

## Does Foreign Direct Investment (FDI) Contribute to Poverty Reduction? Empirical Evidence from Central European and Western Balkan Countries

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### Abstract

This paper seeks to empirically examine the validity of nexus between Foreign Direct Investment (FDI) and poverty reduction in the context of twelve European transition and post-transition countries divided in two regions, between 2000 and 2015. The empirical analysis investigates whether some variations in poverty reduction are influenced by countries' FDI performance and lead by progress in the EU integration process. The study finds that the nexus between FDI and poverty reduction varies between two regions (the Western Balkan region and the Central Europe region). While the relationship between FDI and poverty reduction has a positive effect in the Western Balkan region, it is insignificant and negative in the Central European region. In addition, the findings confirm some earlier assumptions that FDI impacts poverty reduction more strongly in poorer countries (the Western Balkan region) than in wealthier countries (the Central European region).

**Keywords:** Foreign Direct Investment (FDI); Western Balkan; determinants of FDI; panel data analysis.

**JEL classification:** F10; F23.

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### 1. INTRODUCTION

In recent years, FDI flows have become much more than just a form of capital flows. They, especially FDI inflows, also serve as an economic engine of a country's growth where they are located. The rise of economic inequality over the last few decades caused significant displacement and disruption and undermined social cohesion. Greater economic inequality can lead to growth in overall social tensions and reduce the efficiency of the economic system, discourages investments and contributes to deepening poverty. Due to the lack of empirical studies dealing with the nexus between poverty alleviation and FDI in the scientific literature of European transition and post-transition countries, this empirical study is being conducted to empirically examine the existence of the relationship and whether

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poverty alleviation is significantly influenced from the inflow of FDI. The research problem relates to trends in FDI in the European transition and post-transition countries, highlighting its positive and negative effects on poverty reduction. In the European transition and post-transition countries, a lot of research on FDI has been done so far, but none of them deals with the issue of relevance and connection with the reduction of poverty. Therefore, this research looks at the impact of globalization (which FDI) on the new context of sustainable development of the country, and also on the importance of FDI to the reduction of poverty.

This research aims to examine the nexus between FDI inflows and the reduction of poverty. It seeks to create a link between FDI inflows and growth theory studies. Specifically, this paper combines the results of previous studies in order to develop a conceptual framework to further explore the impact of FDI inflows on poverty alleviation in analyse the case of the two European regions. This study is particularly relevant to the cases of Western Balkan countries after the armed conflict, political changes that transpired in many of these countries moving beyond transition and their road to market oriented economy. Accordingly, the comparison between two regions of Western Balkan and Central Europe will help shed some light on addressing the larger question: Do FDI inflows contribute to Poverty Reduction in two regions?

This study's contribution mainly comprises of contributing to the existing analysis and literature. The existing materials indeed have deep and detailed analysis of different variety of aspects of FDI. Existing literature largely examines the determinants of FDI and its impact on growth. It is inevitable to mention that there are some research papers that analyze of consequences for specific groups of countries or from different perspectives, but they are either small or hardly connectable to other perspectives. The existing literature does not form a coherent mass; often and even sometimes different authors do not complement each other even though they base their works on each other's studies.

The results of this empirical study indicate new findings while confirming some of the conclusions of previous empirical studies. This provides a quality basis for carrying out future research in order to further explore the impact of FDI inflows in host countries on poverty reduction. In addition, the findings of this research also have significant practical implications for policy makers in transition countries, especially for policy makers who are to encourage foreign investment.

## 2. LITERATURE REVIEW

In the literature on capital flows, there exist many works on FDI and portfolio investment, but very limited number of academic work has been carried out in the field of nexus between poverty reduction and FDI. Nevertheless, there is no much of research available to describe the direct link between FDI and poverty reduction. In terms of the literature about the above mentioned relationship the benefited literature is dealing with direct and indirect effects of FDI on Poverty. There are lots of studies about poverty reduction and FDI in general all over the world and specifically in developing countries (Hung, 2005; Calvo and Hernandez, 2006; Gohou and Soumaré, 2009; Reiter and Steensma, 2010; and others).

As it is mentioned earlier, FDI is considered to have an important impact on the economic development of a country by providing capital to encourage different aspects of economic development. Theoretically, there are direct and indirect effects of FDI on poverty

alleviation. The indirect influence of FDI on poverty alleviation can be visible through economic growth, leading to the improvement of living standards. On the other side, the direct effect of FDI on poverty alleviation is through the economic growth, reduced number of people living below the poverty line, increased level of employment, greater demand for workforce, etc. The nature of these effects relies on different conditions and numerous factors. Hence, a country that is willing to benefit as much as possible in terms of FDI inflows and ultimately poverty alleviation, has to create an environment which would be economically, politically, and legally appealing to this type of investment (Ucal, 2014).

Aaron (1999) has investigated the methods by which FDI can contribute poverty alleviation in developing countries employing two different approaches. The first approach implies the connection of FDI and growth, and the second approach indicates the relationship between growth and poverty reduction. The author has found the potential outcomes of FDI on the host economy as direct and indirect outcomes, making the distinction between the impact of FDI on social development and poverty alleviation.

More relatedly, to this study, in their study Dollar and Kraay (2004) confirm that economic growth reduces poverty and improve the standard of living. The study used the GMM estimator between 1970 and 2000 for more than 100 countries to examine above mentioned correlation. The results of the research imply that the FDI and a trade affects positively on people by increasing their income and decreasing poverty.

Uttama (2015) explored the effect of FDI on poverty reduction, between 1995 and 2011, in the sample of ASEAN-6 countries. In his model, he used a set of six explanatory variables (economic factors, financial factors, globalization factors, political factors, infrastructure factors and spatial effects) while the Human development index (HDI) is proxied to measure poverty reduction. The study revealed a statistically significant relationship between FDI and poverty reduction.

Similarly, Hung (2005), Reiter and Steensma (2010), Fowowe and Shuaibu (2014) find evidence that poverty reduction is a result of increase in FDI inflows, while there is also a positive correlation between FDI and economic growth.

Another study by Calvo and Hernandez (2006), empirically explored the impact FDI on poverty reduction in 20 Latin American countries. The study found that FDI flows (domestic and foreign) play an important role in the determination of poverty changes. The study additionally, found FDI as a significant contributor of poverty reduction.

Gohou and Soumaré (2009) empirically investigated the FDI influence on growth and poverty alleviation by employing econometric models for panel data across countries in Africa. Their findings have claimed that FDI reduces poverty (measured by Human Development Index) to a significant extent while at the same time increases the welfare of the specific country. Further, the findings have assumed that the relationship between FDI and welfare has experienced considerable variations across African regions. It is interesting that Central and Eastern parts of Africa are highly affected by FDI in terms of its welfare, while Northern and Southern Africa are not affected by FDI to the highest degree.

In some developing countries it is believed that rise of FDI flows will drive some benefits for the domestic economy. The vast majority of the contemporary empirical studies found different motives of political, economic, cultural and social effects on FDI flows in the recipient countries (Kolster, 2015). FDI flows were growing steadily for the last few decades and become one of the leading sources of capital for many developing countries that exceed their saving capacity. Since there are benefits for both investment recipient and investment

provider, these countries tried to make their investment regimes more liberal thus encouraging increased FDI. This was major trend at the beginning of the 1990s. This trend has been analysed in greater details by [Blomström \*et al.\* \(2001\)](#). They concluded that it has a direct impact on capital, employment, exports and the development of new technologies.

Some other studies ([Das, 2009](#); and [Wade, 2004](#)) present the evidence of FDI determinants (globalization, trade and remittances) as variables that significantly affect poverty reduction. On the contrary, some other studies, like those of [Nishat and Anwar \(2009\)](#) and [Huang \*et al.\* \(2010\)](#) found a negative nexus between FDI and poverty reduction.

It is very important to point out that despite the many different studies on poverty reduction in different regions across the world only a few have shown evidence of a nexus between FDI and poverty reduction in wealthier regions ([Tsai and Huang, 2007](#); [Gohou and Soumare, 2012](#); [Ogunniyi and Igberi, 2014](#); [Arabyat, 2017](#)).

The literature shows the direct relationship between FDI and poverty reduction through the intermediary variables such as welfare or the Human Development Index. However, it has a varying level of impact across the region and on different countries over different periods of time with mixed results. Also, some of the FDI characteristics could limit their real impact on poverty reduction because of the lack of even distribution across industries and sectors, or because too much of the inflow into differing industries with spill over effects that need less manpower and are not as labour intensive.

### 3. METHODOLOGY AND DATA

#### 3.1 Sample

The decision regarding which variables should be included in the model varies across different literatures. Some determinants of FDI were chosen to be included in models either because they make sense instinctively or because they are defined in the theories of FDI (or in some other relevant formal reports). A proxy for poverty is employed instead of using a direct measure of income inequality (Gini coefficient and Atkinson's index) because of the lack of reliable data for many countries in the sample.

The research empirically investigates the impact of FDI per capita (the main explanatory variable) along with a set of control variables (inflation, trade openness and two dummy variables related to EU integration: EU Candidate status and EU full membership), on poverty reduction (measured by Human development index) in the case of two European regions (see [Appendix no. 1](#)).

To examine whether the FDI contributes to the reduction of poverty, the study compares countries belonging to a similar geographical region and similar transition and developmental path. All panel data in European transition and post-transition countries are divided in two subpanels: the Western Balkan countries and the Central European countries. In the Western Balkan region are included some of the poorest countries in Europe, highly dependent on FDI flows (Albania-ALB, Bosnia and Herzegovina- BIH, Montenegro-MNG, Croatia- CRO, FYR Macedonia- MKD, and Serbia- SER).

A sample of the CE region covers the following the countries (Czech Republic- CZH, Bulgaria- BUL, Romania-ROM, Hungary- HUN, Slovakia-SLR and Slovenia-SLO).

By studying a review of literature on this problem, we tried to find the factors that affect poverty alleviation. The existing empirical studies included various combinations of

those variables and they got mixed results in terms of importance. The discussion about the determinants of FDI will lead to the selection of the determinants that will be used in this model. Accordingly, twelve European transition and post-transition countries are employed in this study that offers panel data analysis. The data are drawn from World Bank Development Indicators (World Bank, 2016); United Nations Development Programme – UNDP (2016); and European Commission (2011). For the purpose of this research, the period investigated is from 2000 to 2015. This time period was chosen because during this time period, European post-transition countries recorded the largest inflows of FDI and made the excellent progress alleviating poverty.

The model follows some previous research done by Reiter and Steensma (2010) and Gohou and Soumare (2012) including two new dummy variables:

$$\text{Poverty (HDI)}_{i,t} = \gamma_{0i} + \gamma_{i1}FDIPC_{i,t} + \beta_2NTOM_{i,t} + \beta_3INFL_{i,t} + \beta_4EUCAND_{i,t} + \beta_4EUFULL_{i,t} + \varepsilon_{i,t}$$

The literature review presents the results of studies aimed at identifying the impact of various independent variables on reducing or increasing poverty. In the recent literature, the most frequently used proxy variable for poverty alleviation is a variable known as Human Development index (HDI). In this study, it is a dependent variable on which some independent variables (FDI inflow per capita, Trade openness, inflation, EU candidate status and EU full membership) have a significant or less significant effect.

The dependent variable HDI was included because no one previous study has been carried out in the Western Balkan countries. Thus, poverty reduction is proxied by HDI as done Reiter and Steensma (2010), Gohou and Soumare (2012) and others.

Analysis of the existing literature, as well as limitations regarding availability of data, influenced on the selection of the variables.

Dummy EU integration variables are proxies for regional integration and are included to control the effect of regional integration on poverty reduction (Das, 2009). Namely, EU integration can serve as a means of attracting FDI (Buch *et al.*, 2001; Brenton *et al.*, 1998), thereby improving growth and reducing poverty. It is expected a positive affect the EU integration variables in reducing poverty.

The dummy variable EUCAND takes a value of 1 when the country is granted by EU candidate status and 0 when the country does not. This dummy variable uses to examine whether the deepening of the EU integration process promotes poverty reduction in the countries of the Western Balkan region that have not achieved full EU membership. The second dummy variable EUFULL takes a value of 1 when the country is granted by EU membership and 0 when the country does not. It is included to see some benefits from EU membership for poverty reduction.

The control variable will be inflation which is measured by growth rate of consumer prices (annual %) and proxy to control macroeconomic (in) stability. Macroeconomic stability generally implies a stable inflation rate. Usually, a good economic stability increases a credibility of the country from the investors' point of view. On the contrary, macroeconomic instability leads to higher risks for investment. A negative impact on poverty reduction is expected to have the variable of inflation, because the rise in the price of basic goods directly affects the increase in the number of poor people suffering from poverty (Easterly and Fischer, 2001; Tsai and Huang, 2007; Zaman *et al.*, 2012).

Another control variable included in our model is a trade openness measured from two dimensions, on one side exports and import relative to GDP is taken and on the other side the size of countries trade relative to the world trade. It's the methodology developed by [Squalli and Wilson \(2011\)](#). A positive link between FDI and trade openness is expected if we follow [Tsai and Huang \(2007\)](#).

### 3.2 Data models

The linkages between the dependent variable of HDI and a set of explanatory variables is explored by employing of a set of panel data models of cross country observations ([Baltagi, 2005](#)). In the first panel data model (pooled model): the coefficients that are evaluated are constants regardless of the observation unit or the time period. It is defined as follows:

$$\text{HDI}_{it} = \alpha + \beta_1 x_{it} + \beta_2 x_{it} + \beta_k x_{itk} + \varepsilon_{it}, \quad \varepsilon_{it} \sim \text{i. i. d. } (0, \sigma^2) \quad (1)$$

where  $\text{HDI}_{it}$  is the Human development index of country  $i$  in year  $t$ , where  $x_{it}$ ,  $k=1,2,\dots$ ,  $k$  denotes the value of the independent variable for the  $i$ -th observation unit at time  $t$ ,  $\alpha$  is a constant parameter that is equal to all units and does not change over time while parameters  $\beta_1, \beta_2, \dots, \beta_k$  need to be estimated, and  $\varepsilon_{it}$  is the usual disturbance term.

Each country in the sample has its own intercept or fixed effect (subscript  $i$  in  $\alpha$  indicates) and it varies across countries and/or years. Unlike the previous model, a constant member is different for each unit observation. It implies individual effects for each observation unit, assuming that they are in correlation with the independent variable. It can be expressed as follows:

$$\text{HDI}_{it} = \alpha_i + \beta_1 x_{it} + \beta_2 x_{it} + \beta_k x_{itk} + \varepsilon_{it} ; \quad \varepsilon_{it} \sim \text{i. i. d. } (0, \sigma^2) \quad (2)$$

And Random effect model (RE model) referred to as the individual effects for each observation unit is not correlated with the independent one variable. The RE model is considered as follows:

$$\text{HDI}_{it} = \mu + \beta_1 x_{it1} + \beta_2 x_{it2} + \beta_k x_{itk} + v_{it}, \quad (3)$$

where  $\mu$  means a common constant member for all units, while a random error consists of two elements: individual effects and random errors ( $v_i = \alpha_i + \varepsilon_{it}$ ). The basic assumption of the model is that the contribution units of the observation  $\alpha_i$  are the result of random variation and individual effects are not correlated with regressors. Accordingly, unlike the previous one, the RE model allows the generalization of conclusion on observation units that were not included in the specific study and they commonly affect the correlation between the levels of HDI for all countries in the sample.

The null hypothesis assumes that the OLS Pooled method is appropriate and vice versa for the alternative hypothesis (Fixed effect model is preferred). If our F test statistic value is greater than the F critical value, it implies that the null hypothesis is rejected.

$$\begin{aligned} H_0: \alpha_1 &= \alpha_2 = \alpha_3 = \dots = \alpha_n \\ H_1: \alpha_1 &\neq \alpha_2 \neq \alpha_3 \neq \dots \neq \alpha_n \end{aligned}$$

To decide whether to use Fixed effect or Random effect model, Hausman specification test (1978) is expected to be conducted. It can be understood as a distance measure between Fixed effects and the Random effects estimators. The null hypothesis prefers the Random effects over the Fixed effects model and vice versa for the alternative hypothesis.

The difference between the panel estimators is considered to be significant if the value of the statistic is large. Accordingly, the null hypothesis will be rejected. By the contrary, if the Hausman's test statistic has small value, it can be concluded that Random effect is more appropriate. Accordingly, the study set up the following hypothesis:

**H0:** None of the regression coefficients affects the variation of the poverty reduction (all values of the regression coefficients are equal to zero).

**H1:** At least one of the significant variables explains the variation in the poverty reduction.

#### 4. FINDINGS AND DISCUSSION

An analysis of correlation coefficients was carried out to investigate pairwise correlations of the dependent variables. When there is a high correlation between two individual variables it may indicate the presence of multicollinearity thus significantly sapping the empirical power of the model (Saunders *et al.*, 2003). Multicollinearity can be a problem if the correlation between two variables exceeds 0.80 (Field, 2005). Table no. 1 shows that the correlation coefficients take a value between - 0.0572 and 0.6909 implying an absence of serious problem of multicollinearity.

**Table no. 1 – Correlation matrix between explanatory variables**

	HDI	FDIPC	NTOM	DCANDEU	DFULLEU	INFL
HDI	1					
FDIPC	0.2070	1				
NTOM	0.6312	0.2659	1			
DCANDEU	0.5886	0.1103	0.4725	1		
DFULLEU	0.6909	0.1821	0.6548	0.4734	1	
INFL	-0.2554	-0.0572	-0.1179	-0.1980	-0.1841	1

*Source: author's calculation*

The highest correlation coefficient is between HDI and DFULLEU which indicates a strong serial or time correlation in HDI.

Additionally, vif test is conducted to identify also the presence of multicollinearity (Appendix no. 2). It can be seen that there is no multicollinearity problem in the data set. Since the mean value of VIF is 1.47 and the value does not exceed the threshold of 2 for any variable individually it implies an absence of a serious multicollinearity problem. Moreover, the starting point of the empirical analysis is to examine the stationarity of the variables, or the existence of a unit root.

The issue of stationarity and the level of integrity of the variables were tested, using two unit root tests: Im, Pesaran and Shin and ADF-Fisher Chi square to avoid the spurious regression problem. The results indicate that the employed variables are stationary with the original data, that is, the variables HDI, FDPIC, NTOM and INFL are integrated of order I (0) – see Table no. 2.

Table no. 2 – Unit Root Tests

Test variable	Unit Root Tests		
	Im-Pesaran-Shin W-stat	ADF-Fisher Chi square	Level of integration
<b>HDI</b>	-2.2337**	49.6125***	I(0)
<b>FDIPC</b>	-3.1031***	52.3635 ***	I(0)
<b>NTOM</b>	-3.2655 ***	70.0008***	I(0)
<b>INFL</b>	-9.2217 ***	145.0332 ***	I(0)

Note: Im, Pesaran and Shin W-stat, ADF-Fisher Chi square, the null hypothesis is presence of unit root; \*, \*\*, \*\*\* indicates significant at 10%, 5%, 1% at first difference.

Source: author's calculations

More empirical tests (F test, Breusch – Pagan LM test and Hausman test) were undertaken to compare some of the panel estimators (OLS model, FE model and RE model).

Accordingly, we decided to put comparing estimators for panel data models to assess which one is more relevant and significant in the panel data. A comparison between Fixed and Pooling OLS effect was done by employing Wald F-test and t-test. The study found that F test [(in the FE panel model  $F(5,172)=79.90$ , with the  $\text{Prob} > F = 0.0000$  and in OLS model  $F(5,183) = 56.18$  with the  $\text{Prob} > F = 0.0000$ )] implies statistically significant result of individual effects. So, the output from Wald F-test finds that the null is accepted and FE panel model is preferred. Moreover, Breusch-Pagan Lagrange multiplier (LM) test was used to choose between the Random effects model and OLS model. Conversely, this test found that  $\text{chibar2} (01)=912.98$  with probability  $\text{Prob} > \text{chibar2} = 0.0000$  and we concluded the RE model is appropriate. And finally, for choosing between random effect or fixed effect a Hausman test was employed. The output from Hausman  $\chi^2$  test reveals a small statistically significant difference a test of RE against FE yields of 0.056 ( $t= 0.000000014 / 0.000000246$ ). Since the  $\chi^2(4) = 1.29$  has  $p\text{-value}=0.8633$ , the null hypothesis is accepted and Random effect model is preferred. In order to identify the presence of autocorrelation between the observed variables, the Wooldridge's test for autocorrelation is employed (Wooldridge, 2001). The Wooldridge's test rejects the null hypothesis and implies that there is a presence of serial autocorrelation between the observed variables (Appendix no. 3).

To test for heteroscedasticity Modified Wald's test is employed (Appendix no. 4). Having  $\chi^2(12)= 75.52$  with  $P\text{-value} = 0.0000$ , the null hypothesis about homoscedasticity or constant variance is rejected and the presence of heteroscedasticity is found. In order to deal with the consequence of heteroskedasticity, all the regression models are estimated with the robust standard errors by using the “robust” option, where standard errors are adjusted and the significance of variables generally increased. The explanatory power of models, which is given in Equation 3, outperforms the other considered models (Table no. 3).

The overall R-square of regression for the whole data set is 59.48%. It implies that 59.48% variations in poverty reduction is explainable by our independent variables, while 71.04% and 46.39% have been observed in the Western Balkan countries and the CE countries respectively.

Moreover, Table no. 3 reveals the average effect of the explanatory variables over HDI variable when the explanatory variables change across time and between countries by one unit. According to the findings of the study, all variables included in the model, aside FDI per capita, are statistically significant in the case of a regression run for the whole dataset. The selected variables INFL, EU CAND and EU FULL affects HDI, since they are



statistically significant at the 1% level while a variable NTOM at the 10% level (consistent with the findings of Easterly and Fischer, 2001; Tsai and Huang, 2007; Zaman *et al.*, 2012; Das, 2009; Buch *et al.*, 2001; Brenton *et al.*, 1998 and others).

It is interesting that FDI per capita does not have a significant association with reduction poverty in the case of CE countries. Even more, the results reveal that variable FDI per capita is inversely associated with HDI for the whole sample and it is shown as statistically insignificant. It is consistent with previous studies and the findings of Tsai and Huang, 2007; Gohou and Soumare, 2012; Ogunniyi and Igberi, 2014; Arabyat, 2017).

One of the potential explanations for this relationship is related to the fact that the dataset also includes also advanced and wealthier European post-transition countries from the CE region.

There are some differences between the two regions in terms of the influence of the EU integration processes in a poverty reduction.

**Table no. 3 – Regression results**

Variable	Panel <sup>1</sup>	Western Balkan countries <sup>2</sup>	CE countries <sup>3</sup>
<b>FDIPC</b>	-6.24e-07 [-0.45]	.0000466 [5.87] ***	-2.36e-06 [-1.13]
<b>EUCAND</b>	.040538 [6.67] ***	.0303553 [4.33] ***	-.0020212 [-0.12]
<b>EUFULL</b>	.0336942 [9.82] ***	.0403593 [10.74] ***	.0345734 [3.18] ***
<b>INFL</b>	-.0005714 [-4.38] ***	-.0003512 [-1.37] ***	-.002399 [-2.69] ***
<b>NTOM</b>	.0247866 [1.76]*	.143141 [2.64] ***	.0219724 [0.57]
<b>Constant</b>	.729911 [49.02] ***	.7002312 [52.55] ***	.7873674 [18.54] ***
<b>R-square</b>	<b>0.5948</b>	<b>0.7104</b>	<b>0.4639</b>

Note: The t-statistics are shown in parentheses: \*\* significance at the 5% level; \* significance the at 10% level.

<sup>1)</sup> Panel- Albania, Bosnia, Croatia, FYR Macedonia, Bulgaria, Romania, Slovakia, Czech R., Hungary, Slovenia, Serbia, Montenegro; <sup>2)</sup> Western Balkan countries - Albania, Bosnia, Croatia, Serbia, Macedonia, Montenegro; <sup>3)</sup> CE countries - Slovakia, Czech R., Hungary, Slovenia, Bulgaria, Romania

Source: author's calculation

Even though a variable EUCAND is not statistically significant in the subpanel for the CE countries, with its negative sign, it may be explained by the fact that the countries of the CE region were granted by EU candidate status before 2000. However, the findings for the whole dataset show that poverty reduction is positively influenced by the EUCAND variable at 1% level.

Moreover, a control variable inflation is found to be a negative and highly significant determinant of HDI in all three regressions. It is in the line with our expectations. On the other hand, from the separate regression run for the Western Balkan countries, it is visible that FDI per capita proven to be a positive and statistically significant variable of HDI at the 1% level but with a weak effect (.0000466). It can be explained that FDI inflows in the Western Balkan region is not sufficient to reduce poverty as in the case in the CE countries.

The result for this variable is a consistent with the previous studies done by Gohou and Soumare (2012) and Fowowe and Shuaibu (2014), implying that a poverty reduction is more

determined by FDI in poorer countries than in wealthier countries. Also, our findings find that the control variables: EU integration process, trade openness and inflation have also statistically significant relationship with HDI at the 1% level. In contrast, this study finds that the variable of trade openness does not seem to influence on HDI in the regression run for the CE countries. In fact, there is a positive relationship between the variable trade openness and HDI but it is insignificant. On the contrary, the variable of trade openness in a subpanel for the Western Balkan region was highly significant and indicates that more trade openness lead to the less poverty.

## 5. CONCLUSION

The research has been driven by the desire to extend debate regarding FDI and poverty alleviation from other continents to Europe.

Overall, this study finds significantly variation between the two regions regarding of FDI and poverty reduction. These results imply that the relationship between FDI and poverty reduction has a positive effect in the Western Balkan region, while it is insignificant and negative in the CE region. Moreover, it reveals that poverty reduction is strongly affected by FDI in poorer countries than in wealthier countries. This is consistent with some researches and conclusions made by Brenton *et al.* (1998) and Buch *et al.* (2001) in the Eastern Europe region and Gohou and Soumare (2012) in Africa. Particularly, poverty reduction's driving determinants are stronger in countries with relatively lower economic development (the Western Balkan countries) levels than more economically developed countries (the CE countries). At the same time, it does not mean that FDI is unimportant because its relationship with HDI is complex, and cannot be easily explained in linear models. Only one out of three regressions revealed that FDI per capita influence on the reduction alleviation is a positive and significant. Overall, the results of our research indicate that further poverty reductions in the region of Western Balkan can be achieved through the realization of further FDI inflows, with proximity to EU integration, higher level of trade openness and lower inflation rate.

Overall, the results of our research indicate that further poverty reductions in the region of Western Balkan can be achieved through the realization of further FDI inflows, with proximity to EU integration, higher level of trade openness and lower inflation rates.

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## APPENDIX 1

### Summary of variables used in regression model

Variable	Measurement	Source
<b>HDI</b>	Human Development Index	The Human Development Report of the United Nations Development Programme
<b>Foreign direct investment (FDI) per capita</b>	Per capita foreign direct investment (FDI)	Data source: World Bank - World Development Indicators
<b>Trade openness (TRO)</b>	As the ratio of the Export plus Import divided by GDP	World Bank Database
<b>EU CAND</b>	Dummy variable- EU candidate status-takes a value of 1 when the country is granted by EU candidate status and 0 when the country does not.	Data source: European Commission – Regular report on progress towards accession and Comprehensive monitoring reports for each sample country
<b>EUFULL</b>	Dummy variable- EU full membership takes a value of 1 when the country is granted by EU membership and 0 when the country does not	Data source: European Commission – Regular report on progress towards accession and Comprehensive monitoring reports for each sample country
<b>NTOM</b>	Trade openness	Data source: World Bank - World Development Indicators
<b>INFL</b>	inflation measured by growth rate of consumer prices (annual %).	Data source: World Bank - World Development Indicators

## APPENDIX 2

### VIF test

Variable	VIF	1/VIF
NTOM	1.94	0.515537
EUFULL	1.89	0.530336
EUCAND	1.4	0.716336
FDIPC	1.08	0.927997
INFL	1.05	0.948251
Mean VIF	1.47	

## APPENDIX 3

### Wooldridge test

Wooldridge test for auto-correlation in panel data  
 H0: no first order autocorrelation  
 F(1, 11) = 462.110  
 Prob > F = 0.0000

## APPENDIX 4

### Wald Test

Modified Wald test for groupwise heteroskedasticity in fixed effect regression model  
 H0:  $\sigma(i)^2 = \sigma^2$  for all i  
 chi2 (12) = 66.92  
 Prob>chi2 = 0.0000

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