# Impact of Unemployment on Economic Growth: Evidence from Western Balkans

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**Abstract**

The main purpose of this paper is to investigate the relationship between unemployment and GDP growth in 7 countries of Western Balkan; precisely it studies the relationship of GDP-growth as a dependent variable with unemployment, foreign direct investment, and remittances as independent variables. The high unemployment rate in the Western Balkans is one of the main challenges those countries face, whereas unemployment together with GDP-growth represents the fundamental indicators of the level of capacity utilization and economic development. Those problems reflect economic stagnation and the inability to utilize available production capacities, causing a decline in the standard of living for the population. The paper studies the unemployment problem during 2001-2015 as a base study and the labor market of the Western Balkans, as a comparative model between these countries. The data have been processed in the STATA 12 program and these tests were applied: Effective Effect Model, Random Effects Pattern, Hausman Taylor Recording. The study also comprises secondary data gathered from official institutions of local and international statistics. Based on the empirical results is it found out that there exists a trade-off between unemployment and economic growth in Western Balkan countries, meanwhile, the model suggests that an increase by one percent point of unemployment will reduce GDP-growth by 0.5 percent points.

**Keywords:** unemployment, economic growth, Western Balkans, OLS method, STATA12

## Introduction

The problem of economic growth and unemployment is certainly one of the most important issues in the world that constitutes an essential study sphere in the field of macroeconomics and econometric research. If the level of production drops, its effect will be sequential in some indicators ranging from rising unemployment, low level of income, low level of consumption, and consequently an additional decrease in output. Therefore, the main scope of the legislators from around the world is to keep the unemployment rate within the lowest possible limits because it represents one of the key indicators of success or failure of socio-economic policies.

For the very first time, the relationship between unemployment and GDP growth has been examined and considered by Okun(1962) suggesting that there is a negative relationship among these variables, such as real productions and level of unemployment, later on, known as Okun's law in the economy. (Fischer, 2000) Okun Law presumes that in periods when economic growth is above 2.5%, for every 1% increase in output level, it causes a drop in unemployment by 0.5%. (Guisinger, 2018) The main intention of this research is the review of the relationship between unemployment and GDP growth, and other indicators that are part of the model, besides this the results of the test show the impact of each variable to see the power of their effect on GDP on Western Balkans. To answer the research question there are submitted two hypotheses: H1-There is an inverse relationship between unemployment and economic development, reduction of unemployment rate affects economic growth and H2-There is a positive relationship between GDP, remittances, and FDI. To determine the validity of the hypotheses presented it will be implemented the method of ordinary least squares OLS respectively the regression analysis, within which hypotheses submitted will be confirmed or rejected.

## Literature Review

Gross Domestic Product known as GDP is one of the main concepts of macroeconomics, that determines and measure the ultimate value of goods and services produced within a year or quarterly in a country precisely in the economy of it. (Rudiger Dornbusch) Researchers attest that in order to make a real comparison of real GDP it must be adjusted to inflation

ISSN 2601-8659 (Print)

ISSN 2601-8667 (Online)

European Journal of

Marketing and Economics

January-April. 2018

Volume 1, Issue 1

and this indicator is also included in this research as a macroeconomic indicator in order to accomplish this alignment. The correlation between unemployment and economic growth has been documented enough, both in the local and world literature. Unemployment is known as a negative phenomenon that shows the different economic and social dimensions of a country. Many articles, scientific publications, and other publication of science character were published by various authors who tested the effects of unemployment on economic development. Literature is progressively developing over macroeconomics assumptions that unemployment respectively unemployment crisis has a negative impact on the economy, among others; numerous of the authors studies unemployment effects on society. Therefore, the economic and social dimensions resulting from unemployment make it more complex and consequently lead us to investigate some factors to understand its nature and its influence on economic growth. Theoretical analysis of unemployment represents the level of employment as a workforce associated with the degree of success, which together is linked to economic growth. (Al-Hamdi, Mohaned and Alawin, Mohammad, 2016) Unemployment is categorized as one of the most serious barriers to prevent economic progress. (Akinboyo, 1987) and (Raheem, Mufutau Iyiola, 1993) explained that besides the fact that unemployment encourages livelihood in the street, an area in which individuals are inclined to commit criminal offenses against the law, it represents a huge loss of labour force of a country; it produces poverty in the sense that the lowest the output will be, the lower the revenue and the poorer the welfare will be.

Human capital influence productivity and profitability, and it explain the scope and changes in earnings between individuals. In this way, the human capital is the one that influences the opportunity of being employed or not. Despite the opinion that countries in transition have a high level of dominance, evidence has shown that those countries are worse in terms of the quality of labor force. (Hoti, 2003)

Estimation of the impact of FDI on the unemployment rate in Malaysia during 2009, ascertained that in economic growth contribute the level of foreign direct investment. (Irpan, 2016) The author has aligned all the macroeconomic variables of which he came to the conclusion that the growth of FDI contributes on employment rate, which increases the output and so that indicates in GDP growth of a country. (Stephen, 2012) also investigated the impact of unemployment on economic growth in Nigeria during the period 1980-2008. To develop his model, the author applied the Cobb-Douglas production function, by using ordinary least squares (OLS). He found that the unemployment rate varies significantly and vice versa during economic growth. Moreover, the results showed that some macroeconomics indicators contribute on in economic growth of Nigeria whereas some of them do not. In simple terms, he has shown that money supply growth mobilizes savings, increases capital formation and consequently causes the increase on domestic production

However, the high level of unemployment and the prolongation of the unemployment crisis proved to have had a negative impact on the economy, which means that unemployment crises do not favor economic growth. World Bank in its report regarding unemployment crises for Western Balkans, conducted by regression, assessed the relationship between unemployment and economic growth, and based on empirical results came to the conclusion that an increase of 1% of GDP is associated with 0.37% decline in the unemployment rate in the Western Balkans and 0.25% in the developed countries of Europe thus, suggesting the negative relationship between economic growth and unemployment. (Wordl Bank, 2017)

**Data and Methodology**

**Evidence of macroeconomics indicators in Western Balkan states**

Western Balkans countries are situated in the southeastern part of Europe, and consist of seven states Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, and Serbia.  As a consequence of a non-stable situation, shifting from one form of government to another, respectively socialism to capitalism and democracy, aiming integration and convergence with merging states of UE, made those countries to face many difficulties during state reconstruction. (Murgasova, 2015) The early wish for the embracing of European economy made many reforms that came as basic conditions for achieving the convergence, initiated by transforming on labor economy, liberalization of prices, privatization of state and socially owned enterprises, and the construction of institutions that support the market Economy. The unstable situation in the country, many factors as political, social and cultural, made the process of transformation and integration not uniform for all states.

Those all resulted in destabilization of macroeconomic indicators, among others, the World Bank estimated that large amounts of physical capital destroyed and the Yugoslav federation's market collapsed. Most of the economies between

1991 and 1993 experienced high-level recessions, which has provided negative double-digit ratios of economic growth indicators (Murgasova, 2015), among them Albania has recorded a negative GDP rate of -28%, Serbia -11% in 1999 and Macedonia -8% in 1993, the data for other years are given in Table 1. However, the latest IMF report on the Western Balkans shows that the last decade these states have made progress, which has contributed to raising the standard of living for the residents of these countries. (Bakker, 2015). However, this increase for many global organizations, among them World Bank considered that it has been able to be as a result of global liquidity (large capital incomes entered from abroad), rather than the real progress of economic reform. Evidence for this was the consistently high double-digit unemployment rate, which the same has also been during the peak of economic expansion, indicating that the rate of productivity in those places were quite low.

Economic growth is presented of GDP often conceptualized as the increase in output or as an increase in the capacity of the economy to produce goods and services that are needed to decrease the rate of poverty. GDP is monitored by policymakers and public too, moreover, it is seen as a stable process that involves the growth of good and services in an economy. (Ahmet Manchellari, 2007) Today more than ever economic security is one of the most challenges that the Western Balkans faces. Poverty together with the continuous high unemployment rate has threatened till now everyday economics security of countries in the region. The minor number of workplaces and high rate of unemployment are main concerns almost of all Balkan countries. The socio-economic perspective of these countries with a rate of employment of 50% and a double-digit unemployment rate leads to a number of challenges that hamper growth, economic growth, and long-term EU integration goals. (IMF, 2011). The table below shows that until 2009 Albania, Croatia and Serbia marked the greatest progress of economic development. Furthermore, Albania and Kosovo were the only countries that have not felt the impact of the crisis, without having very large fluctuations in the GDP indicator due to the low exposure of Kosovo and Albanian's economy to global markets. However, this trend doesn't seem to last long, IMF considered that this process has started to serve only for personal interests and that the economic growth of Western Balkans was a result of wide global liquidation and unstable capital incomes rather than economic growth as a result of the transformation of the economy. (IMF, 2016) Besides the fact that century-old disagreements between states and transition process that all those countries have gone through caused negative changes on those countries, it is also said that the geographic position away from the EU core countries, is preventing the access to the supply chain of the German economy. (Bakker, 2015).

As it mentioned earlier, Western Balkans constantly has been characterized by a low rate of employment and double-digit rate of unemployment. The high and continuous rate of unemployment has become an obvious feature of the labor market in the region. Regarding this, another feature of these countries is the large size of the informal sector. (WorldBank, 2017)

The World Bank in co-operation with the Vienna Institute for Economic Studies estimated that the high rate of international migration plays an important role in mitigating the unemployment problem and is considered to be an important source of incomes. However, in addition, almost the whole region is threatened by a decline in the population resulting from low birth rates and high-rate emigration. (The Vienna Institute for International Encmic Studies, Labor Market Trends) According to the economic report of the Western Balkans, the regional economic growth of 2.8% in 2016 and 3.2% in 2017 has contributed to the increase in creating job places and consequently the reduction of the poverty. The World Bank report (2016), shows that the rate of poverty in these countries has fallen 2 percentage points of each state.(WorldBank, April 6, 2017) World Bank also have reported that Western Balkan countries have increased employment by creating roughly 300,000 jobs since 2010 to 2016 (from 5.5 million in 2010 to 5.8 million in 2016) which means a 6% increase on employment rate in Western Balkan in general. Evidence shows that although with the reduction in the unemployment rate, the high rate of inactivity especially among women, young people, and individuals with low education, remains a top priority concern for these countries.(WorldBank, April 6, 2017)

Table 1: Western Balkan's macroeconomic indicators through 2001-2015

| country | Kosovo | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| gdp/cap | 26.9 | -0.8 | 5.9 | 2.5 | 6 | 3.7 | 6.4 | 1.8 | 2.5 | 2.5 | 3.7 | 2 | 2.7 | 1.5 | 4.8 |
| unemp | | | | | | | | 47.5 | 45.4 | 46.7 | 45.3 | 30.9 | 30 | 35.3 | 32.9 |
| inf | | | -1.1 | -1 | -1.4 | 0.6 | 4.3 | 9.3 | -2.4 | 3.5 | 7.3 | 2.5 | 1.8 | 0.4 | -0.5 |
| fdi | | | | 1.5 | 3.6 | 9.1 | 12.5 | 9.4 | 7.2 | 8.3 | 8.2 | 4.5 | 4.9 | 2.7 | 5.6 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| rem | | | | 17 | 18.8 | 18.9 | 19 | 18.3 | 18.7 | 17.1 | 16.8 | 16.3 | 15.9 | 16.1 | 16.7 |
| country | Albania | | | | | | | | | | | | | | |
| year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| gdp/cap | 9 | 4.5 | 6.2 | 6.2 | 6.3 | 6.1 | 6.7 | 8.4 | 4 | 4.2 | 2.8 | 1.6 | 1.2 | 1.9 | 3 |
| unemp | 22.7 | 13.4 | 12.7 | 12.6 | 12.5 | 12.4 | 13.5 | 13 | 13.8 | 14.2 | 14 | 13.9 | 16 | 16.1 | |
| inf | 3.1 | 7.8 | 0.5 | 2.2 | 2.4 | 2.4 | 2.9 | 3.3 | 2.3 | 3.6 | 3.4 | 2 | 1.9 | 1.6 | 1.9 |
| fdi | 5.1 | 3 | 3.1 | 4.7 | 3.2 | 3.6 | 6.1 | 9.6 | 11.2 | 9.1 | 8.1 | 7.5 | 9.8 | 8.7 | 8.7 |
| rem | 17.2 | 16.5 | 15.5 | 15.9 | 15.8 | 15.1 | 13.7 | 11.6 | 10.9 | 9.7 | 8.7 | 8.3 | 8.55 | 8.6 | 9.2 |
| country | Bosnia | | | | | | | | | | | | | | |
| year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| gdp/cap | 4.2 | -5.1 | 3.8 | 5.9 | 8.5 | 5.2 | 5.7 | 5.5 | -2.8 | 0.8 | 1 | -0.8 | 2.5 | 1.2 | 3.2 |
| unemp | 27.6 | 24.6 | 26 | 28.3 | 26 | 31.8 | 29.7 | 23.9 | 24.1 | 27.2 | 27.6 | 28.1 | 27.4 | 27.9 | |
| inf | | | | | | 6.1 | 1.5 | 7.4 | -0.4 | 2.2 | 3.7 | 2 | -0.1 | -0.9 | |
| fdi | 2.1 | 4 | 4.6 | 8.9 | 5.6 | 6.6 | 11.7 | 5.3 | 0.8 | 2.6 | 2.5 | 2.3 | 1.7 | 2.8 | 1.8 |
| rem | 26.1 | 22.5 | 20.8 | 20.5 | 18.1 | 16.7 | 17 | 14.2 | 12.1 | 10.6 | 10.5 | 10.7 | 10.8 | 11.4 | 11.1 |
| country | Croatia | | | | | | | | | | | | | | |
| year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| gdp/cap | 3.1 | 5.2 | 5.6 | 4.1 | 4.1 | 4.8 | 5.2 | 2.1 | -7.3 | -1.4 | 2.9 | -1.9 | -0.8 | 0 | 2 |
| unemp | 20.5 | 15.1 | 13.9 | 13.7 | 12.6 | 11.1 | 9.6 | 8.4 | 9.1 | 11.8 | 13.4 | 15.8 | 17.3 | 16.7 | |
| inf | 3.8 | 1.7 | 1.8 | 2 | 3.3 | 3.2 | 2.9 | 6.1 | 2.4 | 1 | 2.3 | 3.4 | 2.2 | -0.2 | -0.5 |
| fdi | 4.2 | 3.5 | 5.3 | 3.1 | 4 | 6.5 | 7.6 | 7.4 | 5.1 | 2.4 | 2.3 | 2.6 | 1.6 | 6.9 | 0.3 |
| rem | 4 | 4.1 | 3.8 | 3.7 | 3.4 | 3.1 | 3.1 | 2.9 | 3 | 3.2 | 3.4 | 3.7 | 3.8 | 3.8 | 4.3 |
| country | Macedonia | | | | | | | | | | | | | | |
| year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| gdp/cap | -3.5 | 1.1 | 2 | 4.4 | 4.5 | 4.9 | 6.3 | 5.3 | -0.5 | 3.2 | 2.2 | -0.6 | 2.8 | 3.4 | 3.5 |
| unemp | 30.5 | 31.9 | 36.7 | 37.2 | 37.3 | 36 | 34.9 | 33.8 | 32.2 | 32 | 31.4 | 31 | 29 | 27.9 | |
| inf | 5.2 | 2.3 | 1.1 | 0.9 | 0.2 | 3.2 | 2.2 | 8.3 | -0.7 | 1.5 | 3.9 | 3.3 | 2.8 | -0.3 | -0.3 |
| fdi | 12.7 | 2.8 | 2.4 | 5.4 | 2.3 | 6.2 | 8.8 | 6.2 | 2.8 | 3.2 | 4.8 | 3.5 | 3.7 | 0.5 | 2.9 |
| rem | 2 | 2.6 | 3.5 | 3.7 | 3.6 | 3.8 | 4.1 | 4.1 | 4 | 4.1 | 4.1 | 4 | 3.5 | 3.2 | 3 |
| country | Montenegro | | | | | | | | | | | | | | |
| year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| gdp/cap | 0.7 | 1.5 | 2.1 | 4.2 | 4 | 8.4 | 10.5 | 6.7 | -5.9 | 2.3 | 3.1 | -2.8 | 3.4 | 1.7 | 3.1 |
| unemp | 21 | 21 | 21.1 | 19.3 | 19.5 | 18.2 | 19.4 | 16.8 | 19.1 | 19.7 | 19.7 | 19.6 | 19.5 | 19.1 | |
| inf | | | | | | 2.9 | 4.3 | 8.7 | 3.5 | 0.6 | 3.4 | 4.1 | 2.2 | -0.7 | 1.5 |
| fdi | | 5.6 | 2.9 | 3.2 | 22.2 | 23.1 | 25.6 | 21.6 | 37.4 | 18.3 | 12.3 | 15.1 | 10 | 10.8 | 17.6 |
| rem | | | | | | | 5.3 | 6.6 | 7.3 | 7.3 | 7.6 | 8.1 | 9.5 | 9.4 | 9.6 |
| country | Serbia | | | | | | | | | | | | | | |
| year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| gdp/cap | 5.2 | 7.2 | 4.6 | 9.3 | 5.9 | 5.3 | 6.3 | 5.8 | -2.7 | 1 | 2.2 | -0.5 | 3.1 | -1.4 | 1.2 |
| unemp | 12.8 | 13.8 | 15.2 | 18.5 | 20.8 | 20.8 | 18.1 | 13.6 | 16.6 | 19.2 | 23 | 23.9 | 22.1 | 22.2 | |

| inf | 95 | 19.5 | 9.9 | 11 | 16.1 | 11.7 | 6.4 | 12.4 | 8.1 | 6.1 | 11.1 | 7.3 | 7.7 | 2.1 | 1.4 |
|-----|-----|------|-----|-----|------|------|-----|------|-----|-----|------|-----|-----|-----|-----|
| fdi | 1.4 | 3 | 6.9 | 3.9 | 6 | 13.9 | 11 | 8.2 | 6.9 | 4.3 | 10.6 | 3.1 | 4.5 | 4.5 | 6.3 |
| rem | | | | | | 9.3 | 7.2 | 10.9 | 10.4 | 8.5 | 8.7 | 8.8 | 8.3 | 9.1 | |

Source: World Bank national accounts data, and OECD National Accounts data files- https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG

## Methodology

The ratio between these variables was calculated by Stata12 a software program that does the econometric analysis. The study includes the quantitative approach to testing hypotheses and theories; while the research structure incorporates: Data collection - the data used for this study were obtained from International Monetary Fund (IFM) and the World Bank for the period 2001-2015. The research was conducted by calculating the regression respectively the method of Ordinary Least Squares, as one of the most powerful methods for calculating the regression analysis. In order, the analysis to be more meaningful and more fulfilled, in the study were involved three other important and influential indicators in economic development such as inflation, foreign direct investment, and remittances. The study includes a total of 7 Western Balkan countries over the period 2001 -2015. The countries participating in the analysis are Kosovo, Albania, Bosnia, Croatia, Montenegro, Macedonia, and Serbia. First, there is tested the unemployment effect on GDP separated from other parameters through linear regression, meanwhile, in the second part, used models of evaluation: Random and Fixed, in context of the dependent variable analysis it is GDP, while independent variables are unemployment, foreign direct investment, and remittances.

## Regression terminology

On the left side of the equation, there are submitted dependent variable, predicted or the clarified variable, whereas, on the right side of the equation the independent variable is represented or explanatory. In our case the dependent variable is GDP/cap, meanwhile, dependent variables are indicators such as unemployment, inflation, foreign direct investments, and remittances.

**Y = $\beta$1 + $\beta$2 X + u**

y- Is variable by random selection or random two components

Deterministic: E (Y) = $\beta$1 + $\beta$2X (known as **y** average)

Random: u = Y - E(Y) $\Rightarrow$ u = Y - $\beta$1 - $\beta$2X (known as the stochastic error and shows that there are other factors too that affect the dependent variable, in our case GDP is affected by other indicators besides unemployment rate).

To test the variables there are applied some of the statistical tests are applied such as Fixed effect model, random effects model, and Hausman Taylor regression. The purpose of the tests is to compare the results that are approximately the same. And finally, based on the outcome, it is specified which model is best and should be used for research.

## 4. Empirical Results and Interpretations

The following equation shows the estimated results that are presented further in tabular form. Regression analysis made it possible to check the validity of the hypothesis: H1-There is an inverse relationship between unemployment and economic development, reduction of unemployment rate affects economic growth and H2-There is a positive relationship between GDP, unemployment, remittances, and FDI submitted at the beginning of the paper. Since transformed coefficients in a logarithm can easily be interpreted, variables have been converted into a logarithm form. Results from the linear regression that initially have been estimated through statistics program are presented below.

Figure1. Regression of GDP/cap and unemployment

```
. regress lngdp lnpap

    Source |      SS       df       MS              Number of obs =      76
-----------+------------------------------         F(  1,    74) =    5.24
     Model | 1.93062514     1  1.93062514          Prob > F       =  0.0250
  Residual | 27.2749728    74  .368580714          R-squared      =  0.0661
-----------+------------------------------         Adj R-squared  =  0.0535
     Total | 29.205598     75  .389407973          Root MSE       =  .60711

-----------+----------------------------------------------------------------
     lngdp |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-----------+----------------------------------------------------------------
     lnpap | -.3897828   .1703099    -2.29   0.025    -.7291327   -.0504328
     _cons |  2.446342   .5233767     4.67   0.000     1.403491    3.489193
-----------+----------------------------------------------------------------
```

**lnGDPcap=$B_1$ + $B_2$ln(unemployment) + u**

y- Represent GDP/cap, $B_1$- constant coefficient, $B_2$ – partial coefficient of estimation and u – standard error. The result in the form of equation can be written as:

**lnGDPcap = 2.446342 – 0.3897826 unemployment**

Table2. Impact of unemployment on economic growth in Western Balkans.

| Linear Regression - GDP/cap , Unemployment | |
| --- | --- |
| Number of obs | 76 |
| F( 1,  74) | 5.24 |
| Prob > F | 0.025 |
| R-squared | 0.0661 |
| B1 | B2 |
| 2.446342 | -0.3897826 |
| p>ltl | p>ltl |
| 0 | 0.025 |

Note: In the model of dynamic panel - one step difference GMM tests the relationship between GDP/cap, unemployment, FDI and remittances.

In this part was calculated only the effect of unemployment in the GDP in Western Balkan.Referring to (Table2.) prob > F = 0.0250 represents the value of P model. From the gained result (P<0.05), can be concluded that there exists a relationship statistically significant between unemployment and economic growth. R-square= 0.061, shows that 6% of variation is explained by unemployment having in consideration that in the level of GDP affect a large number of other macroeconomic factors who do not participate in the model, so that the low degree of explanation of variation in the model is due to the lack of other key factors.

The result of empiric research suggests that unemployment has a negative impact on economic growth in Western Balkan countries, which implies that the increase in the unemployment rate affects the decline in the level of gross domestic product. Hence in figures, an eventual increase in unemployment of 1% will cause a decrease in the level of GDP/cap for 0.38978 %. Whereas, the constant B1 =2.446342 shows the level of the GDP/cap when the other parameters, in our case unemployment, is at zero level.

From the regression result it is found that the coefficient p>ltl = 0.02 being below the level 0.05, conclude that the model has large significance so that we drop the zero hypothesis and admit submitted hypothesis H1; which admit that there is an inverse relationship among unemployment and economic development, reducing the unemployment rate affects economic growth. This implies that a healthy economy requires the creation of new jobs to meet the growing economy,

always paying close attention to inflation risk. Further on in the second model, since more models are included, the model represents the most realistic state of the Western Balkan economy.

Table3. Random and Fixed effect tests results (Impact of unemployment, foreign direct investment, and remittances on Western Balkans economy).

| | Random Effect | | Fixed Effect | |
|---|---|---|---|---|
| | Model (1) | | Model (2) | |
| GDP/cap | 1.738 | (0.03) | -0.9205 (0.4) | |
| FDI | 1.796 | (0.1) | 0.3776 (0.002) | |
| UNEMPLOYMENT | -0.318 | (0.06) | -0.5794 (0.001) | |
| REM | 0.082 | (0.4) | 1.5523 (0.000) | |

**Note: In the model of dynamic panel - one step difference GMM tests the relationship between GDP/cap, unemployment, FDI and remittances.**

**Referring to (Table3.) the Dynamic panel – one step difference GMM model tested the relationship between GDP/cap, unemployment, FDI, and remittances.**

**Figure2. Fixed-effects (within regression).**

```
. xtreg lngdp lnihd lnpap lnrem, fe

Fixed-effects (within) regression          Number of obs     =        65
Group variable: code                       Number of groups  =         7

R-sq:  within  = 0.3896                     Obs per group: min =        6
       between = 0.0316                                    avg =      9.3
       overall = 0.0348                                    max =       14

                                            F(3,55)           =     11.70
corr(u_i, Xb)  = -0.9309                    Prob > F          =    0.0000

       lngdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
       lnihd |    .377648   .1175028     3.21   0.002     .1421671    .6131289
       lnpap |   -.579413   .4014156    -1.44   0.155    -1.383868     .225042
       lnrem |   1.552312   .2972669     5.22   0.000     .9565759    2.148048
       _cons |  -.9205191   1.310542    -0.70   0.485    -3.546905    1.705867

     sigma_u |   1.063902
     sigma_e |   .48435846
         rho |   .82831706   (fraction of variance due to u_i)

F test that all u_i=0:     F(6, 55) =    5.23              Prob > F = 0.0003

. estimate store fixed
```

As (Figure2.) shows the model's proof that these three variables represent a small part of the general level of GDP; nevertheless, as the macroeconomic theory explains, the model shows that there exists significance between the three parameters. Hausman test attests which hypothesis stands, so that based on the results the coefficient chi (2) = -43.74 indicate that fixed model is more appropriate than random one which is also shown both on the regression model in the appendix. The Fixed model made also presented on the appendix, explain precisely the relation between GDP, unemployment, FDI and as such confirms the hypothesis presented in the beginning H2/1 which imply a positive relationship between GDP, remittances, and FDI that is also in compliance with the theory and so that we drop zero hypothesis.

Referring (Table3.) respectively model 2, B2 coefficient shows that for every increase for 1% of FDI, GDP/cap will increase on average from 0.037% (B2) presuming that there is a positive relationship between GDP and FDI in the Western Balkan countries. Results show that in the Western Balkans foreign direct investments are a contributor to economic growth, by

expanding productivity growth; it is therefore suggested to create favorable conditions for the promotion of foreign direct investments. Countries with faster economic growth increase demand for foreign direct investment also create space for more profits, also resulting in the increase of jobs places.

The coefficient B3 = -.579413 shows that every increase of unemployment level of 1%, will cause averagely 0.5% the decrease of GDP/cap. And the last one, B4=1.5523 shows that every increase of 1% in the remittance level affect approximately 1.5% on the GDP growth, which implies that there is a positive relationship between remittances and unemployment. As Table1. shows that the remittance rates in the Western Balkan countries are not in a low rate, also the regression analysis suggests that the growth rate of remittances increases consumption and as a result affects the GDP growth rate. However, the Western Balkans regular economic report shows that high remittance rates may also have an impact on the growth of individuals' incomes that may cause lack of motivation to work; therefore, there should be a mature caution for the damage which may occur in the labor market.

## Conclusion

The purpose of every economy is to build strong macroeconomic policies aimed at full employment, price stability, and usage of capacity of production that will generate a high level of economic growth. Regarding the relationship between unemployment and economic growth, precisely, the relationship between unemployment per capita in the Western Balkans results of testing found out that there is a statistically significant relationship between unemployment and economic growth. The result of the empirical research suggests that unemployment has a negative impact on the economic growth. From the research is it found that six Western Balkan countries face many difficulties in trying to preserve the macroeconomic stability of the country and the model suggests that an increase by one percentage point of unemployment will reduce GDP-growth by 0.5 percent points. However, because the model strength and variables interaction are greater if the study includes more components, there was also analyzed the effects of remittances and foreign direct investment in GDP/cap. The results show that for any 1% increase of FDI, the GDP ratio will increase on average by 0.037%, which means that there is a positive relationship between GDP and foreign direct investment. Results have also shown that every increase of 1% in the remittance level affect approximately 1.5% in the GDP growth, which implies that there is a positive relationship between remittances and unemployment.

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ISSN 2601-8659 (Print)
ISSN 2601-8667 (Online)

European Journal of
Marketing and Economics

January-April. 2018
Volume 1, Issue 1

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**Appendix**

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. hausman random fixed

                ——— Coefficients ———
                 (b)          (B)            (b-B)        sqrt(diag(V_b-V_B))
               random        fixed         Difference            S.E.

     lnihd     .1796837      .377648        -.1979643             .
     lnpap    -.3180261     -.579413         .2613869             .
     lnrem     .0820759     1.552312        -1.470236             .

                        b = consistent under Ho and Ha; obtained from xtreg
              B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

              chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =  -43.74    chi2<0 ==> model fitted on these
                                   data fails to meet the asymptotic
                                   assumptions of the Hausman test;
                                   see suest for a generalized test
```