

CORRELATION BETWEEN ECONOMIC GROWTH AND UNEMPLOYMENT

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Abstract:

The mankind progress is built on economic growth. Yet, the high rates of economic growth must be properly used and correlated with other macroeconomic indicators in order to get the aimed effects. At the Romanian economic level, there is an inverse ratio connection between the gross domestic product and the unemployed number, a connection of low intensity. The correlation of these two indicators was established using parametric and nonparametric methods of analyzing the statistic connection using the informatic soft. Setting the recession function allows us to calculate the unemployed number depending on the forecasting of the economic growth in Romania.

Key words: *economic growth, the unemployed number, recession*

JEL Classification: *E00, E24*

1. Introduction

At the level of the Romanian economy, the international crisis has stopped the upsurge characteristic to the economic increase until 2008, proving the major economic weaknesses. (Dăianu, 2012) It was considered that we register a sustainable economic growth, only by following the increase rates of the gross domestic product, but reality proved the contrary.

However, the economic increase represents one of the most important aspects that results in the mankind progress. (Ailenei, Mosora, 2011) Thus, the desire of getting economic growth is perfectly logical and desirable, but one should aware the existing connections between this and the other macroeconomic indicators, because all the generated effects at this level are then reflected at the microeconomic level.

Consequently, only recording the high rates of economic growth is not enough, if this is not correlated with other indicators because it can lead to social tensions and inequalities among people. (Voinea, 2009)

Under this context, the paper aims to analyse the interdependence relation between economic growth and unemployment, two macroeconomic indicators having a major impact on economy.

The hypotheses that we start from are:

- H1 – there is an inverse rate connection between the economic growth and the unemployment rate, meaning that the evolution of the economic growth contrary influences the evolution of the unemployment;
- H2 – there is a moderate connection between the evolution of the economic growth and the evolution of the unemployment.

In this paper, we aim to prove that the hypotheses we start from are correct at the Romanian economic level and we analyse the evolution of these indicators between 2000 – 2011.

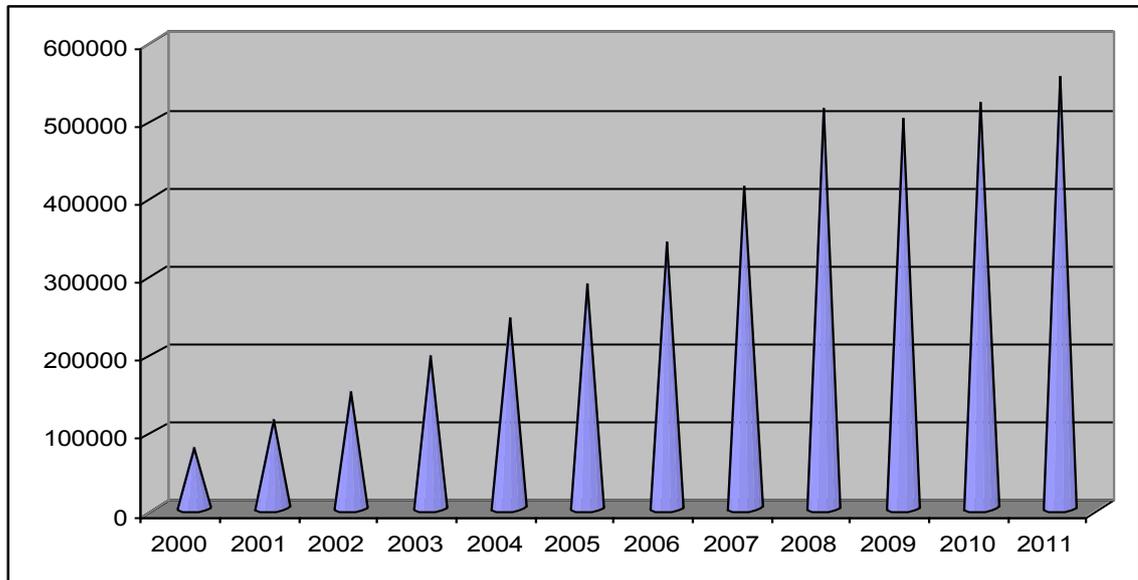
2. The influence of the economic growth on the unemployment

Between 2000 – 2011, the two macroeconomic indicators registered contrary evolutions, but after 2008, one can observe the effects determined by the appearance of the economic growth. The values registered by the gross domestic product and the unemployed number are underlined in graph no. 1 and no. 2. The gross domestic product has been increased whereas the unemployed number has been decreased until 2008.

The economic growth, underlined by the gross domestic product, registers an increase between 2000 – 2008, then decrease. The decrease of 2009 is strictly influenced by the economic crisis, 2009 being the year when it

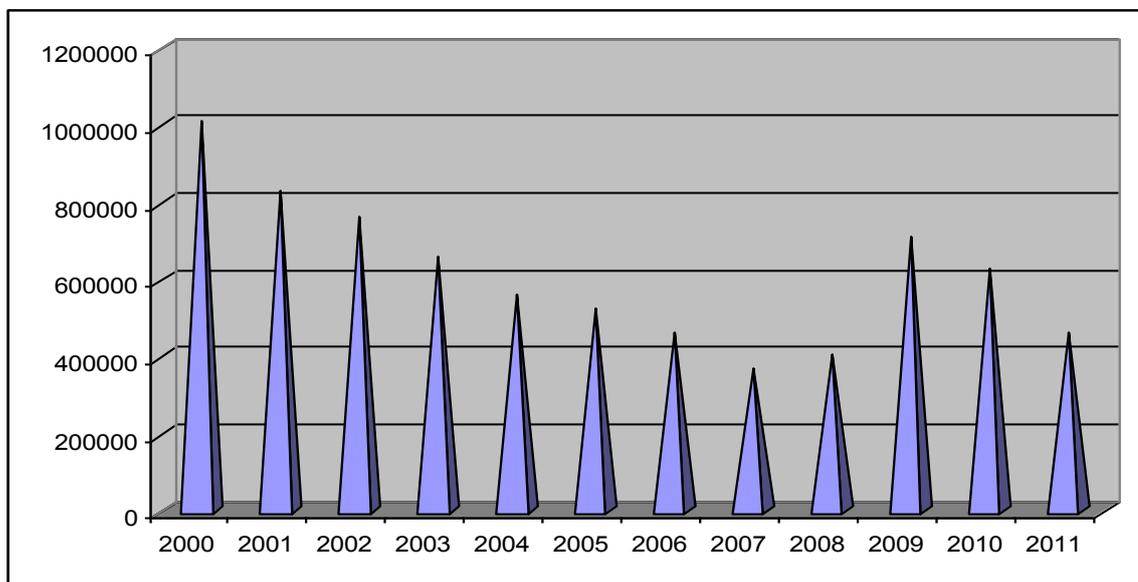
strongly hit the Romanian economy. After the impact produced by the crisis effects, one may observe that the gross domestic product tends to increase, having the previous evolution.

The evolution of the gross domestic product cannot surprise us because, in the last years, the policies of stimulating the economic increase have been concentrated on the consumption increase, mainly on private consumption. (Anghelache, 2011)



Source: Statistic Year-book of Romania 2003 – 2012 (mil. lei current prices)

Graph no. 1 The Evolution of the GDP in Romania



Source: Statistic Year-book of Romania 2003 – 2012 (people)

Graph no. 2 The Evolution of the unemployed in Romania

The unemployed number constantly decreases between 2000-2007, in 2008, there is a slow increase and then there are doubled values comparing to the previous period.

In order to prove that between the gross domestic product and the unemployment rate there is a relation and to set up the type of this relation, we will use the recession method, one of the parametric method of analysing the statistic connections. [4] The gross domestic product is considered the indicator that influences the

unemployment rate, so that the gross domestic product is considered the independent variable, and the unemployment rate is considered the dependent variable.

Notations used are the following ones:

- independent variable will be noted with X
- dependent variable will be noted with Y.

We build up the following unifactorial linear model:

$$y_i = a + b \cdot x_i + u_i \quad (1)$$

Where: y – resultative variable (the unemployed number – in this case)

a, b – parameters of the linear model

x – independent variable (GDP – in this case)

u – the action of other factors than the analyzed one

In order to set up a connection between the two indicators and the parametrical values of the unifactorial linear function, we use the Excel informatic soft, Data Analysis modulus. After using this informatic soft, the results are presented in the tables no.1 and no.2

Table no. 1. Table of results – The statistic correlation method

	<i>GDP</i>	the unemployed number
GDP	1	
the unemployed number	-0.68355	1

Source: Data calculated by authors

The calculations in table no.1 prove that there is a negative correlation between the two variables because the result is negative. The value of 0,68355 allows us to observe that there is a moderate connection between the two variables.

Table no. 2. Table of results – Recession method

Regression Statistics			
Multiple R	0.683546906		
R Square	0.467236373		
Adjusted R Square	0.41396001		
Standard Error	145250.4042		
Observations	12		
ANOVA			
	df	F	Significance F
Regression	1	8.7700502	0.014253284
Residual	10		
Total	11		
Coefficients			
Intercept	861081.6094		
GDP	-0.753798821		

Source: Data calculated by authors

Multiple value of correlation (R), of 0,68355 indicates the existence of a moderate connection between the gross domestic product and the unemployed number. The determination value (R Square) has a value of 0,467, indicating that 46,7% from the variation of the unemployed number can be explained by the evolution of the gross domestic product, Test F allows establishing the role of the independent variable in explaining the evolution of the dependent variable. The value of test F (8,77) and of the semnification limit (0,01425<0,05), shows that the recession model is valid and can be used in analysing the relation of variables.

The free term (a) of 861081,6094 represents the value of the dependent variable when the independent variable is zero. The GDP value of the variable (b), having the value of -0,753 is negative and shows the existence of an inverted connection between the two values.

After the calculation, we can present the unifactorial linear model (1):

$$y_i = 861081,6 - 0,753x_i$$

Hypotesis no. 1, which refers to the fact that there is an inverse ratio connection between economic growth and unemployment, is correct.

Hypotesis no. 2 refers to the fact that there is a moderate connection between the evolution of the economic growth and the evolution of the unemployment, is correct.

3. Conclusions

This paper aims to measure and quantify the economic growth and unemployment.

Gross domestic product and the unemployment rate are only two macroeconomic indicators having a strong impact on the national economy. At the level of the Romanian economy, there is an inverse ratio connection between the two indicators, of a moderate intensity. There are obviously other factors that influence the unemployment, factors that are observed when making strategies on short, middle or long term basis.

The aim of recording positive increasing rates is absolutely necessary not only to determine a decrease in the unemployment rate, but especially to reduce the differences between Romania and developed states on a long term basis.

Determining the statistic connection of the unifactorial linear function form, by the help of parametrical methods, allows us to set up the value of the unemployment knowing the value of the gross domestic product. The formula determined by the help of the Excel informatic soft can be improved if the unemployment measuring and quantifying is made by using more influential factors, because it has been established that only 46,7% of the unemployed number evolution is determined by the gross domestic product. This moderate connection between the two variables can obviously allow using a higher number of influential factors in a future analysis.

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