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**ABSTRACT**

The main aim of this research is to analyze the short term and long run impact of the budget deficit on the economic growth in Albania (measured by GDP) for the period 1993-2014. To achieve this aim the Cointegration Test will be used. The dependent variable is GDP, while the independent variables are foreign direct investment and budget deficit. The Granger test was used to detect the causality relationships between the variables. From the analysis resulted that it does exist a one side causality relationship between GDP and budget deficit and viceversa. The results showed that it does not exist a causality relationship between foreign direct investment and budget deficit. The study concluded that the budget deficit and the economic growth have inverse relationship in the long run. These results are in accordance with the endogenous growth theories, and so we can say that it does exist a sustainable relationship between the variables.

**KEYWORDS:** Budget deficit, foreign direct investment, GDP, Cointegration test

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**INTRODUCTION**

The government is one of the main producer and consumer in the economy. Firstly, the government provides to the public goods and services. The main revenues of the government are taxes. When the expenditures are higher than incomes, the government rely on borrowing. Another way for financing the budget deficit, is printing money. This is not the best way, as it increases inflation. The budget deficit is the debt of a certain year, while the public debt refers to the total debt in a certain period. Economists have different views regarding budget deficit and economic growth. Three main schools of economic thought have studied the relationship between the budget deficit and economic growth:

**Keynesian:** It does exist a positive relationship between the budget deficit and economic growth. They suggest that an increase in the budget deficit will shift the aggregate demand and will improve the investor's trust. This in turn will increase investments and savings and the economy will experience a significant grow in the long run. The budget deficit has the same impact, when it derives from taxes decrease. So, the budget deficit in the appropriate time and manner is necessary for the economy (Berheim, 1989).

**Neoclassical economist:** They state that it does exist an inverse relationship between the budget deficit and economic growth. It will affect negatively the tax system in the future, so the consumers will consume more now by decreasing national savings. The main assumption is that a budget deficit will decrease the private investments.

**Riccardo's theory:** He believes that the relationship between these two variables is indifferent, as the budget deficit does not have any impact on the macroeconomic variables in the long and short run, as it just postpone tax payments. The effects of the government policies of debts are neutralized with the passing of years by the private, so that budget deficit and debt financing are equivalent. The difference between the different analysis is affected by factors such as time, country, type of government, level of budget deficit and so on.

The primary aim of this research is to analyze the short and long run impact of the budget deficit on the economic growth in Albania (measured by GDP) for the period 1993-2014. The study will also try to evaluate empirically the

impact of the budget deficit on economic growth in Albania, in the short and long run. We will analyze the causal relationship between the variables, mentioned above. The hypothesis of the study are the following:

**H<sub>0</sub>: It does not exist a significant statistical relationship between the budget deficit and the economic growth.**

**H<sub>1</sub>: It does exist a significant statistical relationship between the budget deficit and the economic growth.**

The research question:

1. *Does it exist a significant positive relationship between the budget deficit and the economic growth. in the short and long run?*

The data refers to te period 1993-2014. The dependent variable is GDP, while the independent variables are foreign direct investmnet and budget deficit.

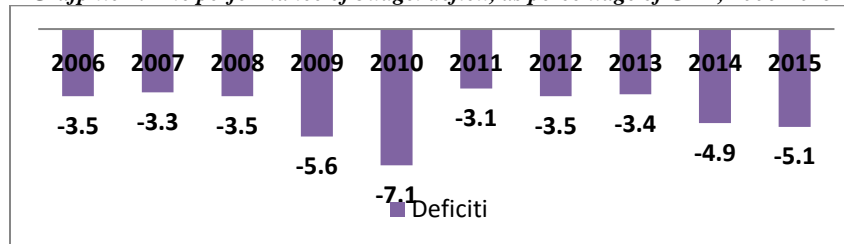
## MATERIALS AND METHODS

### The budget deficit and economic growth in Albania

We have to do with budget suficit when the difference between the government incomes and expenditures is positive , while when the difference is negative we have to do with budget deficit. In the last 10 years in Albania, the government incomes were lower than the expenditures, so the country experienced budget deficits. To evaluate the significance of this deficit, the ratio budget deficit/ GDP is used. This ratio shows what part of a country income is budget deficit. Considering the importance of the impact of the budget deficit on the economic growth, we will study this relationship.

In graphic 1, it is presented the budget deficit, expressed as a percentage of GDP, for the period 2006-2015. It can be noticed that the government objective (budget deficit less than 3% of GDP) was not realized. In 2009 and 2010, this ratio is higher (7,1%). In 2009, the government expenditures increase for the elections and this was reflected even in the upcoming year. After 2011, the ratio was higher than the period 2006-2009, because the government failed to increase incomes as predicted.

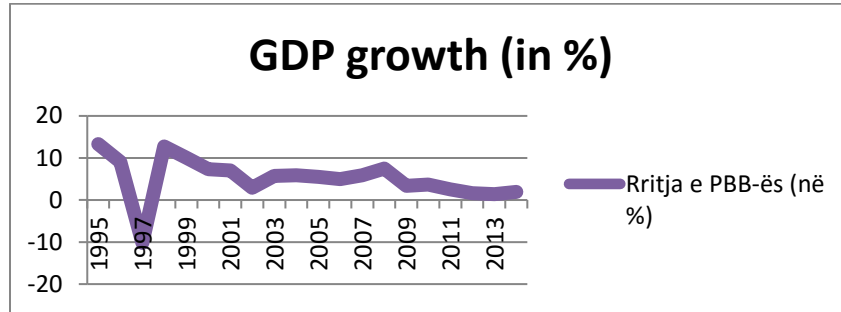
*Graphic 1: The performance of budget deficit, as percentage of GDP, 2006-2015*



Source: Finance Ministry(2015)

In graphic 2, it is presented the progress of economic growth in Albania, for the period 1995-2014. In period 1995-1997, the political, social and economic situation in Albania was not good. This is reflected in the drastical decrease of the growth ratio (13,3 % in 1995 and -10,2% in 1997). In 1998 the growth ratio took the maximum value (12,7%). In the period 2001 -2008, the ratio was positive and moderate. The global crisis affected even Albania, as the economic growth began decreasing and also the budget deficit.

Graphic 2: Economic growth progress, 1995-2014



Source: World Bank (2015)

**RESULTS AND DISCUSSION**

The multiple regression is used. The dependent variable is economic growth, measured as percentage of GDP increase. The independent variables were budget deficit(BD) and foreign direct investments (FDI). The analysis refers to the period 1993-2014, for a total of 21 observations. The model used is based on the Najid Ahmad(2012) model. The Eviews program was used to process data. The econometric equation model is:  $GDP = \alpha + \beta_1(BD) + \beta_2(FDI) + \mu$ . The results are discussed in the following paragraphs.

The Augmented Dicky-Fuller (ADF) was used to define the stationary level. The root test was processed through the standard test, to control the order of variable integrations. Table 1 , 2 and 3 give the results for each variable.

Table 1: Augmented Dicky-Fuller for the variable GD

Null Hypothesis: GDP		
Exogenous: Constant		
Lag Length: 0 (Automatic based on SIC, MAXLAG=4)		
		t-Statistic Prob.*
Augmented Dickey-Fuller test statistic		1.781439 0.0094
Test critical values:	1% level	-3.808546
	5% level	-3.020686
	10% level	-2.650413
*MacKinnon (1996) one-sided p-values.		

Source: Author calculations (2015)

**Table 2: Augmented Dicky-Fuller for the variable budget deficit**

Null Hypothesis: DEFIÇIT		
Exogenous: Constant		
Lag Length: 0 (Automatic based on SIC MAXLAG=4)		
		t-Statistic      Prob.*
Augmented Dickey-Fuller test statistic		
		-1.348192      0.0460
Test critical values:	1% level	-3.808546
	5% level	-3.020686
	10% level	-2.650413
*MacKinnon (1996) one-sided p-values.		

Source: Author calculations (2015)

**Table 3: Augmented Dicky-Fuller for the variable FDI**

Null Hypothesis: IHD		
Exogenous: Constant		
Lag Length: 4 (Automatic based on SIC, MAXLAG=4)		
		t-Statistic      Prob.*
Augmented Dickey-Fuller test statistic		
		4.461605      0.0035
Test critical values:	1% level	-3.920350
	5% level	-3.065585
	10% level	-2.673459
*MacKinnon (1996) one-sided p-values.		

Source: Author calculations (2015)

The results showed that all the variables are stationary at the level 5%, so there is no need for differentiation to achieve stationarity. In Table 4 are presented the results of the regression

**Table 4: Regression equation results**

Dependent Variable: GDP				
Method: Least Squares				
Date: 06/20/15 Time: 13:50				
Sample: 1993 2014				
Included observations: 22				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	366401.4	154071.0	2.378133	0.0287
DEFICIT	6.334724	3.981872	1.590891	0.0360
IHD	1.275761	0.414231	3.079829	0.0065
R-squared	0.622681	Mean dependent var		756386.5
Adjusted R-squared	0.580756	S.D. dependent var		367128.5

S.E. of regression	237712.1	Akaike info criterion	27.72707
Sum squared resid	1.02E+12	Schwarz criterion	27.87629
Log likelihood	-288.1343	Hannan-Quinn criter.	27.75946
F-statistic	14.85248	Durbin-Watson stat	0.410170
Prob(F-statistic)	0.000000		

Source: Author calculations (2015)

F-statistic, is statistically important at the level 5%, according to probability value 0,000000. The results show that the coefficient of budget deficit, foreign direct investment and the constant coefficient are statistically important. Keeping all else equal, one unit increase of the variable budget deficit is reflected in 6,33 units increase in the variable GDP. Keeping all else equal, one unit increase of the variable foreign direct investment is reflected in 1,27 units increase in the variable GDP. *Adjusted R*<sup>2</sup> =0,5807 (58.1%), meaning than 58,1 % of the GDP change is explained by the regression equation or by the independent variables. Durbin-Watson statistic is 0.410170 , less than *R*<sup>2</sup>, indicating a spurious regression. After the unitary root test is done, we can say that the regression equation is meaningful. In the short term , it does exist a relationship between the economic growth and budget deficit. To verify if this relationship exists in the long run the Johansen Cointegration test is used. The results are presented in Table 5.

**Table 5: Johansen Cointegration Test between budget deficit, FDI and GDP.**

Sample (adjusted): 1995 2013				
Included observations: 19 after adjustments				
Trend assumption: Linear deterministic trend				
Series: GDP DEFIÇIT IHD				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.729264	43.79464	29.79707	0.0007
At most 1 *	0.438312	18.96903	15.49471	0.0144
At most 2 *	0.343978	8.009666	3.841466	0.0047
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Author calculations (2015)

The Cointegration test showed that we have a cointegration equation at the level 5%, so the long run relationship between the budget deficit, GDP and foreign direct investments is confirmed. The hypothesis of the research holds on, so we can say that the budget deficit and economic growth have a statistical important relationship and the budget deficit impacts the economic growth..

The Granger test is used to evaluate the causality relationship between budget deficit and economic growth.

**Table 6: Granger Casuality Test**

Pairwise Granger Causality Tests			
Date: 06/20/15 Time: 13:59			
Sample: 1993 2013			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
DEFIÇIT does not Granger cause GDP	19	0.33679	0.0797
GDP does not Granger cause DEFIÇIT		2.99739	0.0025
IHD does not Granger cause GDP	19	1.82122	0.1981
GDP does not Granger cause IHD		0.89170	0.0120
IHD does not Granger cause DEFIÇIT	19	9.57925	0.1024
DEFIÇIT does not Granger cause IHD		1.64216	0.2287

Source: Author calculations (2015)

The results showed that it does not exist a two side causal relationship between foreign direct investment and GDP, but only a one side causal relationship (GDP-FDI). The null hypothesis is refused. It does exist a two side causal relationship between the budget deficit and GDP, while it does not exist a causal relationship between the budget deficit and foreign direct investment. In Table 7 are presented the results of the diagnostics tests, which judge how appropriate is the model for future forecasts.

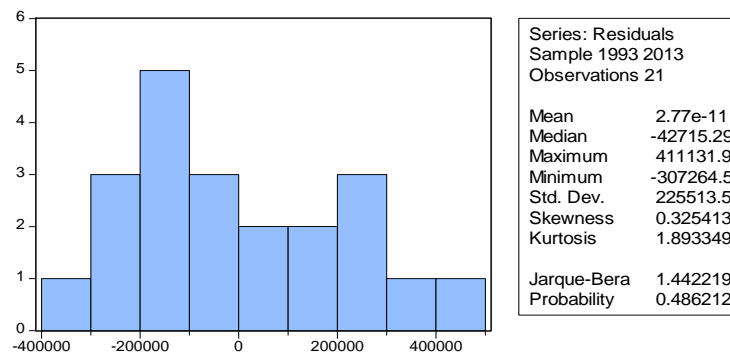
**Table 7: ARCH heteroschedasticity test**

Heteroskedasticity Test: ARCH			
F-statistic	1.460512	Prob. F(1,18)	0.2425
Obs*R-squared	1.501001	Prob. chi-Square(1)	0.2205

Source: Author calculations (2015)

The propability value is 0.2205, less than 5%. We accept the hypothesis, as we have to do with homoschedasticity. The test of the residuals mean is presented in graphic 3.

**Graphic 3: Residuals mean test**



Source: Author calculations (2015)

The distribution has not the mean of residuals zero. The probability value is less than 5%, so we have to do with a normal distribution. The Skewness test showed that we have to do with a distribution with normal asymmetry. The Kurtosis indicator showed that we have a normal suppression residual distribution.

The last test used was the Autocorrelation test, to verify if the residuals are correlated. Q-Stat to the range of 8 results  $< \chi^2(2) = 12,838$ . So we do not have autocorrelation. The model passed all the diagnostic tests, so we can say that it is well specified and it can be used for future forecasts.

## CONCLUSIONS

The main aim of this research is to analyze the short and long run impact of the budget deficit on the economic growth in Albania (measured by GDP) for the period 1993-2014. To achieve this aim the Cointegration test and the multiple regression was used. The dependent variable was GDP, while the independent variables were foreign direct investment and budget deficit. The level of significance used was 5%. The Granger test showed that it does exist a two side direction between GDP and budget deficit and a one side direction between GDP and foreign direct investments.

Keeping all else equal, if the budget deficit rate increase by one unit, the GDP rate will increase by 6,334724 units. Keeping all else equal, if the foreign direct investment increases by one unit, the GDP rate will increase by 1,275761 units. We can say that the foreign direct investment does not have a significant impact on the economic growth, but however the government should support them.

The study concluded that it does exist an inverse relationship between the budget deficit and the economic growth. This conclusion is in accordance with the neoclassical view (the budget deficit will have a negative impact on the tax system). According to Saleh (2003) the budget deficit should be balanced by using domestic borrowings. This in turn will decrease the funds for the private sector, increase the interest norms and discourage investment. The main assumption of neoclassical view is: government borrowing will decrease private investments (crowding out hypothesis).

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