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SECTORIAL COMPOSITION OF FOREIGN DIRECT INVESTMENT AND GROWTH: THE CASE OF THE SEE-5

JEL CLASSIFICATION: F23, F36, F43

ABSTRACT:

The countries of the SEE5 or the Western Balkans countries are less developed European countries. Per capita GDP of the EU economies is a few times higher than in the Western Balkans. Furthermore, foreign capital inflows into the SEE5 are much lower than into the EU. The SEE5 countries see FDI as an important factor in resolving the problem of low productivity and scarce local capital. Although it is a well-accepted thesis that foreign direct investment could boost economic growth of host countries, this paper examines the real effects of the aggregate and sectorial FDI net inflows to SEE5 countries. The empirical estimates typically based only on the aggregate FDI data may not be the appropriate way because the growth effects of FDI are likely to depend on the sector in which FDI takes place. Empirical analysis, using time series cross section data for the period 2000-2014, shows that the impact of FDI net inflows on growth at the aggregate level is positive and strong, in the primary sector inclines to have a negative effect on growth, in the manufacturing sector have positive effects on growth and in the service sector exerts strong and positive effect on growth.

**KEY WORDS:****FOREIGN DIRECT INVESTMENT, SECTORIAL COMPOSITION, SEE5, SPILLOVER, PRODUCTIVITY, ECONOMIC GROWTH.**

1. INTRODUCTION

Various international organizations and financial institutions recommend foreign direct investment (FDI) as the source of direct capital financing, which brings enormous positive externalities such as technology transfer, knowhow and management skills to the host country. That is, the positive externalities may arise when a foreign firm is more efficient than domestic firms. In such a case, domestic firms can improve their productivity by copying the technology and management skills of a foreign firm. Based on the assumption that FDI is an important incentive for economic growth, many developing countries undertake reforms in order to attract higher FDI net inflows.

Southeast Europe (SEE5): Albania, Bosnia and Herzegovina, Macedonia, Montenegro and Serbia struggle to achieve sufficient growth rates and to converge with the standard of living of the developed EU members. For the analyzed time period, there is a considerable cross country variation in growth rates between SEE5 countries, which have been low and negative in some countries. Low domestic savings and investment rates in the SEE5 countries appear to be a consequence of large current account deficits. Levels of unemployment and poverty are continuously high. The level of non-performing loans (NPLs) in SEE5 countries is especially high. According to the World Bank data, at the end of 2015 Serbia recorded the highest value of non-performing loans with 22.8% and Macedonia, FYR the lowest level of non-performing loans with 11, 0%. A high level of non-performing loans could have a significant impact on credit, unemployment, real GDP growth and inflation. At the same time, governments cannot find the right formula to solve this problem. In these small open economies, monetary policy is constrained and public expenditure is limited. Therefore, the need to attract foreign investors is evident. FDI give SEE5 countries an opportunity to speed up their economic growth and to converge with the standard of living of the developed EU members. Both the transition process and the European Union (EU) accession process have further supported the call for FDI inflows.

On the other hand, the impact of FDI may largely vary depending on characteristics of the sector and its linkages to the rest of the economy and not all forms of foreign investment seem to be beneficial to host economies. For example, even if a foreign firm is not more efficient, domestic firms might be forced to improve their efficiency because of the increased competition from foreign firms through so called horizontal linkage. That is, the increased market share of the foreign company might also crowd out the domestic firms and push them to less efficient production levels (Aykut and Sayek, 2007). As reported by UNCTAD (2001), the linkage potential differs across primary, manufacturing and services sectors. The scope for linkages between foreign affiliates and local suppliers in the primary sector is often limited and production processes tend to be continuous and capital intensive. Still, it is easier to source externally when the technology is divisible into discrete stages and services than to do it as a continuous process. By contrast to the primary sector, often mentioned benefits, such as transfers of technology and management knowhow, introduction of new processes, and employee training tend to relate to the manufacturing sector rather than the agriculture or mining sectors (Alfaro, 2003). UNCTAD (2001) see the manufacturing sector as the sector with a wide broad range of linkage intensive activities, which largely varies by industry. To summarize, FDI flows in the manufacturing sector is expected to have larger impact in the economy through

a broad range of potential linkage intensive activities. The service sectors are found to receive considerably larger amounts of foreign investment in SEE5 countries, which account for 69.24% of total recorded FDI. Service sectors are almost entirely non-tradable, which makes, to a great extent, FDI in the service sector market seeking FDI that aims to access local markets of host countries with large markets, per capita income, market growth prospects, access to regional and global markets and structure of domestic market. In this context, participation of SEE5 countries in free trade agreements, regional trade integration schemes and EU approximation processes increases regional demand and potential market size.

The objective of this paper is to investigate the effect of FDI net inflows on the SEE5 economic growth during the 2000-2014 period. That is, this paper examines the effects of aggregate and sectorial FDI net inflows to SEE5 and possible implications for economic growth. The empirical estimates typically based only on aggregate FDI data may not be the appropriate approach due to the fact that the growth effects of FDI are likely to depend on the sector in which FDI takes place. Also, this paper analyzes the specific area of Europe, which despite many positive developments during the last two decades, may still face an image problem. Regardless to this possible image problem, FDI to the SEE5 are driven by factors, similarly to other transition economies, which are related to the "absorption" capacity of the country that receives the foreign investment. The importance of the absorption capacity of a country in this paper is represented by control variables like the human development index, inflation, government spending, private credits by banks, institutional quality, openness and unemployment.

The paper is structured as follows: literature review in section II, model specification, data description and estimation method in section III, empirical results are presented in section IV and section V ends with the conclusion.

2. LITERATURE REVIEW

The vast amount of literature on the impact of FDI on economic growth can be basically grouped into three main approaches. The first approach, which is used in this study, sees FDI as an important factor in resolving the problem of low productivity and scarce local capital in many developing countries (Alfaro et. al, 2000, Carkovic and Levine, 2002, Alfaro and Charlton, 2007, Tang, 2015, Apostolov, 2016, among others). That is, inflow of foreign direct capital is assumed to have significant impact on the economic growth of a host country. The second approach recognizes the importance of economic growth itself as an important determinant of attracting FDI to the host countries (Agosin and Mayer, 2000, Hansen and Rand, 2006, Estrin and Uvalic, 2013, Iamsiraroj and Doucouliagos, 2015, among others). In other words, FDI inflow into the host countries might be the result of economic growth. Finally, the third approach examines the possibility of a two way causality between FDI and growth (Choe, 2003, Zhao and Du, 2007, Argiro and Dimitrios, 2011, among others).

There are also two well-known methods in the literature to measure the relevance of FDI on growth based on FDI stocks data and on FDI flows data. Few studies clearly explain

why they use a specific measure of FDI, but rather assume that the different data have to be equivalent to each other. Wacker (2013) discusses the measurement of foreign direct investment and highlights that there is no a priori best way to measure Multinational Corporations' activities or to estimate its determinants and concludes that the choice rather depends on the circumstances. Different approaches to the FDI impact on economic growth are the result of various opinions and standpoints of authors. For instance, Aykut and Sayek (2007) see the shift to the sectorial composition of FDI inflows, as well as its variation among countries, as a partial explanation of the shortfalls of results in terms of the FDI impact on economic growth. On the other hand, Kumari (2014) in his literature survey pointed out that the positive effects of FDI vary across different regions, sectors and countries, therefore, a country specific studies must be done to check the relation between FDI and economic growth. Also, it is important to consider the composition of the sample of countries covered by panel studies (Alfaro, 2003). However, most of the empirical studies assert that FDI are beneficial to economic growth (Alfaro et al., 2000, Zakari et al., 2012, Hong, 2014, Iamsiraroj and Doucouliagos, 2015, among others) but there are also some studies that begun to question FDI's role on growth (Agosin and Mayer, 2000, Carkovic and Levine, 2002, Tang, 2015, among others).

Thesis that FDI can have important positive effects on economic growth of host countries is a well-studied subject in the economics literature, which argues that FDI can be a source of capital accumulation, knowhow, good governance, increased labor force productivity and decreased unemployment, increased exports and technology while encouraging the development of local companies and economic growth. On the other hand, the impact of FDI may largely vary depending on characteristics of a sector and its linkages to the rest of the economy and not all forms of foreign investments seem to be beneficial to host economies. Hence, Alfaro (2003) suggests differentiated efforts towards attracting different forms of FDI flows and pointed out that countries, which might want to target certain sectors, need to be weighed against bureaucratic costs and increased potential for corruption.

Nunnenkamp and Spatz (2004) indicate that resource seeking FDI stock in the primary sector tends to involve a large up front transfer of capital, technology and knowhow, and to generate high foreign exchange earnings. For the manufacturing sector, they conclude that efficiency seeking FDI in some parts of manufacturing draws on the relative factor endowment and the local assets of host economies. According to authors, this type of FDI is more likely to bring in technology and knowhow that is compatible to the host countries' level of development, and to enable local suppliers and competitors to benefit from spillovers through adaptation and imitation. They state that market seeking FDI in services and other parts of manufacturing can benefit host countries' consumers by introducing new products and services, by modernizing local production and marketing and by increasing the level of competition in the host economies. However, fiercer competition may also lead to the crowding out of local competitors, especially if foreign affiliates command superior market power. In addition, high resource FDI flows to the primary sector tend to reduce the competitiveness of the country in other sectors (Dutch disease), increase rent seeking behavior and deterioration of institutions (Aykut and Sayek, 2007). In contrast to all these unlikely positive growth effects, Nunnenkamp and Spatz (2004) conclude that the typically high export orientation of FDI in the primary sector may counterbalance negative factors. Aykut and Sayek (2007) also agree that, in the

presence of solid institutions, FDI to the primary sector may generate positive impact in a country. In the same way, Kee (2011) looks at how the product scope and productivity of domestic firms may improve due to increased access to new and better varieties of local intermediate inputs caused by the larger presence of foreign direct investment firms in the same industry and conclude that when FDI and domestic firms share common local input suppliers, an exogenous increase in the presence of FDI firms in the industry will cause domestic firms to perform better in terms of product scope, sales per worker, output per worker and productivity. Aykut and Sayek (2007) see market seeking FDI in the service sector, where forward linkages for FDI are well-defined, as massive potential impact of FDI in the sector. For example, FDI in the banking sector can have an important impact on both the efficiency and stability of the banking system through increased competition and increased access to global financial markets. On the other hand, Nunnenkamp and Spaz (2004) are of the view that although market seeking FDI in services can benefit host countries' consumers by introducing new products and services, by modernizing local production and marketing and by increasing the level of competition in the host economies, these benefits in the case of strong competition may also lead to the crowding out of local competitors, especially if foreign affiliates command superior market power.

Obviously, various sectors may require different conditions to cause a positive impact on the economy, as well as specific factors that may influence the impact of FDI ranging from motivation to financing of the investment. Alfaro (2003) uses cross country data of 47 countries for the period 1981-1999 and suggests that total FDI inflows exert an ambiguous effect on growth, but also concludes that although it may seem natural to argue that foreign direct investment can convey great advantages to host countries, the benefits of FDI can largely vary across sectors. When she distinguished among different sectors, she found little support for FDI spillovers or positive effects in the primary sector, a positive effect of FDI on growth in manufacturing, while impact was ambiguous in the service sector. Aykut and Sayek (2007), using cross country data between 1990 and 2003, investigate the impact of sectorial composition of FDI inflows on the host country's economic growth and conclude that not only the magnitude of FDI is important but also the sector in which the FDI occurs. Their empirical evidence suggests that, as the sectorial composition of FDI gets skewed towards the manufacturing sector, there is a significant and positive effect on economic growth. On the contrary, when the sectorial composition of FDI gets skewed towards the services or the primary sector there is a negative and mostly significant effect on economic growth. That is, the growth effects of FDI may be puzzling not only due to the characteristics of the host economy but also due to the sectorial characteristics of the FDI themselves. Botric (2010) pointed out that FDI in South Eastern Europe between 2000 and 2010 was biased toward the non-tradable sector and consumption and that FDI was more frequently related to the privatization process, and repeatedly to service sector privatization, while the greenfield investment share was rather low. Khaliq and Noy (2007) investigated the impact of FDI on economic growth using detailed data for FDI inflows to Indonesia over the period 1997-2006 and found that on the aggregate level, FDI were observed to have a positive effect on economic growth. However, on the sectorial level, they conclude that the composition of FDI matters in terms of its effect on economic growth and varies across sectors. Chakraborty and Nunnenkamp (2008) investigated the relationship between FDI and economic growth in India by applying cointegration and causality analyses on the basis of industry specific FDI stock data for the period 1987-2000. At the aggregate level, they conclu-

ded that the impact of output growth in attracting FDI was relatively stronger than that of FDI in inducing economic growth. It turns out that the growth effects of FDI in India widely vary across sectors and they found no evidence at all of any causal relationship between two variables in the primary sector and only transitory effects of FDI on output in the services sector.

Most macroeconomic studies identify the linkage between FDI and growth in combination with factors which are related to the absorption capacity of a country (Carkovic and Levine, 2002, Alfaro, 2003, Aykut and Sayek, 2007, Blin and Ouattara, 2008, Zakari et al., 2012, Hong, 2014, Tang, 2015, among others). Inclusion of all related control variables in the conditioning set highlights the importance of a supportive environment in the country. These considerations give the impression that the sector in which FDI occurs plays an important role, but also implies that effects of FDI on a host economy might depend on global trends, local conditions and policies. Rojec and Penev (2011) analysed local conditions of five Western Balkan countries (WB5) and concluded that the most competitive disadvantages inhibiting more FDI inflows in WB5 countries were small domestic market with low per capita income, relatively high country risk, slow progress in structural and institutional reforms, underdeveloped infrastructure, inefficient government bureaucracy and high administrative barriers. According to Rojec and Penev (2011) the best way for Western Balkan countries to attract more FDI in the future is to strengthen structural reforms and to speed up their EU approximation processes.

3. THE MODEL, DATA AND METHODOLOGY

3.1. Model Specification

Following Tang (2015), Estrin and Uvalic (2013), Aykut and Sayek (2007), Alfaro (2003), Carkovic and Levine (2002), I will focus on the direct effect of the different types of FDI on economic growth by using of time series cross section (TSCS) regressions with 5 countries for the time period 2000-2014. However, this approach differs from previous literature in that I incorporate a set of additional variables and use more quality FDI data. Data are measured at regular yearly time intervals, well arranged by both cross sectional and time series variables and organized as a balanced panel. Initially, I calculated the impact of overall FDI net inflows on economic growth based on the following equation:

$$GROWTH_{it} = \beta_0 + \beta_1 Y_{it} + \beta_2 X_{it} + \beta_3 I_{it} + u_{it} \quad (1)$$

In equation (1) $GROWTH_{it}$ above is GDP per capita growth (annual %) and Y_{it} is initial GDP per capita in PPP. X_{it} is a matrix of the following control variables: the Human Development Index (HDI) as a composite statistic of life expectancy, education, and income per capita indicators; investment as the ratio of gross capital formation and GDP; inflation as the measure of the annual growth rate of the GDP implicit deflator; government spending as final consumption expenditure, which includes all current government expenditures for purchases of goods and services; PCBANK as the ratio of private credit in Banks and GDP; IQALITY as the aggregated indicator of institutions quality measured as the

average of the 8 sub-indices, which is constructed from the EBRD indices of structural and institutional reforms; openness as average of exports plus imports as a share of GDP for the period; unemployment as the percentage of total labor force. Finally, I_{it} represents total Foreign Direct Investment (FDI) net inflows. u_{it} represents error and coefficients β_0 , β_1 , β_2 and β_3 refer, respectively, to the intercept and to the slope parameters.

The findings of initial attempts to statistically identify externalities from FDI suggest that the presence of FDI creates positive external effects in host economies. However, recent new empirical results seriously challenge these findings in two important ways. First, not only do they suggest that positive spillovers may be less prevalent as previously thought, but, more importantly, they also indicate that the presence of foreign firms may lead to significant negative externalities (Jordaan, 2005).

Hypothesis that FDI in primary, manufacturing, and services sectors exerts different effects on economic growth in SEE5 countries is tested through formulas 1 and 3 and presented in tables 4 to 8.

$$GROWTH_{it} = \beta_0 + \beta_1 Y_{it} + \beta_2 X_{it} + \beta_3 I_{it} + u_{it} \quad (2)$$

In equation (2) I_{it} represents total Foreign Direct Investment net inflows in primary, manufacturing, or services sectors, respectively and all other variables in equation (2) are analogous to equation (1). According to Alfaro (2003), the inclusion of only foreign investments in each sector does not capture the effects of other foreign direct investments. Hence, equation (3) is intended for the estimation of FDI net inflows for each sector.

$$GROWTH_{it} = \beta_0 + \beta_1 Y_{it} + \beta_2 X_{it} + \beta_3 I_{it}^P + \beta_3 I_{it}^M + \beta_3 I_{it}^S + u_{it} \quad (3)$$

Where P denotes foreign investment in the primary sector; M in the manufacturing sector, and S in the service sector.

3.2. Data Description

In order to explore the roles of different types of FDI the dataset of a real data panel has been constructed for the period 2000-2014, for 5 observed SEE5 countries.

The GROWTH as a core variable in the model, will be treated as a dependent variable together with a matrix of the control variables. This variable is presented as the annual percentage growth rate of GDP per capita based on constant local currency. The GROWTH dependent variable is log (annual percentage growth rate of GDP per capita). The FDI net inflows represent the value of inward direct investment made by a non-resident. Accurate construction of FDI data by sectors for a cross section of countries over the last decade and a half for SEE5 countries was quite demanding. In order to overcome these difficulties, I collected FDI data from different sources. Detailed information on FDI net inflows by sector for SEE5 countries is available in various reports by countries. FDI variable is log (1 + Total FDI inflows/GDP). Data of FDI by sectors are as follows: FDI PRIM is log (1 + FDI inflows in Primary Sector/GDP); FDI MANUF is log (1 + FDI inflows in Manufacturing Sector/GDP) and FDI SERV is log (1 + FDI inflows in Service Sector/GDP). Y_{it} is initial GDP per capita based on purchasing power parity (PPP), which represents gross domestic

product converted into international dollars using the purchasing power parity rates and it is calculated as the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. The Initial GDP variable is the log (real GDP per capita) at the beginning of the period. The Human Development Indicator (HDI) is a common measure for economic and social development and it is intended to quantify the entire socio economic aspect of progress, referring to achievements of a country in fundamental human development dimensions. The HDI is a summary measure of average achievement in key dimensions of human development: life expectancy, attended education and achieved living standard. The scores for three HDI dimension indices are then aggregated into a composite index using the geometric mean.² The HDI variable is log (HDI). Investment, as the ratio of gross capital formation and GDP, consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. The investment variable is log (Gross Capital Formation/GDP). Inflation, as measured by the annual growth rate of the GDP implicit deflator, shows the rate of price change in the economy as a whole. The inflation variable is the log of (average inflation of the period). Government spending includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most national defense and security expenditures, but excludes government military expenditures that are part of government capital formation.

► **TABLE 1. LIST OF VARIABLES.**

	NAME	UNIT	SOURCE
country code	state_id		
year	year		
log(GROWTH)	log_growth	per cent	WDI
log(FDI)	log_fdi	per cent	National Banks of analysed countries/ Montenegrin Investment Promotion Agency
log(FDIPRIM)	log_fdi_prim	per cent	National Banks of analysed countries/ Montenegrin Investment Promotion Agency
log(FDIMANUF)	log_fdi_manuf	per cent	National Banks of analysed countries/ Montenegrin Investment Promotion Agency
log(FDISERV)	log_fdi_serv	per cent	National Banks of analysed countries/ Montenegrin Investment Promotion Agency
log(Initial GDP)	log_initial_gdp	US\$	WDI
log(HDI)	log_hdi	index	UNDP
log(Investment)	log_investment	per cent	WDI
log(Inflation)	log_inflation	per cent	WDI
log(Government spending)	log_gov_spending	per cent	WDI
log(PCBANK)	log_pcbank	per cent	WDI
log(IQUALITY)	log_iquality	index	EBRD-own estimation
log(Openness)	log_openness	per cent	WDI
log(unemployment)	log_unemployment	per cent	WDI

Source: author's interpretation

2 For more details refer to Technical notes of UNDP for calculating the human development indices.

The government spending variable is log (average share of government spending/GDP) over the period. PCBANK is the ratio of private credit in Banks and GDP. Domestic credit to private sector by banks refers to financial resources provided to the private sector by other depository corporations. The PCBANK variable is log (private credit in Banks/GDP). The IQALITY is the aggregated indicator of the quality of institutions measured as the average of the 8 sub-indices, which is constructed from the European Bank for Reconstruction and Development (EBRD) indices of structural and institutional reforms (see Sachs, 2001; Di Tommaso et al., 2007). The main components of the IQALITY institutional proxy are markets and trade, the financial sector and enterprises. The IQALITY variable is log (aggregated institutional proxy). Openness is the average of exports plus imports as a share of GDP for the period. The openness variable is log (average of Exports + Imports as a share of GDP) for the period. Finally, total unemployment (% of total labor force), refers to the share of the labor force that is without work but available and seeking employment. The unemployment variable is log (unemployment).

Descriptive statistics of the data are presented in Table 2. There is considerable cross country variation. For instance, the mean GDP growth rate for SEE5 countries is 3.596% per annum, with a standard deviation of 3.218. The growth rate range from -5.859% in Montenegro to 10.51% also in Montenegro. The aggregate mean of FDI, as a percentage of GDP inflows for SEE5 countries, less than 1% does not look much. According to Estrin and Uvalic (2013), FDI net inflows to Western Balkans countries (Albania, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro and Serbia) are less than it would be expected on the basis of the size and location of their economies in comparison with all 27 transitions economies. Total FDI inflow less than 0.02% in all SEE5 countries at the beginning of 21st century is probably the result of the political risk and economic instability, as well as competition from more promising transition economies. The situation in SEE5 countries has improved along with the progress of the accession process to the European Union. Unfortunately, the financial crisis of 2007–09, also known as the global financial crisis, negatively affected FDI net inflows into SEE5 countries. For instance, maximum FDI as a percentage of GDP inflow into Bosnia and Herzegovina was 0.145% in 2007 before the crisis started with the minimum about 0.02% in 2009 and 2012. The situation in other countries is almost the same. The sectorial distribution of FDI as a percentage of GDP has been different across sectors and countries. For example, the services sector accounted for most FDI net inflows in all SEE5 countries for the period, on average 69.11% of total. Botrić (2010) analyzed the FDI determinants on the overall economy level with an aim to provide the answer whether the same factors as in Central and Eastern European countries are relevant for the SEE5 countries and concluded that determinants of foreign direct investment in the region also fits the overall picture which is biased towards the service sector.

▶ TABLE 2. DESCRIPTIVE STATISTICS, SEE5 COUNTRIES (2000-2014).

	(2)	(3)	(4)	(5)
VARIABLES	Mean	Std. Dev.	Minimum	Maximum
Growth Rate	3.596	3.218	-5.859	10.51
Aggregate FDI	0.0830	0.0926	0.00251	0.558
FDI in Primary Sector	0.00472	0.00670	3.00e-05	0.0304
FDI in Manufacturing Sector	0.0209	0.0336	0.000710	0.281
FDI in Service Sector	0.0574	0.0636	0.00160	0.280
Initial GDP	2,577	443.7	1,986	3,248
Human Development Index	0.724	0.0365	0.656	0.802
Investment/GDP	24.59	7.001	10.55	40.67
Inflation	7.113	13.70	0.0310	89.25
Government Spending	18.82	4.503	10.71	23.33
Private Credit by Bank	32.74	19.14	3.632	86.94
Institutional Quality	0.441	0.129	1.00e-04	0.667
Openness	44.21	9.354	12.09	66.74
Unemployment	22.39	7.231	12.40	37.30

Source: author's calculation based on World Bank's Development Indicators

The argument for such development according to Botrić (2010) could have been the relatively slow progress in government reform, which has created barriers to a different structure of investment. Concerning the manufacturing sector, there are subnational differences across countries: Albania 17.47%, Bosnia and Herzegovina 36.05%, Macedonia, FYR 28.93%, Montenegro 25.53% and Serbia 22.49%. The lowest percentage of FDI inflow is in the primary sector ranging from 3.84% in Bosnia and Herzegovina to 13.23% in Albania.

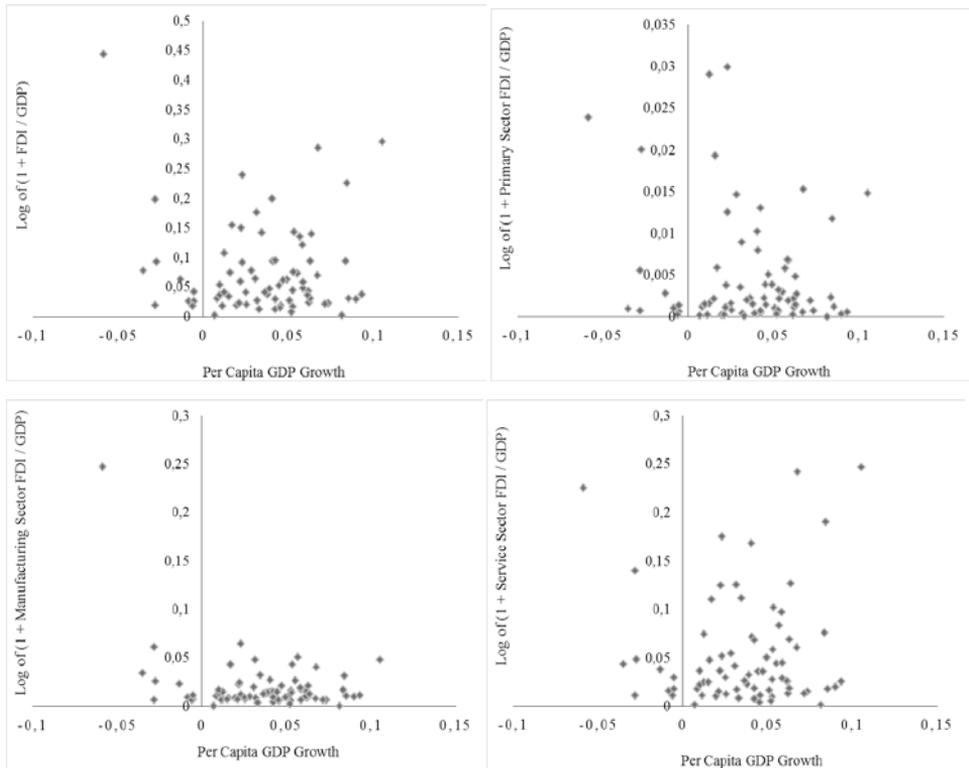
Table 3 and Figures 1 to 4 suggest that there is a positive correlation coefficients between per capita growth rates and the share of total FDI in GDP, manufacturing FDI and growth and service FDI and growth. However, the relationship between growth and FDI in the primary sector is very weak and negative.

▶ TABLE 3. THE CORRELATION COEFFICIENTS BETWEEN THE DEPENDENT AND INDEPENDENT VARIABLES.

Variable	log_growth	log_initial_gdp	log_fdi	log_fdiprim	log_fdi_manuf	log_fdi_serv	log_hdi	log_investment	log_inflation	log_gov_spending	log_pcbank	log_iquality	log_openness	log_unemployment
log_growth	1													
log_initial_gdp	-0.1581	1												
log_fdi	0.2101	0.3985	1											
log_fdiprim	-0.0274	-0.0174	0.6193	1										
log_fdi_manuf	0.1158	0.3229	0.8104	0.4320	1									
log_fdi_serv	0.2471	0.4160	0.9676	0.5637	0.6451	1								
log_hdi	-0.2537	0.5402	0.6041	0.3915	0.4126	0.6120	1							
log_investment	0.4202	-0.3737	0.1871	0.1956	0.0529	0.2182	-0.1126	1						
log_inflation	0.4226	0.2009	-0.0181	-0.1444	-0.0781	0.0287	-0.0238	-0.0798	1					
log_gov_spending	-0.1640	0.6784	0.1916	-0.2103	0.2245	0.1911	0.3268	-0.6459	0.1614	1				
log_pcbank	-0.2628	0.2457	0.4079	0.3184	0.3281	0.3855	0.5228	-0.3373	-0.1901	0.5276	1			
log_iquality	0.0478	-0.0857	0.4335	0.4267	0.2710	0.4313	0.1398	0.1721	-0.4988	-0.0367	0.2723	1		
log_openness	-0.1836	0.3640	0.3928	0.1728	0.2214	0.4274	0.3817	0.1142	-0.3580	0.3730	0.4657	0.4047	1	
log_unemployment	-0.3258	0.3284	-0.1678	-0.3121	-0.0334	-0.1874	-0.1407	-0.3933	-0.2906	0.5198	0.2976	0.0414	0.3976	1

Source: author's calculation

► FIGURE 1-4. CORRELATION BETWEEN GDP PER CAPITA GROWTH AND FDI (2000-2014).



Source: World Bank's Development Indicators

3.3. Estimation Method

A panel data set contains 5 entities, each of which includes 15 observations measured at 1 through t year time period. Hence, the temporal units are more numerous ($T > N$), the pool is called “temporal dominant” (Stimson 1985). Data are measured at regular year time intervals, well arranged by both cross sectional and time series variables and organized as a balanced panel. The panel data set is a fixed panel, hence the same individuals are observed for each period (Greene, 2008). The methodological approach is the Pooled TSCS analysis. This methodology solves many problems of traditional methods of comparative research. First, concerns about “small N” problem is relaxed because pooled TSCS cases are “country-year”. Second, the regression analysis of pooled data combining space and time may depend on higher variability of data. Third, the pooled TSCS analysis deal with the possibility of capturing not only the variation of what emerges through time or space, but the variation of these two dimensions simultaneously (Podestà, 2002).

However, using the OLS procedure and pooled data tends to generate several econometric problems. First, the total FDI net inflows variable in I_{it} is assumed to be endogenous.

Because causality may run in both directions, from foreign direct capital inflows to growth and vice versa, these regressors may be correlated with the error term. Second, time invariant country characteristics (fixed effects), such as geography and demographics, may be correlated with the explanatory variables. The fixed effects are contained in the error term, which consists of the unobserved country specific effects and the observation specific errors. Third, because the serial correlation in linear panel-data models biases the standard errors and causes less efficient results, it is necessary to examine the serial correlation in the idiosyncratic error term in a panel-data model. Fourth, the problem of heteroscedasticity where variance of error term is different across observations.

While pooled OLS based methods adequately deal with violations in assumptions of homoscedasticity, non-autocorrelation and cross sectional independence they have two shortcomings (Hoehn et al., 2014). First, pooled OLS treats the data set as a pure cross section where each N-T observation is effectively seen as a separate observation. Second, pooled OLS based estimation critically depends on the assumption of strict exogeneity. The most widely used models for addressing these shortcomings are random effect(s) models, also called a variance components model (RE) and a fixed effects model (FE). The main difference between these two models is their treatment of the unobserved N specific effect. While in an RE framework the unobserved N specific effect is assumed to be uncorrelated with the explanatory variables, the unobserved N specific effect in FE is, in a manner of speaking, simply an additional parameter to be estimated. Before any econometric estimation technique is applied, I tested whether to use FE or RE. In the panel model data, I found both significant fixed and random effects. To decide between fixed or random effects, I ran a Hausman test where the null hypothesis is that the preferred model is random effects vs. the alternative the fixed effects (see Green, 2008). The null hypothesis of the Hausman test is that unique errors (u_{it}) are not correlated with regressors. I do not reject the null hypothesis ($Proba > chi2 = 0.7161$), and I may conclude that individual effects (u_{it}) are not correlated with regressors in the model and thus the random effect model is preferred.

Reverse causality between FDI and economic growth might be a possibility in the equations' specification. Higher FDI inflows cause higher economic growth rates, but it is also possible that higher economic growth rates may lead to greater FDI inflows. If this holds true, then coefficient estimates may be higher. To check the potential endogeneity between economic growth and FDI inflows, Davidson and MacKinnon (1993) suggest an augmented regression test (DWH test). The null hypothesis of the Durbin and Wu-Hausman tests is that the variable under consideration can be treated as exogenous. Here both test statistics are highly significant, Durbin (score) $chi2(1) = 2.41173$ ($p = 0.1204$); Wu-Hausman $F(1,64) = 2.12639$ ($p = 0.1497$), so the results of the endogeneity test rules out reverse causality between economic growth and FDI net inflows. The Wooldridge test for autocorrelation in panel data yields results p value of 0.033. Hence, the test rejects the null hypothesis of no serial correlation. The Breusch-Pagan/Cook-Weisberg test for heteroscedasticity reject the null hypothesis of no heteroscedasticity. Hence, the panel data set has problems of autocorrelation and heteroscedasticity.

To solve possible problems of contemporaneous correlations, heteroscedasticity and serial correlation, several models have been developed to deal with these complications. Parks (1967) proposes a feasible generalized least squares (FGLS) based algorithm de-

veloped to account for heteroscedasticity, as well as for temporal and spatial dependence in the residuals of TSCS models method that Kmenta (1986) made popular. However, the Parks-Kmenta method could be inappropriate for use because of at least two reasons. First, this method is infeasible if the panel's time dimension, T , is smaller than its cross sectional dimension, N , and second, Beck and Katz (1995) show that the FGLS produces coefficient standard errors that are underestimated. They report on Monte Carlo experiments in which the PCSE estimator produces accurate standard error, or little loss in efficiency compared to the FGLS. On the other hand, Reed and Webb (2010) were able to reproduce Beck and Katz's results when they used the same experimental parameters that Beck and Katz employ and they find that the PCSE estimator fell short of the claims made by Beck and Katz. According to Reed and Webb (2010), the PCSE estimator could be less efficient than FGLS. Another possibility to deal with serial correlation and heteroscedasticity is the use of regression with Driscoll-Kraay standard errors procedure developed by Hoechle (2007)³. The error structure is assumed to be heteroskedastic, auto correlated, and possibly correlated between the groups (panels). Finally, I ran the pooled OLS regressions without any dummy variables. Many studies have attempted to study the effect of foreign direct investment on growth by employing pooled OLS with White's correction of heteroscedasticity regression method (Alfaro, 2003; Tintin, 2012).

4. ESTIMATION RESULTS

Tables 4 to 8 show five different regression results, which are carried out on TSCS data using four regression analysis techniques: Pooled OLS regression; XTSCC regression; FGLS regression and PCSE regression.

Table 4, showing results of the estimation that uses the aggregate FDI net inflows, presents the main results of the estimation. The regressions show the aggregate FDI to have significant and positive effect on growth. That is, efficiency spillovers exist and higher foreign presence increases economic growth in host countries. The pooled OLS and XTSCC report slightly higher coefficient values of aggregate FDI compares to FGLS and PCSE, 1.093 and 0.942 respectively. As shown in Table 4, the coefficient of estimation is quite similar between Pooled OLS and XTSCC and between FGLS and PCSE techniques of estimation. The three other capital flow variables (investment, government spending and private credit in banks) show the interesting results. The parameter estimates of investment and government spending have a positive and significant effect on growth in the context of SEE5 countries across different specifications. The coefficient of the private credit in banks variable across different specifications has a negative and statistically insignificant value. The investment and government spending coefficients are very significant with the expected signs across all four estimations. These results suggest that domestic investment and public investment contributes to growth.

3 Regression with Driscoll-Kraay standard errors procedure (xtsc). The program produces Driscoll and Kraay (1998) standard errors for linear panel models. That is, xtsc estimates pooled ordinary least-squares/weighted least-squares regression models with Driscoll and Kraay standard errors.

▶ TABLE 4. THE EFFECT OF AGGREGATE FDI ON GROWTH.

Dependent Variable: Annual percentage growth rate of GDP per capita (2000-2014)				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	XTSCC	FGLS	PCSE
log_initial_gdp	-0.160 (0.336)	-0.160 (0.316)	-0.139 (0.273)	-0.137 (0.278)
log_fdi	1.093** (0.375)	1.093** (0.383)	0.942** (0.377)	0.942** (0.377)
log_hdi	-1.903 (1.123)	-1.903*** (0.584)	-1.765** (0.775)	-1.769** (0.785)
log_investment	0.408** (0.101)	0.408*** (0.1000)	0.422*** (0.121)	0.421*** (0.121)
log_inflation	0.110*** (0.0172)	0.110*** (0.0332)	0.101*** (0.0288)	0.101*** (0.0286)
log_gov_spending	0.318* (0.135)	0.318* (0.171)	0.369** (0.174)	0.371** (0.177)
log_pcbank	-0.0211 (0.0795)	-0.0211 (0.0354)	-0.0284 (0.0476)	-0.0280 (0.0478)
log_iquality	0.415 (0.298)	0.415* (0.231)	0.450* (0.259)	0.457* (0.259)
log_openness	-0.174 (0.227)	-0.174 (0.222)	-0.251* (0.134)	-0.255* (0.134)
log_unemployment	-0.0681 (0.154)	-0.0681 (0.0946)	-0.0811 (0.107)	-0.0834 (0.108)
Constant	1.224 (2.547)	1.224 (2.864)	1.276 (2.031)	1.281 (2.064)
Observations	75	75	75	75
R-squared	0.587	0.587	0.581	0.886

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The coefficient of domestic investment estimated by pooled OLS and XTSCC amounts to a value of 0.408 and by FGLS and PCSE to 0.422. The coefficient on government spending varies between 0.318 and 0.371. The other control variables (human development indicator, inflation, institutions quality, openness and unemployment) differentially affect economic growth. By comparison with the pooled OLS and XTSCC, FGLS and PCSE estimations yield more different results on the control variables. The coefficient on HDI remains negative for all four estimation techniques, while its significance changes from

insignificant for pooled OLS to significant for the other three regressions. A negative correlation between HDI and growth is also found in the study of Benhabib and Spiegel (1994). Using the cross country estimates of physical and human capital stocks, they ran the growth accounting regressions implied by a Cobb-Douglas aggregate production function and found that human capital enters insignificantly in explaining per capita growth rates. Van Leeuwen (2007) gave a credible explanation of a negative HDI sign and pointed out that the problem with inserting physical capital in growth equations with human capital was that during periods with declining growth rates of production (which is the case of SEE5 countries), physical capital investments also declined. If the human capital stock exhibits a constant growth rate or even an increasing growth rate, it would create an insignificant or even negative human capital coefficient. Korotayev and de Munck (2013) indicate that the negative correlation between HDI levels and economic growth rates can also be detected among countries with HDI scores over 0.7 (SEE5 countries have an average HDI score of 0.724 and negative pairwise correlation between the HDI and economic growth rates, -0,254). Inflation, as a proxy for macroeconomic stability, is significant and has a positive sign. Although there is a huge disagreement on the relationship between inflation and economic growth both on a theoretical and empirical basis, it can be concluded that in the case of SEE5 countries inflation is positively correlated with economic growth. As noted in Table 4 the pooled OLS coefficient of institutional quality is positive and statistically insignificant, but for all other three regression techniques coefficients on institutional quality are as expected positive and statistically significant. This suggests that institutional quality exerts a substantial influence on economic growth. Finally, this study also examines the impact of openness to international trade and unemployment on growth. As shown in Table 4, both coefficients on openness and on unemployment are statistically insignificant and have negative sign, except for openness in FGLS and PCSE estimations, where both coefficients are statistically significant. A negative and statistically significant coefficient estimate of the trade, as a share of GDP in FGLS and PCSE regressions, implies that international trading is not beneficial for SEE5 countries economic growth. Researchers have not been able to provide an explicit answer to the question of whether trade openness support a higher economic growth. Huchet-Bourdon et al. (2011) suggest that trade may impact growth negatively in countries which have specialized in low quality products. According to Dowrick and Golley (2004) marginal impact of trade on growth in the 1980s and 1990s is higher for the richer countries than it is for the poorer countries and marginal impact is estimated to be negative for countries below the productivity level, approximately \$3,000 per capita. For selected developing and least developed economies, Abbas (2014) concluded that the increase in trade liberalization deteriorates economic growth of developing and least developing countries.

Tables 5 to 8 present the pooled OLS, XTSCC, FGLS and PCSE results for the estimation that uses FDI net inflows in each sector. Results for FDI in the primary sector are shown in Table 5. As in the primary sector, the scope for linkages between foreign affiliates and local suppliers is often limited and production processes tend to be continuous and capital intensive, therefore a negative and insignificant effect of FDI on growth in the primary sector is not surprising. FDI in the primary sector, which also usually use few local intermediate goods, have limited linkages to domestic economy and they are largely export oriented. But Aykut and Sayek (2007) concluded that the negative economic impact of FDI in the primary sector is not the inevitable outcome and that FDI in the primary sector may, in the presence of solid institutions, generate a positive impact in a country.

▶ TABLE 5. THE EFFECT OF FDI IN PRIMARY SECTOR ON GROWTH.

Dependent Variable: Annual percentage growth rate of GDP per capita (2000-2014)				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	XTSCC	FGLS	PCSE
log_initial_gdp	0.103 (0.327)	0.103 (0.307)	0.0617 (0.292)	0.0652 (0.298)
log_fdiprim	-2.301 (5.622)	-2.301 (3.451)	-1.392 (4.220)	-1.473 (4.218)
log_hdi	-1.646 (1.112)	-1.646** (0.681)	-1.354* (0.790)	-1.323* (0.798)
log_investment	0.523*** (0.0864)	0.523*** (0.0756)	0.507*** (0.118)	0.508*** (0.118)
log_inflation	0.117*** (0.0228)	0.117*** (0.0381)	0.0992*** (0.0294)	0.0985*** (0.0293)
log_gov_spending	0.300* (0.120)	0.300* (0.154)	0.340* (0.200)	0.338* (0.204)
log_pcbank	0.0267 (0.103)	0.0267 (0.0443)	0.00215 (0.0497)	0.00224 (0.0498)
log_iquality	0.798* (0.324)	0.798*** (0.255)	0.675** (0.265)	0.678** (0.265)
log_openness	-0.203 (0.232)	-0.203 (0.241)	-0.304** (0.139)	-0.310** (0.139)
log_unemployment	-0.144 (0.133)	-0.144 (0.118)	-0.118 (0.110)	-0.117 (0.110)
Constant	-0.936 (2.278)	-0.936 (2.632)	-0.139 (2.070)	-0.133 (2.102)
Observations	75	75	75	75
R-squared	0.548	0.548	0.533	0.930

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Walsh and Yu (2010) also indicated that local conditions matter and that countries are generally interested in attracting FDI into the primary sector. FDI in the SEE5 countries could therefore be further increased by profound institutional reform. Compared with the main results of estimation, the control variables, except for private credit in banks, kept their sign and significance.

Table 6 provides the estimation results of regressions which are related to the effect of foreign investment in the manufacturing sector on growth. FDI in the manufacturing sector have a positive and significant effect on growth, except for pooled OLS, where the

coefficient is statistically positive but statistically insignificant. Positive and statistically significant coefficient estimate of FDI in the manufacturing sector in XTSCC, FGLS and PCSE regressions range from 1.176 to 1.230. The obtained results seem to be in correlation with the notion that FDI in the manufacturing sector play a positive role in economic growth generation. Although the manufacturing industry according to Estrin and Uvalic (2013) has, after the strong process of deindustrialization in the 1990s, actually continued to decline in most SEE5 countries, FDI in the manufacturing sector are more likely to bring in technology and knowhow, generate foreign exchange earnings for host economies and as a result, one would expect a relatively strong growth impact of FDI in the manufacturing sector (Nunnenkamp and Spatz, 2004).

► **TABLE 6. THE EFFECT OF FDI IN MANUFACTURING SECTOR ON GROWTH.**

Dependent Variable: Annual percentage growth rate of GDP per capita (2000-2014)				
	(1)	(3)	(4)	(5)
VARIABLES	OLS	XTSCC	FGLS	PCSE
log_initial_gdp	-0.00565 (0.295)	-0.00565 (0.296)	-0.0482 (0.281)	-0.0478 (0.287)
log_fdi_manuf	1.176 (0.675)	1.176*** (0.364)	1.234** (0.599)	1.230** (0.599)
log_hdi	-1.710 (1.127)	-1.710** (0.625)	-1.632** (0.756)	-1.621** (0.764)
log_investment	0.475*** (0.0927)	0.475*** (0.0684)	0.455*** (0.118)	0.456*** (0.118)
log_inflation	0.122*** (0.0229)	0.122*** (0.0378)	0.110*** (0.0291)	0.110*** (0.0290)
log_gov_spending	0.301* (0.118)	0.301* (0.157)	0.360** (0.176)	0.362** (0.179)
log_pcbank	0.00334 (0.0860)	0.00334 (0.0409)	-0.0248 (0.0480)	-0.0245 (0.0481)
log_iquality	0.669* (0.292)	0.669*** (0.216)	0.570** (0.249)	0.572** (0.249)
log_openness	-0.161 (0.240)	-0.161 (0.248)	-0.221 (0.138)	-0.226 (0.139)
log_unemployment	-0.115 (0.133)	-0.115 (0.101)	-0.114 (0.109)	-0.114 (0.109)
Constant	-0.124 (2.183)	-0.124 (2.617)	0.494 (2.071)	0.506 (2.100)
Observations	75	75	75	75
R-squared	0.560	0.560	0.546	0.933

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 7 presents the estimation results for FDI in services equation. The results are in line with the expectation that FDI in the service sector exert positive impact on economic growth. The coefficients are positive and statistically significant between 1 and 5 percent significance level. The size of FDI in the service sector ranges between 1.542 and 1.796. Even though market seeking FDI in the service sector may create fiercer competition and may also lead to the crowding out of local competitors, especially if foreign affiliates command superior market power, the presented results suggest that SEE5 countries benefit from this type of FDI. That is, FDI in the service sector support introducing new products and services, by increasing the level of competition and by modernizing local production and marketing, as well as by providing the necessary funding, efficiency, stability and by lowering the cost of services.

► **TABLE 7. THE EFFECT OF FDI IN SERVICE SECTOR ON GROWTH.**

Dependent Variable: Annual percentage growth rate of GDP per capita (2000-2014)				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	XTSCC	FGLS	PCSE
<i>log_initial_gdp</i>	-0.203 (0.355)	-0.203 (0.342)	-0.186 (0.274)	-0.186 (0.280)
<i>log_fdi_serv</i>	1.796** (0.640)	1.796** (0.741)	1.543*** (0.568)	1.542*** (0.568)
<i>log_hdi</i>	-1.959 (1.127)	-1.959*** (0.593)	-1.629** (0.790)	-1.628** (0.802)
<i>log_investment</i>	0.388** (0.110)	0.388*** (0.127)	0.414*** (0.122)	0.414*** (0.122)
<i>log_inflation</i>	0.0998*** (0.0189)	0.0998*** (0.0308)	0.0910*** (0.0289)	0.0907*** (0.0288)
<i>log_gov_spending</i>	0.323* (0.125)	0.323* (0.171)	0.360** (0.176)	0.363** (0.179)
<i>log_pcbank</i>	-0.0231 (0.0743)	-0.0231 (0.0334)	-0.0225 (0.0458)	-0.0223 (0.0461)
<i>log_iquality</i>	0.336 (0.257)	0.336 (0.283)	0.433 (0.265)	0.441* (0.265)
<i>log_openness</i>	-0.206 (0.222)	-0.206 (0.201)	-0.305** (0.131)	-0.309** (0.132)
<i>log_unemployment</i>	-0.0516 (0.160)	-0.0516 (0.102)	-0.0538 (0.106)	-0.0563 (0.107)
Constant	1.704 (2.803)	1.704 (3.132)	1.851 (2.044)	1.865 (2.080)
Observations	75	75	75	75
R-squared	0.599	0.599	0.591	0.861

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 8 presents the estimation results of the FDI net inflows for each sector. The results are to a certain degree consistent with previous findings. Negative and insignificant effect of FDI net inflows in the primary sector on growth changed from negative and insignificant to negative and significant, except for the pooled OLS where estimated coefficient remains negative and insignificant. On the other hand, FDI in the manufacturing sector remain positive but significance changed from significant to statistically insignificant. The size of coefficient decreased (e.g. PCSE regression) from 1.230 to 0.746. The coefficients for FDI in the service sector remain positive and significant.

There may exist the lagged FDI due to delayed effect on growth. In empirical studies very often the lagged FDI variable is used with intention to deal with endogeneity or time lagged effects (Alfaro, 2003, Agosin and Machado, 2005, Aykut and Sayek, 2007, Chakraborty and Nunnenkamp, 2008, Tang, 2015 among others). FDI would bring about technology transfer and management skills, but these benefits would take some time to exert influence on the SEE5 growth. Hence, the FDI net inflows would have a lagged effect on SEE5 growth. Optimal one period lag length for this model is calculated on the comparison of regression results with alternative lag structures (see, Chakraborty and Nunnenkamp, 2008). The findings are reported in Tables 9 to 13. The coefficients in Table 9, regarding the impact of the lagged aggregate FDI on growth in comparison with the aggregate FDI, remain positive for the pooled OLS and XTSCC regressions, changed sign to negative for FGLS and PCSE regression and changed to statistically insignificant for all four regressions.

▶ TABLE 8. THE EFFECT OF FDI FOR EACH SECTOR ON GROWTH.

Dependent Variable: Annual percentage growth rate of GDP per capita (2000-2014)				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	XTSCC	FGLS	PCSE
log_initial_gdp	-0.181 (0.392)	-0.181 (0.357)	-0.159 (0.268)	-0.157 (0.274)
log_fdiprim	-7.824 (6.156)	-7.824** (3.324)	-8.536** (3.917)	-8.654** (3.913)
log_fdi_manuf	0.487 (0.264)	0.487 (0.429)	0.738 (0.731)	0.746 (0.729)
log_fdi_serv	2.017* (0.795)	2.017** (0.898)	1.805*** (0.621)	1.809*** (0.620)
log_hdi	-1.945 (1.177)	-1.945** (0.693)	-1.737** (0.777)	-1.747** (0.789)
log_investment	0.330* (0.137)	0.330** (0.132)	0.351*** (0.119)	0.349*** (0.119)
log_inflation	0.107*** (0.0119)	0.107*** (0.0338)	0.0942*** (0.0281)	0.0939*** (0.0279)
log_gov_spending	0.184 (0.178)	0.184 (0.175)	0.228 (0.180)	0.228 (0.183)
log_pcbank	-0.000214 (0.0825)	-0.000214 (0.0320)	0.00324 (0.0443)	0.00414 (0.0446)
log_iquality	0.437 (0.337)	0.437 (0.308)	0.540** (0.259)	0.552** (0.259)
log_openness	-0.173 (0.231)	-0.173 (0.189)	-0.277** (0.128)	-0.280** (0.128)
log_unemployment	-0.0748 (0.169)	-0.0748 (0.113)	-0.0974 (0.105)	-0.102 (0.107)
Constant	1.957 (3.114)	1.957 (3.319)	2.094 (1.991)	2.105 (2.028)
Observations	75	75	75	75
R-squared	0.617	0.617	0.608	0.929

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Lagged FDI in the primary sector, Table 10, as expected, has a negative and statistically insignificant coefficient. Positive and statistically significant effect of FDI on growth in the manufacturing sector for XTSCC, FGLS and PCSE regressions, when lagged FDI is included, changed to negative and statistically insignificant, Table 11. The coefficients for lagged FDI in the service sector, presented in Table 12, remain positive but significance turn to insignificant. That is, the lagged aggregate FDI and the sectorial composition of FDI don't have an important impact on SEE5 countries' growth since the 95% confidence interval crosses the threshold for what is considered to have an important effect. Finally,

Table 13 reports estimated coefficients of the lagged FDI net inflows for each sector. In the primary sector coefficient remain negative and insignificant, except for XTSCC regression where significance decrease from 0.05 to 0.1. On the other hand, lagged FDI in the manufacturing sector changed from positive to negative and from statistically insignificant to statistically significant at 10 per cent level for FGLS and PCSE regressions. The coefficients for lagged FDI in the service sector remain positive but significance decreases to insignificant, except for the XTSCC regression where significance decreases from 5 per cent to 10 per cent.

► **TABLE 9. THE EFFECT OF LAGGED AGGREGATE FDI ON GROWTH.**

Dependent Variable: Annual percentage growth rate of GDP per capita (2000-2014)				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	XTSCC	FGLS	PCSE
log_initial_gdp	-0.0181 (0.325)	-0.0181 (0.366)	0.0418 (0.291)	0.0449 (0.296)
lag_fdi	0.338 (0.374)	0.338 (0.409)	-0.0386 (0.376)	-0.0464 (0.375)
log_hdi	-1.629 (1.149)	-1.629** (0.657)	-1.262 (0.804)	-1.238 (0.812)
log_investment	0.487** (0.111)	0.487*** (0.0941)	0.523*** (0.123)	0.525*** (0.123)
log_inflation	0.123*** (0.0258)	0.123*** (0.0372)	0.101*** (0.0300)	0.100*** (0.0299)
log_gov_spending	0.323* (0.121)	0.323* (0.164)	0.368** (0.183)	0.368** (0.187)
log_pcbank	0.00130 (0.0984)	0.00130 (0.0401)	0.00122 (0.0494)	0.00148 (0.0495)
log_iquality	0.707* (0.301)	0.707*** (0.209)	0.677*** (0.260)	0.680*** (0.260)
log_openness	-0.169 (0.256)	-0.169 (0.223)	-0.311** (0.142)	-0.318** (0.142)
log_unemployment	-0.0934 (0.138)	-0.0934 (0.124)	-0.101 (0.112)	-0.101 (0.113)
Constant	-0.146 (2.267)	-0.146 (3.160)	-0.113 (2.098)	-0.114 (2.124)
Observations	74	74	74	74
R-squared	0.545	0.545	0.514	0.912

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

▶ TABLE 10. THE EFFECT OF LAGGED FDI IN PRIMARY SECTOR ON GROWTH.

Dependent Variable: Annual percentage growth rate of GDP per capita (2000-2014)				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	XTSCC	FGLS	PCSE
log_initial_gdp	0.0815 (0.319)	0.0815 (0.330)	0.0434 (0.287)	0.0443 (0.294)
lag_fdiprim	-1.010 (4.466)	-1.010 (2.783)	-1.778 (3.336)	-1.817 (3.328)
log_hdi	-1.620 (1.223)	-1.620** (0.728)	-1.376* (0.803)	-1.345* (0.811)
log_investment	0.523*** (0.0977)	0.523*** (0.0758)	0.509*** (0.119)	0.510*** (0.119)
log_inflation	0.119** (0.0279)	0.119*** (0.0371)	0.0996*** (0.0297)	0.0988*** (0.0296)
log_gov_spending	0.323* (0.127)	0.323* (0.165)	0.360* (0.185)	0.361* (0.189)
log_pcbank	0.0257 (0.106)	0.0257 (0.0382)	0.00322 (0.0498)	0.00317 (0.0498)
log_iquality	0.772* (0.279)	0.772*** (0.213)	0.662*** (0.256)	0.665*** (0.256)
log_openness	-0.201 (0.231)	-0.201 (0.248)	-0.297** (0.139)	-0.304** (0.140)
log_unemployment	-0.129 (0.143)	-0.129 (0.125)	-0.117 (0.113)	-0.116 (0.114)
Constant	-0.881 (2.272)	-0.881 (2.780)	-0.0918 (2.068)	-0.0735 (2.098)
Observations	74	74	74	74
R-squared	0.541	0.541	0.524	0.930

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

▶ TABLE 11. THE EFFECT OF LAGGED FDI IN MANUFACTURING SECTOR ON GROWTH.

Dependent Variable: Annual percentage growth rate of GDP per capita (2000-2014)				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	XTSCC	FGLS	PCSE
log_initial_gdp	0.0750 (0.283)	0.0750 (0.328)	0.0693 (0.288)	0.0722 (0.295)
lag_fdimanuf	-0.118 (0.731)	-0.118 (0.465)	-0.885 (0.629)	-0.891 (0.628)
log_hdi	-1.580 (1.190)	-1.580** (0.653)	-1.216 (0.796)	-1.181 (0.805)
log_investment	0.529*** (0.109)	0.529*** (0.0796)	0.525*** (0.118)	0.527*** (0.118)
log_inflation	0.119** (0.0284)	0.119*** (0.0376)	0.0998*** (0.0294)	0.0990*** (0.0293)
log_gov_spending	0.336** (0.112)	0.336* (0.161)	0.382** (0.184)	0.381** (0.188)
log_pcbank	0.0211 (0.0905)	0.0211 (0.0440)	-0.00249 (0.0467)	-0.00275 (0.0467)
log_iquality	0.771* (0.299)	0.771*** (0.206)	0.700*** (0.255)	0.703*** (0.255)
log_openness	-0.208 (0.251)	-0.208 (0.245)	-0.329** (0.139)	-0.337** (0.140)
log_unemployment	-0.122 (0.129)	-0.122 (0.116)	-0.106 (0.111)	-0.104 (0.111)
Constant	-0.851 (2.054)	-0.851 (2.777)	-0.259 (2.073)	-0.252 (2.105)
Observations	74	74	74	74
R-squared	0.541	0.541	0.516	0.931

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1



▶ **TABLE 12. THE EFFECT OF LAGGED FDI IN SERVICE SECTOR ON GROWTH.**

Dependent Variable: Annual percentage growth rate of GDP per capita (2000-2014)				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	XTSCC	FGLS	PCSE
log_initial_gdp	-0.0905 (0.339)	-0.0905 (0.359)	-0.0526 (0.292)	-0.0498 (0.297)
lag_fdiserv	0.816 (0.522)	0.816 (0.576)	0.435 (0.567)	0.423 (0.567)
log_hdi	-1.651 (1.142)	-1.651** (0.653)	-1.319 (0.802)	-1.301 (0.811)
log_investment	0.449** (0.115)	0.449*** (0.103)	0.484*** (0.126)	0.486*** (0.127)
log_inflation	0.123*** (0.0228)	0.123*** (0.0357)	0.102*** (0.0300)	0.101*** (0.0299)
log_gov_spending	0.318* (0.130)	0.318* (0.167)	0.371** (0.182)	0.371** (0.185)
log_pcbank	-0.0143 (0.0927)	-0.0143 (0.0402)	-0.0192 (0.0507)	-0.0187 (0.0509)
log_iquality	0.663* (0.267)	0.663*** (0.221)	0.624** (0.259)	0.628** (0.259)
log_openness	-0.150 (0.254)	-0.150 (0.212)	-0.280** (0.142)	-0.286** (0.142)
log_unemployment	-0.0705 (0.145)	-0.0705 (0.121)	-0.0745 (0.113)	-0.0747 (0.114)
Constant	0.456 (2.389)	0.456 (3.156)	0.586 (2.127)	0.583 (2.153)
Observations	74	74	74	74
R-squared	0.553	0.553	0.538	0.902

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0$

▶ TABLE 13. THE EFFECT OF LAGGED FDI IN EACH SECTOR ON GROWTH.

Dependent Variable: Annual percentage growth rate of GDP per capita (2000-2014)				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	XTSCC	FGLS	PCSE
log_initial_gdp	-0.0985 (0.368)	-0.0985 (0.379)	-0.0641 (0.286)	-0.0618 (0.292)
lag_fdiprim	-3.541 (4.382)	-3.541* (2.010)	-1.688 (3.695)	-1.724 (3.688)
lag_manuf	-0.723 (0.630)	-0.723 (0.437)	-1.146* (0.682)	-1.145* (0.682)
lag_fdiserv	1.348 (0.780)	1.348* (0.653)	0.887 (0.638)	0.879 (0.638)
log_hdi	-1.742 (1.276)	-1.742** (0.647)	-1.398* (0.796)	-1.381* (0.804)
log_investment	0.413** (0.115)	0.413*** (0.114)	0.457*** (0.127)	0.459*** (0.127)
log_inflation	0.118*** (0.0228)	0.118*** (0.0366)	0.101*** (0.0293)	0.100*** (0.0292)
log_gov_spending	0.290* (0.133)	0.290 (0.183)	0.381** (0.177)	0.381** (0.180)
log_pcbank	-0.00881 (0.100)	-0.00881 (0.0406)	-0.0262 (0.0510)	-0.0256 (0.0511)
log_iquality	0.661* (0.264)	0.661** (0.238)	0.647** (0.255)	0.651** (0.255)
log_openness	-0.140 (0.238)	-0.140 (0.213)	-0.273* (0.141)	-0.279** (0.142)
log_unemployment	-0.0789 (0.157)	-0.0789 (0.130)	-0.0798 (0.113)	-0.0802 (0.113)
Constant	0.662 (2.667)	0.662 (3.234)	0.716 (2.099)	0.718 (2.126)
Observations	74	74	74	74
R-squared	0.564	0.564	0.543	0.919

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

5. CONCLUSION

Stable and well-developed government policies of SEE5 countries, investing conditions, financial and institutional policies are important sources of GDP growth and FDI inflows. Political history of the SEE5 countries, with conflicts, economic uncertainty and low

growth, have sharply limited the inflow of FDI and still give the impression to have a negative effect on FDI inflow. However, FDI inflow to the SEE5 countries could be further increased by market economic reforms which will result in economic and political stabilization. That is, economic and political stabilization of SEE5 countries, together with the implementation of a common market in the SEE5 countries, could increase the attractiveness of this region and lead to an improvement of investment conditions. Therefore, SEE5 countries should support the business climate and positive institutional changes which will in return promote the urgently needed increase of FDI inflows in the SEE5 countries.

For the SEE5 economies as a whole, this paper finds that there is a statistically significant connection between FDI flows and growth. At the aggregate level, the impact of FDI net inflows on growth is positive and strong. At the sector level, it becomes apparent that FDI net inflows into the primary sector inclines to have a negative effect on growth. Unlike to the primary sector FDI, FDI net inflows in the manufacturing sector have positive effects on growth in the SEE5 countries. Plausible reason for this positive correlation between FDI net inflows in the manufacturing sector and growth may be found in its deeper backward and forward linkages. Strong and positive of FDI net inflows in service sector on growth suggests that the service sector might be source of positive spillover effects from FDI in the SEE5 countries.

These findings suggest that both the aggregate FDI net inflows and the sectorial composition of these flows are important factors of economic growth. Although, not all forms of FDI net inflows have the same effect on growth, targeting different types of FDI net inflows shouldn't be based on selective FDI policies. According to Chakraborty and Nunnenkamp (2008) for a selective approach to be successful in attracting growth promoting FDI, policymakers would have to know exactly about the quality of each FDI project and its effects on the local economy, which appears to be an overly heroic assumption. This means that SEE5 policymakers, instead of choosing selective approach towards FDI, should help to maximize the benefits of FDI.

6. LITERATURE

Agosin R. Manuel and Mayer Ricardo (2000), "Foreign Investment in Developing Countries: Does it Crowd in Domestic Investment?", UNCTAD Discussion Paper

Alfaro Laura (2003), "Foreign Direct Investment and Growth: Does the Sector Matter?", Harvard Business School.

Abbas Shujaat, (2014) "Trade Liberalization and its Economic Impact on Developing and Least Developed Countries", Journal of International Trade Law and Policy, Vol. 13 Iss: 3, pp.215 – 221.

Alfaro Laura and Charlton Andrew (2007), "Growth and the Quality of Foreign Direct Investment: Is All FDI Equal?", Harvard Business School Working Paper 07-072.

Alfaro Laura, Ozcan Kalemli, Chanda Areendam and Sayek Selin (2000), "FDI and Economic Growth: The Role of Local Financial Markets", Working Paper (University of Houston).

Aykut Dilek and Selin Sayek (2007), "The Role of the Sectorial Composition of Foreign Direct Investment on Growth", In *Do Multinationals Feed Local Development and Growth?*, edited by L. Piscitello and G. Santangelo. London: Elsevier.

Bellemare Marc F. and Masaki, Takaaki and Pepinsky, Thomas B. (2015), "Lagged Explanatory Variables and the Estimation of Causal Effects", SSRN: <http://ssrn.com/abstract=2568724>.

Benhabib Jess and Spiegel M. Mark (1994), "The Role of Human Capital in Economic Development, Evidence from Aggregate Cross-Country Data", *Journal of Monetary Economics*.

Blin Myriam and Ouattara Bazoumana (2009), "Foreign Direct Investment and Economic Growth in Mauritius: Evidence from Bounds Test Cointegration", *Économie internationale* 117.

Botrić Valerija (2010), "Foreign Direct Investment in the Western Balkans: Privatization, Institutional Change, and Banking Sector Dominance" *ECONOMIC ANNALS*, Volume LV, No. 187 / October - December 2010.

Carkovic, M. and Levine R. (2002), "Does Foreign Direct Investment Accelerate Economic Growth?" University of Minnesota, University of Minnesota, Working Paper.

Chakraborty Chandana and Nunnenkamp Peter (2008), "Economic Reforms, FDI, and Economic Growth in India: A Sector Level Analysis", *World Development* Vol. 36.

DeMello, L.R., Jr. (1999), "Foreign Direct Investment-Led Growth: Evidence from Time Series and Panel Data", *Oxford Economic Papers*.

Di Tommaso, M. L., Raiser, M., and Weeks, M. (2007), "Home Grown or Imported? Initial Conditions, External Anchors and the Determinants of Institutional Reform in the Transition Economies", *The Economic Journal*, Vol. 117.

Dowrick Steve and Golley Jane (2004), "Trade Openness and Growth: Who Benefits", *Oxford Review of Economic Policy*, vol. 20, No. 1, pp. 38- 56.

Drukker M David (2003), "Testing for Serial Correlation in Linear Panel-Data Models", *The Stata Journal* (2003), Number 2.

Eicher T. and Schreiber T. (2007), "Institutions and Growth: Time Series Evidence from Natural Experiments", University of Washington, Department of Economics, Working Paper No. UWEC-2007-15.

Estrin Saul and Uvalic Milica (2013), "Foreign Direct Investment into Transition Economies: Are the Balkans different?", LSE 'Europe in Question' Discussion Paper Series.

Hansen H. and Rand J. (2006), "On the Causal Links between FDI and Growth in Developing Countries", *World Development* 29.

Hoechle D. (2007), "Robust Standard Errors for Panel Regressions with Cross-Sectional Dependence", *Stata Journal* 7(3), 281312.

Hoechle Daniel (2007), "Robust Standard Errors for Panel Regressions with Cross-Sectional Dependence", *The Stata Journal* (2007), Number 3.

Hoehn Balthasar, Schuberth Florian and Steiner Manuel (2014), "Dealing with Heteroskedasticity, Autocorrelation and Endogeneity in German Audit Fee Panel Data - Comparing Approaches", Social Science Electronic Publishing, Inc.

Hong Liming (2014), "Does and How does FDI Promote the Economic Growth? Evidence from Dynamic Panel Data of Prefecture City in China", *IERI Procedia* 6, 57-62.

Huchet-Bourdon M., Mouel L. C., and Vijil M. (2011), "The Relationship Between Trade Openness and Economic Growth: Some New Insights on the Openness Measurement Issue. XIIIeme Congres de l'Association Europeenne des Economistes Agricoles AAE), pp. 1-17.

Iamsiraroj Sasi and Doucouliagos Hristos (2015), "Does Growth Attract FDI?", *Economics Open-Access, Open-Assesment E-Journal*.

Jordaan A. Jacob (2005), "Determinants of FDI-Induced Externalities: New Empirical Evidence for Mexican Manufacturing Industries", *World Development* Volume 33, Issue 12.

Key Hiau Looi (2011), "Local Intermediate Inputs, Foreign Direct Investment and the Performance of Domestic Firms: When Firms Share Common Local Input Suppliers", *Journal of Development Economics*.

Khaliq Abdul, Noy Ilan (2007), "Foreign Direct Investment and Economic Growth: Empirical Evidence from Sectorial Data in Indonesia", No 200726, Working Papers, University of Hawaii at Manoa, Department of Economics.

Korotayev Andrey and de Munck Victor (2013), "Advances in Development Reverse Global Inequality Trends", *Journal of Globalization Studies*. Volume 4, Number 1.

Maodatsou Argiro and Kykilis Dimitrios (2011), "FDI and Economic Growth: Causality for the EU and ASEAN", *Journal of Economic Integration*.

Melnyk Leonid, Kubatko Oleksandr and Pysarenko Serhiy (2014), "The Impact of Foreign Direct Investment on Economic Growth: Case of Post Communism Transition Economies, Problems and Perspectives in Management, Volume 12.

Nunnenkamp Peter and Spaz Julius (2004), "FDI and Economic Growth in Developing Economies: How Relevant are Host-Economy and Industry Characteristics", United Nations.

Podestà F. (2002), "Recent Developments in Quantitative Comparative Methodology. The Case of Pooled Time Series Cross-Section Analysis", Università Brescia: Discussion Paper.

Reed W. Robert and Webb Rachel (2010), "The PCSE Estimator is Good, Just not as Good as you Think", *Journal of Time Series Econometrics*, 2(1).

Rojec Matija and Penev Slavica (2011), "Attractiveness of Western Balkan Countries for FDI" In: *Serbia and the European Union: economic lessons from the new member states*. Faculdade de economia Universidade de Coimbra, Coimbra, pp. 27-43. ISBN 978-972-9344-03-9.

Ruth A. Judson rjudson@frb.gov Ann L. Owen, 1996, *Estimating Dynamic Panel Data Models: A Practical Guide for Macroeconomists*.

Sachs, J. D. (2001), "The Transition at Mid Decade", *Economic Transition in Central and Eastern Europe*, Vol. 86, No. 2.

Stimson, J.A. (1985), "Regression in Space and Time: A Statistical Essay", *American Journal of Political Sciences*, 29(4).

Tang Donny (2015); "Has the Foreign Direct Investment Boosted Economic Growth in the European Union Countries?", *Journal of International and Global Economic Studies*, 8(1).

UNCTAD (2015), "World Investment Report 2015", United Nations Publication.

van Leeuwen Bas (2007), "Human Capital and Economic Growth in India, Indonesia, and Japan: A quantitative analysis, 1890-2000", *International Institute for Social History*.

Wacker M. Konstantin (2013), "On the Measurement of Foreign Direct Investment and its Relationship to Activities of Multinational Corporations", *European Central Bank (ECB). Working Paper*.

Walsh James P. and Yu Jiangyan (2010), "Determinants of Foreign Direct Investment: A Sectorial and Institutional Approach. IMF Working Paper, WP/10/187, July.

Zakari Yahya Abdullahi, Haruna Mohammed Aliero and Musa Adamu Yusuf (2012), "Does FDI Cause Economic Growth? Evidence from Selected Countries in Africa and Asia", *African Journal of Social Sciences*.

Zhao Changwen and Du Jiang (2007), "Causality Between FDI and Economic Growth in China", *The Chinese Economy*.



