

## Re-modeling the Romanian Fiscal Policy under the Terms of the Economic Crisis\*

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**Abstract.** *This paper brings arguments for the necessity to re-think the modality to analyze and interpret the Romanian fiscal policy, under the terms of the future adhesion to the Euro Zone. Under these terms, this study estimates the structural budget deficit, considering this indicator as one of the most relevant for assessing the performance of the fiscal management, and also the extent to which the Romanian fiscal policy is prepared to act as a sole instrument which can stabilize the national economy after entering the Euro Zone. The work is structured as it follows: (i) estimate for the potential GDP and for the output gap by means of the production function method and by the use of the Hodrick- Prescott filter; (ii) estimate for the cyclic budget component, based on the deficit sensitivity (using the elasticities of the government revenues and purchases related to the GDP) and on the value of the output gap and, subsequently, of the structural budget component. Finally, the work mentions a series of conclusions and recommendations regarding the methodological re-construction of the assessment for the fiscal policy's efficiency.*

**Keywords:** structural budget balance; output gap; fiscal policy.

**JEL Codes:** E62, E65.

**REL Codes:** 8K, 8M.

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\* Ideas in this article were presented at the Symposium „The global crisis and reconstruction of economics?”, 5-6 November 2010, Faculty of Economics, Bucharest Academy of Economic Studies.

## Introduction

The current economic crisis brings up again the necessity to use the fiscal policy in order to adjust the macroeconomic unbalances. If, subsequent to the Great Depression, the Keynesian policies focused on using the fiscal policy as the main instrument for macroeconomic stabilization, a balance between the importance given to the fiscal and the monetary instruments was settled during the '70-'80's. During the last decades, the monetary policy has been preferred by the macroeconomic policies' decision makers within the shock absorption process.

During the period of the current crisis, the fiscal policy should have been the most important instrument used by the authorities in order to stabilize the economy. However, in Romania, the margin of maneuver has been severely limited due to the perpetuation of the past deficits. Under the terms in which, during the economic expansion period, Romania accumulated huge budget deficits, the result has been that we are the only ones who are permanently "pro-cyclic". Also, during the expansion periods, when we should have accumulated, we did not do it, and during the recession periods, when we should have increased the expenses, we have cut them. While other countries afforded to grant fiscal stimuli because they were starting from previous low deficits, we were forced to make a large fiscal adjustment.

The inefficiency of the fiscal policy from the past may currently affect us to a huge extent. However, in order to understand this thing, we should re-think the modality in which we assess the fiscal policy's efficiency. If the central banks have learnt their lesson and if they are making the transition from the price stability as a sole objective (which, by the way, reached its limits, a great financial crisis arising in an oasis of price stability) towards a mix between price stability and financial stability in a slow but certain manner, we think that it is the time for the analysis made to the fiscal policy to be re-assessed.

We should pass from the exclusive analysis of the current budget balance to the structural budget balance. We all have been spectators for Greece (and also for Romania), when it was obvious that, in the process of assessing the fiscal policy, the current budget deficit indicator has had an extremely limited usefulness (it is very easy to fulfill the budget deficit target on paper, thus delaying the making of some consistent payments for a subsequent period, increasing the half-wits, etc.).

The first stage of this research supposes the estimation for the potential GDP and for the output gap. The potential GDP does not represent a noticeable variable. In order to be made operational, the concept of potential GDP has been rich and differently defined in the economic literature. Thus, we may

define the potential GDP as the level of the real GDP which can be performed by the economy without generating inflationary pressures. On a medium term, the GDP level can be temporarily deviated from its long-term balance value, i.e. the potential GDP. On a long term, the potential level of the gross domestic product depends on the output capacity of the Romanian economy. The output capacity depends on the production total factor<sup>(1)</sup>, on the rate of capital increase and on the rate of labour increase. Thus, the potential GDP offers information about the output capacity of the Romanian economy, under the terms of non-inflationary growth. The GDP output gap (the GDP deviation or the output gap) represents the difference in percentage between the actual real GDP and the potential one, this being a synthetic aggregate indicator of the inflationary pressures existing in economy.

Thus, the potential GDP represents a measure of an economy's output capacity, that level of the GDP which can be obtained in case the economy functions under terms of "full employment" of labour. Moreover, the potential GDP reflects the level of the national output which corresponds to an economic situation which is characterized by a stable inflation. Through the time, the potential GDP and the output-gap have been of great interest for the researchers. At present, the potential GDP is largely used in the macroeconomic modeling, in the analysis of the economic policies, in the assessments made for the sustainability of the public finances, in quantifying the size of the structural budget balance, and so on.

The "gap" of the output is a measure of a country's cyclic position, i.e. the difference in percents between the actual GDP and the potential GDP: a negative "gap" outlines a sub-efficient economy, as it operates under its potential. A positive output-gap is the result of an excessive aggregate demand, which can induce inflationary pressures. Its correct estimate is extremely important, an output-gap level which is much more negative than its real level possibly resulting in implementing improper economic policies.

In this research, the potential GDP is estimated by means of the production function method – a method which has been recommended by the European Commission and which has been considered as the best measure of the potential GDP and, inherently, of the output-gap. It is based on the methodology described by Denis et al., (2006). Moreover, another method which has been seldom used to estimate the potential GDP is based on the use of the Hodrick- Prescott (HP) filter. However, this methodology has been often criticized in the economic literature, especially because it offers an oversimplified method of measuring – by means of identifying the trend component within the macroeconomic time series (see Box 1).

**Box 1. Hodrick-Prescott filter**

In 1980 Hodrick and Prescott proposed a procedure which had as objective to determine the trend of a time series (the potential level of the real GDP), so that it could diminish the square of the series' deviation from the trend (the gap volatility) by taking into account the increasing rhythm of the trend. The trade-off between the two objectives is adjusted by means of a multiplier,  $\lambda$ , which sets their relative shares. The Hodrick Prescott filter calculates the trend as a minimum solution of the following equation:

$$\text{Min}_{y_t^p} \sum \left[ (y_t - y_t^p)^2 + \lambda \left[ (y_{t+1}^p - y_t^p) - (y_t^p - y_{t-1}^p) \right]^2 \right], \text{ where,}$$

$y_t$  and  $y_t^p$  are log real GDP and log potential GDP,

$(y_t - y_t^p)^2$  represents the sum of the square deviations of the real GDP compared to its trend,

$\lambda \left[ (y_{t+1}^p - y_t^p) - (y_t^p - y_{t-1}^p) \right]^2$  represents a function which penalizes the square deviations in the increase rate of the trend component.

For the purpose of estimating the potential GDP, we have used the quarter values related to the period 1998- 2010. Unlike other methods used to estimate the potential GDP and the outputgap, the main advantage of this estimating method is to also reflect the side of the national economy's aggregate offer.

As for the real GDP, we have used SDDS format quarter values (Special Data Dissemination Standard), which are expressed in millions of RON, i.e. the average prices for 2000 published by the National Institute of Statistics (NIS). The seasonal adjustment of the data has been performed by means of the DEMETRA program.

Determining the potential GDP by means of the production function method supposes the passing through the following stages (Denis et al., 2006):

- (i) determining the form of the production function;
- (ii) estimating the parameters of the production function;
- (iii) determining the entries of the production factors;
- (iv) estimating the production total factor (PTF);
- (v) determining the potential GDP.

Taking into consideration the absence of the data for the Romanian economy, and also the use of a Cobb- Douglas type production function to a large extent in the economic literature, we have chosen to use such a production function, with constant scale efficiency and with decreasing factorial efficiency, supposing a capital share of 0.35, respectively a labour share of 0.65<sup>(2)</sup>.

According to the methodology described by Denis et al (2006), the Cobb-Douglas production function represents the gross domestic product as a mix of labour (L) and capital (K), corrected for the excessive capacity degree ( $U_L$ ,  $U_K$ ), and adjusted for the efficiency level ( $E_L$ ,  $E_K$ ). The potential GDP is given by the following relation:

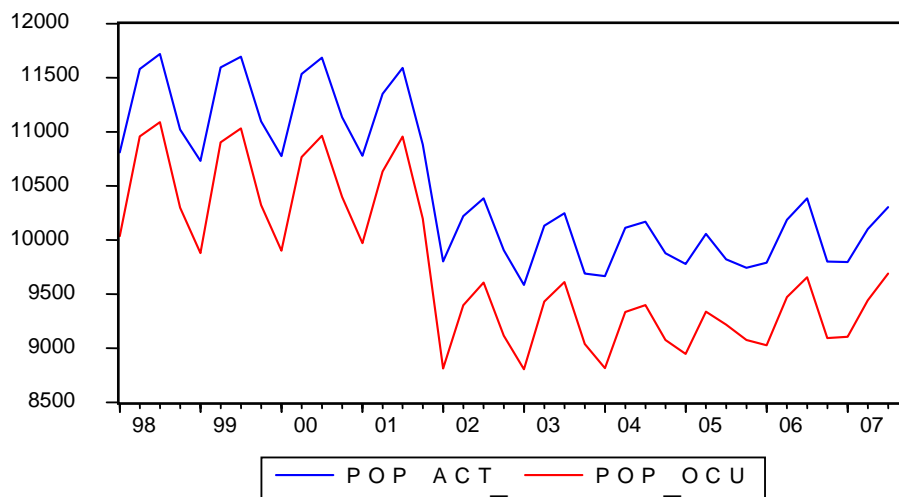
$$Y = (U_L L E_L)^\alpha (U_K K E_K)^{1-\alpha} = \text{PTF} \times L^\alpha \times K^{1-\alpha} \quad (1)$$

where PTF includes both the excessive capacity degree and also the adjustment for the efficiency level.

Therefore, the Cobb Douglas production function for the Romanian economy has the following form:

$$Y = \text{PTF} \times L^{0,65} \times K^{0,35} \quad (2)$$

As for the labour (L) entries, in Romania, the series of the data related to the employed population records important changes – structural breaks – the 4<sup>th</sup> quarter of 2001 – the 1<sup>st</sup> quarter of 2002, as a result of the changes made in the methodology used by NIS. That is the reason why we have used the number of employees as a potential labour entry. Figure 1 represents the structural break recorded within the series of the data related to labour.



**Figure 1.** Active population and employed population

The productivity total factor (PTF) has been determined by taking into account the following relation:

$$\ln \text{PTF} = \ln Y - (\alpha \times \ln(L) + (1-\alpha)\ln(K))$$

the relation used to determine the potential GDP is as it follows:

$$Y = \text{PTF}^{\text{pot}} \times L^{\text{pot } \alpha} \times K^{\text{pot } (1-\alpha)}$$

The potential values of the factors which determine the potential GDP represent the trend components of these Hodrick-Prescott filtered factors. As a consequence, the output gap has been calculated according to the following formula: (real GDP – potential GDP)/potential GDP.

The results are presented in the table below:

Table 1

**The values of the output gap in Romania**

<b>Year</b>	<b>Outputgap</b>
1998	4.60
1999	2.00
2000	-2.22
2001	-0.60
2002	-0.48
2003	-0.97
2004	1.04
2005	-1.09
2006	0.81
2007	2.17
2008	6.20
2009	-2.95
2010	-3.46

**Source:** our own calculations.

The second research stage has consisted in estimating the structural budget balance. One of the most used indicators in the analysis made for the efficiency of the fiscal and budgetary policy measures adopted on short and medium terms – especially in the EUMM member countries, which must meet the conditions provided in the Stability and Growth Pact (SGP), and also in the countries which prepare for entering the Euro Zone, is the indicator named *structural budget deficit* (the budget deficit recorded for the potential GDP).

SGP considers that the current budget deficits are excessive when exceeding 3% of the gross domestic product. For the purpose of allowing a margin of maneuver so that the automatic stabilizers could play their role, SGP

also stipulates that the participants to the monetary union should act so as to obtain a “balance or excessive” medium-term position. “Medium term” means a period of approximately three years. By means of the reform implemented in 2005, besides a corrective component – decreasing the current budget deficit under the level of 3% of the GDP –, the reviewed Stability and Growth Pact has also a preventive component, which aims to the member states assuming of a medium-term objective related to the stability of the public finances. Under these terms, on a medium term, each member state undertakes to keep a budget position as close to *balance* as possible, or even *excessive budget*. As the Stability and Growth Pact does not mention the exact meaning of “as close to balance as possible”, we may consider that, inherently, it is necessary to decompose the current budget component in two parts: the *structural* one – due to the implemented fiscal measures – respectively the *cyclic* one – due to the economic fluctuations (Hagemann, 1999).

In the case of the countries which have not sufficiently consolidated their public finances, the reviewed Stability and Growth Pact has settled a target of annually increasing the structural budget balance by 0.5% of the GDP.

Within the process of assessment for the fiscal and budgetary policies, the current budget deficit is an indicator which has a very limited usefulness. For this purpose, we should take into consideration the fact that these policies cannot be analyzed based on short-term indicators (one year, on the one hand, and the fact that an indicator such as the current budget deficit cannot catch the fiscal “burden” of the future generations, for example, on the other hand.

The quantification of the structural budget balance is necessary if we take into consideration the fact that it provides a clear vision of the economic fiscal situation, which cannot be disturbed by the influence of the economic cycle, thus being able to guide the fiscal policy decision makers. The structural balance is the instruments by means of which the discretionary components of the fiscal policies can be monitored and measured. Moreover, it is an efficient modality for assessing the real sustainability of the public finances.

The estimation made for the dimension of the structural deficit has been made in three stages, as it follows: (1) estimating the gap between the actually achieved gross domestic product and the potential gross domestic product (potential GDP) (output-gap); (2) estimating the cyclic component based on the output gap and on the elasticity of the budget revenues, respectively of the purchases depending on the GDP; (3) estimating the structural component by eliminating the cyclic component out of the current budget component (Hagemann, 1999).

Tabel 2

**The values of the output-gap and of the structural balance  
in Romania**

– % of the GDP –

Year	Output-gap	Structural budget balance
2000	-3.22	-3.64
2001	-0.60	-3.55
2002	-0.48	-2.76
2003	-0.97	-1.15
2004	1.34	-0.93
2005	-1.09	0.62
2006	0.81	-2.11
2007	2.17	-3.73
2008	6.20	-7.71
2009	-2.95	-6.84
2010	-3.46	-4.40

**Source:** author's calculations.

The obtained results show some interesting facts. The first one is that the analysis made for the current budget deficit is misleading, especially during the expansion period. In 2007, the current deficit was 2.5% of the GDP and in 2008 it was 5.4% of the GDP. However, if we eliminate the influence of the economic cycle – expansion during the related period, we can notice that the real deficit was 3.73% of the GDP in 2007 and 7.71% of the GDP in 2008 (the estimated values of the structural deficit).

Secondly, the analysis made for the structural deficit indicates the fact that we are reversed, if compared to the postulates of the macroeconomic theory. When our output is under our potential we are making a fiscal adjustment, and when the output is over our potential, we are overheating the economy. During the period 2001-2004, when the economy was functioning under its potential (negative output gap, in the table), a fiscal space was created instead of stimulating the economy. However, it ended fast during the period 2006-2008, when the economy was overheated (highly positive output gap, in the table). During this period it would have been necessary to create a fiscal space. On the one hand, the cause was that the expansion allowed it and, on the other hand, the purpose was to provide resources to the fiscal stimuli for the future recession period. When the economy encountered the crisis, we have found ourselves in an inexistent maneuver space if we refer to the fiscal stimuli which could have been granted. There was one step only from here up to the



necessity to make a large fiscal adjustment in a recession period (which is not recommended).

Therefore, it is necessary to make a deep re-assessment of the fiscal policy in Romania, especially subsequently to the adhesion to the Euro Zone – an objective we have assumed - this is the only available macroeconomic instrument for the macroeconomic stabilization.

### Acknowledgement

This article represents the result of grant research Building and implementation of an econometric model in order to increase the efficiency of the fiscal policy considering Romania's adhesion to the Euro area, financed by CNCISIS Exploratory research projects, Program Ideas, code 1766.

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### Notes

- (1) We mark the production total factor with PTF, the capital with K and the labour with L.
- (2) The values represent an average of the values used in other researches in which the potential GDP is estimated for the Romanian economy: the values used in Dobrescu (2006): 0.65 and 0.35, NBR Working papers No. 20: 0.67 and 0.33; Denis et al.: 0.63 and 0.37. However, the obtained results are approximately the same for low variations of these values.

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