that FDI has a positive influence on growth mainly in transition economies with successful privatization schemes and higher income levels. Results also provide evidence for the Export-led Growth hypothesis both in the short and in the long run for the group of economies that entered the EU in 2004. This finding is consistent with the results of Weber (2011) who validates the causal effect of exports on GDP for the identical group of economies in our study.

### **Table 9: Results of the Panel Granger Causality**

Furthermore, the findings for the CEEB-8 area indicate that inward FDI exerts a significant causal effect on gross fixed capital formation. This finding is important in the sense that it suggests a net crowding-out effect of inward FDI on domestic investment. Additionally, the findings also indicate that economic progress exerts a significant causal effect on capital formation. These findings are in line with the arguments advanced that higher machinery, equipment and infrastructure investments are outcomes of faster economic growth rates. For the same equation, test results show that there is a unidirectional causality running from exports to local investment both in the long and short run. This result is significant in the sense that export expansion stimulates the indigenous resources to move to a higher steady productive stage by means of increased domestic investments in order to cope with increasing foreign demand.

Finally, over a short period of time, the Granger causality running from national income to government spending is confirmed. This result indicates that the scale of government spending is directly affected by the sustainability of the growth rates of

national income. Thus, potential risks related to indigenous policy uncertainty and international financial instability, have an immediate result on the magnitude of government spending.

Moving to the lower segment of Table 9 we identify the causal relationships for the SEE-7 area. In fact, the findings for the SEE-7 indicate that equally in the short and the long run, government spending exerts a significant causal effect on export volumes. This long-run causal link of the size of government expenditure on exports is an interesting finding. It appears that government spending provokes the home-based productive entities to move to a superior productive capacity in order to deal with increasing indigenous demand. However, we have to consider that government spending may not be stable over time as it is closely related to political initiatives and the accomplishments of an economy over the past years as well the international financial environment. Additionally, it may be expected that increased local demand especially in smaller and poorer transition economies of the SEE area, will not tally with increased production, as a result of: 1) the weak domestic purchasing power parity 2) the relatively small value of immigrant remittances and 3) the prevalence of a culture for saving over spending stemming from the prolonged previous central planning system. It seems therefore that the above factors would ultimately stimulate the need for local established firms (both home-grown and foreign affiliates) to pursue greater market opportunities out of the local boundaries in order to dispose of their increased production.

For the same equation, test results based on the error correction model and Wald tests show that there is a unidirectional causality running from local investment to exports both in the long and short run. This result is significant in the sense that an initial level of development of indigenous resources by means of local investment can effectively provoke an export expansion. It is more than telling that in Southeastern Europe the local financial system has played a major role in export expansion by diffusing the available liquidity to mainly export-oriented firms and projects.

Additionally, Table 9 in the lower section shows that economic development, local investment and exports are the causes for inward FDI. The results are the same with the empirical findings by Demekas et al. (2005) and Botric and Škuflic (2007) who

revealed that the host market size is one of the major factors of FDI inflows to South Eastern Europe. Additionally, this finding verifies that exports expansion precedes or leads inward FDI in the context of the SEE-7. This outcome seems quite plausible due to the fact that foreign companies wish to benefit from the international competitiveness of domestic businesses. In a broad sense, an economy's vigorous expansion of total output, export capacity and local investment send a strong signal to foreign investors as to the existence of a promising and dynamic market for business activities.

However, the findings confirm that there is no support of the FDI-led Growth hypothesis either in the prolonged or shortened period in the SEE-7 area, as opposed to the sustained effect of FDI on GDP in the CEEB-8 area. Furthermore, whereas, in the context of CEEB-8 economies, inward FDI plays an important role in the expansion of local investment, in the SEE-7 economies there is no indication of a direct causal effect of FDI on domestic investment. Possible explanations for these findings can be attributed: (1) to the fact that the shares of inward FDI in total GDP remain relatively low, despite the significant rise since the mid-2000s and (2) to the sectoral distribution of FDI which is mainly concentrated in the non-tradable sectors of the SEE-7 area. Interestingly enough, studies such as Radulescu and Serbanescu (2012) and Josifidis et al. (2012) confirm that in the case of transition economies of Europe the positive influence of FDI on GDP is stronger in the first group of EU accession economies as compared to South Eastern economies.

The negative error correction term also validates the presence of the long run Granger causality running from exports, income, FDI and local investment prices to government consumption. It seems therefore that in the prolonged period internal and external growth mechanisms provoke more government spending. Finally, over a short period of time, there is a bidirectional causality between local investment and national income. It signifies that an increase in local investment will lead to a rise in national income and more national income is translated into more investment.

## 9. Conclusion and policy recommendations

This empirical study examines the relationship between exports, inward FDI and national income in the case of fifteen European transition economies. By

incorporating into our analysis two indigenous growth dynamics such as domestic investment and government spending we receive more influential results. We employ both individual time series analysis as well as heterogeneous panel cointegration analysis to allow for heterogeneity of dynamics and time effects and to receive more comprehensive results.

Our time series analysis provides diverse findings among the economies regarding the causal relations between the variables and hence we cannot provide coherent policy recommendations. However, it ascertains specific growth relations and reveals even possible outliers regarding the design of specific growth dynamics. Namely Lithuania in the frame of the Baltics States and Croatia alongside Bulgaria in the frame of the South Eastern economies, are exemplified as positive outliers regarding the role of FDI as a catalyst for economic growth as compared to their neighbouring economies. Conversely, Slovenia it does not seem to have fully exploited the benefits of openness of its economy as compared to the rest of Central Eastern European economies.

When we categorised the fifteen economies into two panels (CEEB-8 and SEE-7) and conducted panel data analysis we received more thought-provoking causality relations among the variables which are statistically stronger. Among all, panel data analysis allowed us to evaluate whether the impact of the global crisis in late 2008, has emerged as a turning point in the growth dynamics of the region. In this context, we report the long run magnitudes of exports FDI, domestic investment and government spending on national income. As can be depicted from our results, inward FDI, exports, capital formation and government spending have showed a positive long-run influence on economic development in all the sets of economies, prior and after the global crisis. However, the positive impact of local investment has been weakened significantly for both sets of economies in the post crisis period. Regarding the influence of exports on GDP we identify that this influence has gained a momentum in the post crisis period for the SEE-7 region whereas for the CEEB-8 region this influence has slightly weakened. Conversely we find that, in the aftermath of the crisis, the impact of government spending, has been exaggerated in the CEEB-8 region as compared to the SEE-7 area, possibly as an impetus to retain the positive growth rates at least in the short run.

The evidence from the Granger causality tests suggests the necessity for the export-led strategy in the case of the most advanced economies of the region (CEEB-8). However the global crisis in late 2008 has raised the necessity for national entities and policy makers to implement an unequivocal and long-standing export plan which will encompass the following tasks: First, they should consider a reorientation of their exports towards dynamic regional markets inside the EU as well as emerging economies outside the EU with high growth rates, such as Turkey, Russia and China, due to a persistent sluggish demand for imports mainly from old EU economies. Second they should specialise and upgrade their exports in newly manufactured sectors so as to generate comparative advantage. In turn, the subsequent foreign currency should be directed primarily to the augmentation of the indigenous productive capacity by means of imports of goods and services that incorporate superior foreign technology and know-how. Third it is vital to switch domestic demand from consumption to investment. For instance, a likely scenario is that a negative causality may arise from output growth to export growth. This would be likely to occur if domestic consumer demand is focused on non-traded and exportable goods, in which case an increase in domestic demand will generate an increase in output but a decrease in exports (see, e.g. Lee and Huang 2002). Fourth, home-grown or foreign-owned businesses should play a more energetic role in an export-oriented import substitution by substituting imports for locally produced inputs. Finally, governments should provide extra funds to extrovert firms and use EU funds more efficiently to upgrade local infrastructure.

Furthermore, the results of the study confirm that inward FDI is the key pillar for sustainable economic development in the CEEB-8 area, by promoting long-run economic development directly, through the expansion of total output or indirectly through exports and local investment. Considering the intense competition among developing countries for FDI, efforts should consider a dynamic promotion policy directed at investors to bring in more and higher quality FDI. Considering that FDI needs a synthesis of prerequisites to be effective, internal policies should be directed towards institutional development, macroeconomic stabilisation as well as the upgrading of human capital, which in turn can assist the technology and knowledge diffusion effect fuelled from FDI.

Regarding South Eastern Europe, our findings support the notion that both government spending and local investment exert a significant causal effect on export volumes. These results have significant policy implications in the sense that an initial level of development for an economy, indigenous resources, by means of government spending and local investment, can effectively provoke an export expansion in the absence of export-oriented FDI. In addition to our results for the same group of economies, we confirm that there is a reciprocal relationship between local investment and national income. This finding further validates the prevalence of a culture for saving over spending alongside with the effective role that the region's financial system has played in diffusing the local savings to mainly export-oriented beneficiary projects. Hence, the challenge for policy makers in the SEE-7 region would be to sustain this trend in a more prolonged period of time.

More importantly governments and institutions in the SEE-7 area, should exhibit a prudent management of European Funds<sup>4</sup> and domestic savings which can be transformed to a positive influence on indigenous factor productivity. Along the same lines, it is imperative for authorities and policy-makers in South Eastern Europe to leave past regional political conflicts behind and cooperate to design and implement proper policies so as to remove the stigma of "Balkans" and to stimulate stable and high-quality foreign investments with an export orientation.

Our key policy implication for the low-income countries of the SEE-7 area is that at an initial phase they should prioritise to expand their exports into more regional liberalised economies and to select lesser trade relations with more advanced markets where there is more intense international competition. Above all, this competition is also conditional on some international rules. For instance, South Eastern economies given the international sanctions that have been imposed by the European Union in 2014 against Russia and the recent importance that Russia has gained as a major export market for many European economies, the SEE-7 economies (especially the West Balkans) are in a favourable position to maintain the momentum of future export dynamics.

In a broad approach, our results suggest (in accordance with the findings of Apergis 2008; Kotrajaras et al. 2011, Gries and Redlin 2012), that the level of income does influence over the long run the causal effect of exports and inward FDI on GDP. In

fact, our study validates the export-led growth and the FDI-led growth nexus over the long run, solely in the subpanel of CEEB-8 which encompasses upper middle and high-income countries.

It seems therefore, that the positive influence of exports and inward FDI on total output would apply only when the enduring enlargement of the local market size surpasses a certain threshold level. Consequently, a specific period of time is necessary in order for the positive influence from exports and FDI to become visible for the inhabitants. Thus, it is vital for the policy makers of the transition countries to redirect their economic strategy towards the sustainable competitiveness of their economies and to promote a different mentality for the inhabitants so as to embrace new reforms in the field of political, economic, cultural and social foundations of their countries.

## **Appendix A: Definitions and Sources of Variables**

### **Notes:**

1. *For Serbia and Bosnia & Herzegovina we had merely 18 annual observations (over the period 1997-2014) for the Inward FDI variable and hence we were unable to perform individual VECM analysis via the econometric package EViews 9.*
2. *For instance, the seminal studies of Hsiao and Hsiao (2006); De Mello, and Fukasaku, (2000) conducted time series analysis with approximately 20 observations for Asian and Latin American economies respectively.*
3. *Provided by the econometric package EViews 9.*
4. *Structural and Investment Funds for the members of EU and Instrument for Pre-Accession Assistance for the EU candidates' countries.*

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