

growth for 27 countries in transition stage over the period 1991-2004, the authors (Apergis, et al., 2008) concluded that FDI has a positive impact on the economic growth of these countries if taken as a whole. But if impact of FDI is analysed in two separated groups, the authors have found that in the countries with the higher income level and with the successful privatization process the effect of FDI has been positive and higher than in a group of countries with the lower income level and unsuccessful privatization process.

(Kekic, 2005), states that it is striking that increase in involvement of the foreign private sector in West Balkan is based on only few minimum conditions, restoration of peace and basic security, beginnings of economic recovery and modest improvement in business environments. According to him, the mid-term projections suggest that rapid trend of FDI is likely to be stable.

The Authors (Duttaray, et al., 2008), have analysed 66 developing countries in their research into effects of FDI on economic growth, taking into account their interaction with exports and technological changes. They have come to the conclusion that FDI have a positive effects on 66 countries out of 66 that were included in a sample, but the mechanism through which the FDI operates are different in different countries. In most countries the export is the most important mechanism, while in some other countries the productivity growth is more important. According to the authors in most of the countries analysed the economic growth has no impact on FDI.

3. DATA AND METHODOLOGY

3.1 VARIABLES AND DATA

This study focuses on exploring the impact of foreign direct investment (FDI), and other controlling variables such as: exports of goods and services (EXP), worker remittances (REM), capital formation (C) and labour force (LF), on the economic growth in the West Balkan countries. In order to test the impact of these variables in economic growth we have created and used a strongly balanced panel data (also known as longitudinal or cross-sectional time-series data) for six former communist countries of West Balkan which are still in the transition process. The final sample includes countries namely: Albania (AL), Kosovo (KS), Serbia (SR), Macedonia (MA), Montenegro (MN), and Bosnia and Herzegovina (B&H). All Western Balkan countries are in the process of meeting the standards to be integrated into the European Union. From the Western Balkan countries, only Croatia has become a member of the European Union, so we have excluded it from the analysis.

In this paper we have constructed a simple growth model including FDI as variable of interest, and other controlling variables: export of goods and services, remittances, alongside traditional production factors such as labour and capital.

All variables used in the analysis are in natural logarithms of absolute values. Logging series often has an effect very similar to deflating: it straightens out exponential growth patterns and reduces heteroscedasticity (i.e., stabilizes variance). A great advantage of this, for the purpose of analysis, is that small changes in the natural log of a variable are directly interpreted as percentage change, to a very close approximation.

The Table 2 describes all the variables in the model that are going to be estimated.

Table 2. *The variables in the model*

Variable name (Symbols)	Description	Type of variable	Expected sign
ln GDP	GDP (current US\$)	Dependent	Not known
ln FDI	Foreign direct investment, net inflows (BoP, current US\$)	Independent	+
ln REM	Personal remittances, received (current US\$)	Independent	+
ln EXP	Exports of goods and services (BoP, current US\$)	Independent	+
ln C	Gross fixed capital formation (current US\$), as proxy for Capital	Independent	+
ln LF	Labour force, total (people) as proxy for Labour	Independent	+

Data source is the World Development Indicators of the World Bank (WB, 2016) covers the interval from 2005 to 2015. Data for Gross Domestic Product (GDP), foreign direct investment (FDI), remittances (REM), export of goods and services (EXP) and Gross fixed capital formation (C) are in current US\$, while data for Labour force (LF) are in people. The data for the Labour Force in Kosovo we obtained from Agency of Statistics of Kosovo, since the World Bank Development indicator does not contain these data. We have made selection of the time period according to the availability of secondary data.

Table 3. *Descriptive statistics of Variables (2005–2015)*

Variable	Mean	Std. Dev.	Coefficient of variation (%)	Min	Max
GDP (mill \$)	14,600	12,600	86	2,260	49,300
FDI (mill \$)	989	1,050	106	60,9	4,930
REM (mill \$)	1,460	1,240	85	196	4,650

EXP (mill \$)	4,900	4,720	96	413	19,200
C (mill \$)	3,270	2,520	77	406	12,300
LF (persons)	1,253,643	950,298	76	243,413	3,265,003

Source: Authors calculations

Table 3 presents the descriptive statistics for the sample of 6 countries covering period 2005 to 2015. From the data we can see that the average volume of FDI is much lower than the volume of remittances and export of goods and services in countries under the study. The minimum value of FDI during the 11 years of study is 60.87 million US\$ observed in Macedonia in 2014, while maximum value of 4,929 million US\$ is observed in Serbia in 2011. All the variables show high variability. The highest variability is shown in Foreign Direct Investment (106%).

3.2 RESEARCH METHODOLOGY

Employing a panel data modelling technique, we provide the answers to our main research questions: *What is the impact of Foreign Direct Investment on economic growth in the West Balkan Countries?*

For exploring the impact of Foreign direct investments (FDI), and other controlling variables such as: workers’ remittances (REM), exports of goods and services (EXP), and the two basic traditional production factors, capital formation (CF) and labour force (L) on the economic growth in six West Balkan countries, we have used three models that are appropriate for panel data: *Pooled OLS Regression; Fixed Effect or LSDV model and Random Effect model or GLS Model.*

Same methodology is used by (Goschin, 2014), (Meyer & Shera, 2017).

The Pooled regression model has the following expression:

$$Y_{it} = \beta_0 + \sum_j \beta_j K_{itj} + \varepsilon_{it} \quad (1)$$

where: $i = 1, \dots, 6$ (countries), $t = 2005, \dots, 2015$, Y_{it} is the dependent variable, in our case in lnGDP, K_{itj} are the independent variables included in the model, β_j is the parameter that summarize the j factor contribution to the dependent variable, and ε_{it} is error term with zero mean and constant variance.

By taking natural log (ln), Equation 1 has been transformed in to Equation 2.

$$\ln GDP_{it} = \beta_0 + \beta_1 \ln FDI_{it} + \beta_2 \ln EXP_{it} + \beta_3 \ln REM_{it} + \beta_4 \ln C_{it} + \beta_5 \ln LF_{it} + \varepsilon_{it} \quad (2)$$

The major disadvantage with this model is that it does not distinguish between the various countries that we have. In other words by combining 6 countries and by pooling (Pooled OLS) we deny the heterogeneity or individuality that exists among countries.

Fixed effect (FE) or LSDV Model allows for heterogeneity or individually among 6 countries, meaning that we have different intercepts for different

countries. The term fixed effect is due to the fact that although the intercept may differ across the countries, but intercept does not vary over time that is time invariant. The fixed effects model captures the sources of change within countries. According to (Stock & Watson, 2015), fixed effect regression is the main tool for regression analysis of panel data as an extension of multiple regression that exploits panel data to control for variables that differs cross countries but are constant over time.

The fixed effect model that is addressed in this paper is:

$$Y_{it} = \beta_0 + \gamma_t + \sum_j \beta_j X_{itj} + \varepsilon_{it} \quad (3)$$

where: $i = 1... 6$ (countries), $t = 2005, \dots, 2015$, Y_{it} represents the dependent variable (lnGDP). The terms γ_t are called the entity fixed effects, in our case could be economic growth and crises, change in migration, policies, etc. They control for the omitted variable (unobserved heterogeneity) that varies from country to country but not over time. The parameter β_0 reflects cross-sectional fixed effects (country characteristics that are time-invariant over 2005-2015), β_j is the parameter that summarize the j factor contribution to the dependent variable. Term ε_{it} present error term with zero mean and constant variance.

The slope coefficient of the population regression line, β_j , is the same for all states, but the intercept of the population regression line varies from one state to the next.

Random effects model (RE) assumes a random variation across countries and is more appropriate if differences among countries affect the dependent variable.

The random effect model or GLS model assumes that the constant is a random variable and the individual intercepts β_0 are random deviations from the average constant β_0 .

The general specification of the random effects model is as follow:

$$Y_{it} = \beta_0 + \sum_j \beta_j X_{itj} + u_{it} \quad (4)$$

To decide which model is suitable to accept, Fixed effect (FE) or Random effect (RE), for our panel data set, we have applied a *Hausman Test*. It basically tests whether the unique errors (u_i) are correlated with the regressors. Random Effects is inconsistent while Fixed Effects is still consistent. The test statistic is based on the difference of the two estimators. The null hypothesis will be rejected, if the difference is large. The hypotheses for *Hausman test* are as follow:

H_0 : *Random Effect Model is appropriate*; H_1 : *Fixed Effect Model is appropriate*.

Also, we have employed the *Breusch and Pagan Lagrangian multiplier test* for random effect model, in order to test which model is more appropriate, Random effect or Pooled regression model. The hypotheses for this test are as follow:

H_0 : Pooled Regression Model is appropriate; H_1 : Random Effect Model is appropriate.

In order to check whether there is a serial correlation in the residual, we used *Durbin Watson (DW) test*. The hypotheses for Durbin Watson test are as follows:

H_0 : No first order autocorrelation; H_1 : First order correlation exists

We used *Breusch-Pagan/Cook-Weisberg test for heteroskedasticity* for groupwise heteroskedasticity in pooled regression model to check whether there is heteroskedasticity in the panel data. The hypotheses are as follow:

H_0 : Residuals are homoscedastic; H_1 : Residuals are heteroscedastic.

Authors, (Stock & Watson, 2015), suggested that in a case of not very large sample there is no necessary to employ any standard tests of *stationarity*. Since our sample size is not so huge ($n=66$), we have not employed any test of stationarity.

And finally, to make the results unbiased or to fight heteroscedacity, we add to robustness.

4. EMPIRICAL RESULTS

The results of pooled regression model are presented in Table 4. Since the probability value for *Hausman Fixed test* ($p=0.1318$), is larger than level of significance ($\alpha=0.05$) we did not reject the Null hypothesis meaning that the Random Effect Model is more appropriate for our panel data. After testing with *Breusch and Pagan Lagrangian multiplier test* for Random Effect Model, we decided to accept the null hypothesis that for our panel data the ***Pooled regression model is more appropriate.***

In the time series data we often encounter problems like multicollinearity or correlation. Since, in our time series data the dependent variables and the independent variables have significant trends over the observed time, this has influenced the R-squared value to be quite high that may be due to multicollinearity. However, after the testing through the Durbin-Watson test, we consider that the regression results are valid and acceptable. The value of the calculated DW test ($DW = 1.53$) is within the allowed limits of 1.5 to 2.5. (Rule of thumb). Also (Field, 2009) suggests that if the value of the DW test is between 1 and 3 there is no cause for concern.

Breusch-Pagan/Cook-Weisberg test for heteroscedasticity has the p-values greater than level of significance, so we can't reject the null hypothesis and conclude that residuals are homoscedastic. However, in order to make the results unbiased, we add to the regression the robustness (The values of test statistics employed in our panel data analysis are presented in table 4).

We are going to interpret only the results that are derived from Pooled Regression Model.

Table 4. Results from the Pooled Regression Model Robust

Dependent variable lnGDP	Std. Err. adjusted for 6 clusters in country			
	Variable name	Coefficient	Robust Std.Err.	T
ln FDI	-0.0269235	0.0163196	-1.65	0.104
ln REM	0.1922774	0.0200113	9.61	0.000
ln EXP	0.3485298	0.0200113	9.58	0.000
ln C	0.3213835	0.0835595	3.85	0.000
ln LF	0.1435079	0.0581368	2.47	0.016
Cons_	3.088443	0.7594067	4.07	0.000
Number of observation:	66			
Adjusted R ² :	0.9852			
F-statistic (5, 60) = 693.52	Prob>F = 0.0000			
Hausman Fixed	Prob > chi2			Pr= 0.1318
Durbin-Watson d-statistic (6, 66) = 1.53				
Breusch and Pagan Lagrangian multiplier test for random effects (chibar2 (01)=0.00				Pr =1.000
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity: chi2(1) = 0.00 Prob > chi2 = 0.9766				Prob > chi2 = 0.9766

Source: Authors estimations

Results are statistically significant, adjusted R² ratios are near to one, t-ratios are high (p-values are lower), F-ratios are high. Most of the variables have expected signs and are theoretically satisfactory.

Since the *p-value* of F-statistic is less than the level of significance $\alpha=0.05$, we can conclude that the coefficients in the model are different than zero which means that they are statistically significant in explaining the variation in economic growth in West Balkan countries.

The model shows a positive relationship between REM, EXP, C and LF on GDP, while the relationship between FDI and GDP are negative but statistically insignificant.

The finding of our paper is that the flows of FDI in the region of the Western Balkan during the period of analysis did not increase the economic growth in these countries. What is interesting is that FDI turned out to be negative, but

statistically insignificant in the economic growth in these countries. The result shows: that an increase by 1% in the coefficient of FDI, growth on average will decrease by 0.03%.

What we can say is that our results can be taken as preliminary, because there is a lack of data. To make our results more significant we need to use data for longer periods which is not available for the time being. . But the findings of our paper are also consistent with literature and consistent with the findings of other authors (Domaze & Marjanovic, 2017), (Estrin & Uvalic, 2016), (Goschin, 2014), (Mencinger, 2003), (Lyroudi, et al., 2004), (Apergis, et al., 2008), (Curwin & Mahutga, 2014), (Estrin & Uvalic, 2014), etc.

In general there are many reasons why the coefficient of FDI can be negative. FDI can result in increase in investment level and also on the productivity by bringing know-how technologies in these host countries, but they can reduce the rate of growth by creating price distortions. FDI can also cause the misallocation of resources (like human resources). Another can be that the monopolization of domestic firms by foreign investors and the pricing transfers will cause an under-utilization in resources' (especially in the labour market) which will result in creating a lag in domestic demand giving us a stagnation on growth.

As our focus is on Western Balkans we argue why FDI can be negative in this part of the world. First the size of economies of Western Balkan countries is small, their location is relatively remote, and these countries are relatively closed economies. This region in Europe has had an unlucky political history, starting with wars, fragmentations, and overall low economic development, and this has caused that the quantity of FDI to decrease and as a result the quality to fall as well. Western Balkan countries have traditionally been followed by poor institutional environments, where the markets for FDI have not been clearly regulated creating room for manipulations and corruption and as a result leaving FDI free to exploit resources.

Infrastructure with education system, the overall stability both politically and economically and with government efficiency are key ingredients for countries to attract quality FDI, but the destructions from the war and the reasons stated above have failed to deliver these conditions.

Since these countries are small and FDI is mostly based in finance and trade sector this can have a negative effect in both of them and causing the economic growth rate to fall. First, in the finance sector FDI have more advanced techniques and are more productive than local firms, and this will cause a lot of local firms to close since they cannot compete with them, and a lot of workers to go work with the large corporations because they bring better conditions for the worker. Second, FDI can cause increases in imports resulting in the growth rate to fall.

The outcomes advocate that the coefficient of remittances to GDP is positive and statistically significant and demonstrates that for a given country, as remittances increase by 1%, the GDP increases on average around 0.19%, (ceteris

paribus). The outcomes are consistent with the literature and empirical results that support the positive effect of remittances in economic growth (Goschin, 2014), (Giuliano & Ruiz-Arranz, 2006), (Meyer & Shera, 2017) etc.

The other coefficient of exports of goods and services is also positive and statistically significant, showing that for a country as exports increase by 1%, GDP increases on average approximately by 0.35%,(ceteris paribus). The outcomes are consistent with other findings and empirical results that support the positive effect of export in economic growth.

The coefficients of Gross Fixed Capital Formation (C) and labour force LF are positive, suggesting that both physical and human capital is important for economic development in Western Balkan Countries.

5. SUMMARY AND CONCLUSION

The main aim of this study is to examine the impact of foreign direct investment (FDI) in the process of economic growth in six countries of the Western Balkans, using the annual panel data for period 2005-2015. The selection was based on data availability.

The results from the regression analysis confirm that there is negative relationship, which is not significant between foreign direct investment and economic growth in countries under this study.

Given that in most developing countries and particularly in the Central and Eastern Europe countries, the effect of FDI has been positive in their economic development, either through economic growth, employment growth, the acquisition of new experiences, the growth of competitiveness of local firms, productivity growth and other effects, the Western Balkan countries should overcome the institutional, political, economic and other obstacles in order to use FDI more efficiently and affect the economic development of these countries.

Western Balkan countries in order to benefit from FDI, the FDI structure needs to be changed to activities that promote the export and improve technology.

As the privatization project is under way, the Western Balkan countries should make efforts to direct FDI into production sectors since so far this sector has received the least FDI and thus improve their economic structure with the relative growth of production sector.

Western Balkan countries in order to stimulate economic development should make efforts to attract FDI, as they have significant advantages as a destination for investment. These countries have untapped potential in areas such as trade integration, transport infrastructure, energy development and innovation. There are seven features of the region that are: macroeconomic stability prospective, EU membership, favourable taxes, strategic location, diverse economies and low labour costs combined with a relatively educated population

(Sanfey, et al., 2016).

The impacts of other variables such as, remittances (REM), export of goods and services (EXP), capital formation (C), labour force (L) show a positive relation and significant impact on economic growth.

The evidence from the statistical analysis suggests that the attraction of remittances, the increase in exports, capital formulation, and labour force are important to promote economic development in the West Balkan Countries.

Limits and future directions of the study

The main limit of our study is the size of sample. The statistical tests normally require a larger sample size to find significant relationships from the data and to ensure a representative distribution of the population and to be considered representative for the entire population.

Future study will focus more on how does FDI influence the economic growth in the West Balkan Countries and does this influence change under different legal, institutional, educational and economic conditions?

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