

Cristian Socol<sup>1</sup>

## SUSTAINABILITY OF FISCAL ADJUSTMENT PROCESS IN ROMANIA

*The article explains that since the end of the year 2008, Romania entered a fiscal crisis of liquidity and for this reason it was forced to perform one of the toughest fiscal adjustments in the EU countries. Achieving the quantitative targets related to the budget deficit did not attract a high quality of fiscal adjustment, a weakness which consequently entails lower growth rates, lack of sustainability of the growth model and a slow real convergence compared to developed countries. Based on estimates of potential GDP and on the contribution of the factors for the economic growth in the 2001-2010 period, by the production function method, we show in this paper that the model of post-crisis economic growth is still an unsustainable one.*

*Keywords:* fiscal adjustment; total factor productivity; economic crisis.

Крістіан Сокол

## РОЗВИТОК ПРОЦЕСУ БЮДЖЕТНОГО КОРИГУВАННЯ В РУМУНІЇ

*У статті пояснюється, що з кінця 2008 р. у Румунії почалася фінансова криза ліквідності. Це спричинило необхідність найжорсткішого серед країн ЄС бюджетного коригування. Під час вирішення бюджетного дефіциту якість бюджетного коригування не була високою, що призвело до нижчих темпів розвитку, нестабільності моделі розвитку та повільної реальної конвергенції порівняно з розвинутими країнами. Методом виробничої функції на основі визначень потенційного ВВП та впливу факторів економічного зростання у 2001-2010 рр. продемонстровано, що модель посткризового економічного розвитку ще не стабільна.*

*Ключові слова:* бюджетне коригування; сукупна продуктивність факторів виробництва; економічна криза.

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Кристиан Сокол

## РАЗВИТИЕ ПРОЦЕССА БЮДЖЕТНОЙ КОРРЕКЦИИ В РУМЫНИИ

*В статье объясняется, что с конца 2008 г. в Румынии начался финансовый кризис ликвидности. Это обусловило необходимость самой жесткой среди стран ЕС бюджетной коррекции. Во время решения бюджетного дефицита качество бюджетной коррекции не было высоким, что привело к низшим темпам развития, нестабильности модели развития и медленной реальной конвергенции в сравнении с развитыми странами. Методом производственной функции на основе определений потенциального ВВП и влияния факторов экономического роста в 2001-2010 гг. продемонстрировано, что модель посткризисного экономического развития еще не стабильна.*

*Ключевые слова:* бюджетная коррекция; совокупная производительность факторов производства; экономический кризис.

**I. Introduction. Determination of the problem.** Romania entered the crisis with an unbalanced macroeconomic situation. Global financial crisis contagion overlapped

<sup>1</sup> Senior Lecturer, Academy of Economic Studies, Bucharest, Romania.

the cumulative causality effect - the negative effects of external crisis being exacerbated by the existing domestic imbalances. Together with Latvia, Romania was heavily dependent on foreign capital flows, both in the public sector and in the private sector. The problem of the high twin deficits (5,4% of GDP effective budget deficit and 13% of GDP current account deficit in 2008) led to a reduced scope for supporting adequate fiscal stimuli.

All these led to the need for a wide fiscal adjustment, which was supposed to start since 2009. Although the standard of freedom provided to the macroeconomic policy makers in Romania was reduced, the fiscal adjustment had to be well-designed, rationally phased and, intelligently communicated in order to be understood by the public.

Romania has the most ambitious program for the fiscal correction in EU (1.8% of GDP speed of adjustment in cyclically adjusted budget balance, annually average), as it makes a comparative analysis between the experiences of the EU countries acquired during the last 30 years regarding the large fiscal adjustments (corrections) (Table 1).

**Table 1. Large fiscal adjustments in the EU (selected countries)**

Countries	Cyclically adjusted 2008 budget balance (% to GDP)	Cyclically adjusted 2011 budget balance (% to GDP)	Speed of adjustment in cyclically adjusted budget deficit, annually (% to GDP)
Hungary	-4,9	+4,8	3,23
Greece	-10,6	-5,3	1,76
Estonia	-4,5	+1,3	1,93
Latvia	-6,4	-2,9	1,16
Czech Republic	-4,4	-3,8	0,20
Lithuania	-5,5	-4,2	0,43
Italy	-3,2	-2,8	0,13
Romania	-8,7	-3,7	1,66

Source: European Commission, Autumn Economic Forecast, 2011

The rush for strict quantitative targets, unlimited and unreasonable access to credits and loans, cutting down of investments in endogenous growth engines (human capital, technology, research, development etc.) and inadequate explanations provided by government communicators have made fiscal adjustment in Romania to be characterized as an "accounting" adjustment rather than one with "macroeconomic vision".

**II. Literature review.** The potential gross domestic product and the output gap are calculated by using different methodologies: the European System of Central Banks uses the Hodrick-Prescott filter, while the European Commission, the Organization for Economic Co-operation and Development in Europe or the International Monetary Fund use the production function method. In the first case, the advantage is that the results for several countries are comparable, as in the second case, certain series of data are not always available.

M. Altar et al. (2010) estimated potential output and output gap for Romanian economy in the period 1998-2008. The author's approach consists in combining the production function structural method with several statistical de-trending methods.

With reference to the estimate of the output gap for Romania, we may find an innovative approach in the paper of E. Dobrescu (2006). The author considers that both internal and external equilibria should be taken into account in the estimation of potential output. If only the data on inflation, unemployment rate, and wages are used for its evaluation, no certainty exists that such a level will correspond to a stable foreign trade balance. Benes et al. (2010) developed a simple model for measuring potential output that uses data on inflation, unemployment, and capacity utilization. They showed that while there is a substantial amount of uncertainty around our estimates, the financial crisis resulted in a reduction in potential output.

About the results of fiscal adjustments, IMF (2011) shows the effects of fiscal consolidation – tax hikes and government spending cuts – on economic activity. It finds that fiscal consolidation typically reduces output and raises unemployment in the short term. S.P. Berkmen (2011) analyzes the growth impact of fiscal consolidation and structural reforms and demonstrates that although fiscal consolidation has short-term costs, the potential long-term benefits are considerable, and reforms that raise potential growth could support consolidation.

**III. The Methodology.** We estimate the potential GDP and the output gap by the production function approach, recommended by the European Commission. The production function approach has the advantage of reflecting the supply side of the economy. The main drawback is the restrictiveness of the assumptions regarding the functional form and the utilization of production factors.

The method based on the production function described in Denis et al. (2002), gives the possibility to evaluate the contribution of each factor of production to the economic growth. In addition, in the production factor approach, the choice for a certain specification of the model is, to some degree, arbitrary, and the model promoted by the Economic Policy Committee and analyzed in Denis et al. (2006) may not be suitable for all the countries, due to specific differences.

The analyzed period is 2000-2010 and the source of the statistical data is the Romanian Ministry of Finance, National Institute of Statistics, National Bank of Romania and the Eurostat database. For the Romanian economy we confronted the following problems: statistical data on GDP are published with delay and are often revised afterwards; Romanian economy during the analyzed period suffered numerous structural changes that affect the results, regardless the estimation method used; moreover, even though we used quarterly data, the size of the sample can be considered as low.

To estimate the potential GDP using the production function approach (methodology described by Denis et al., 2006) we have used quarterly data for 2000-2010 period. The main advantage of this method is that it reflects the aggregate supply part of the national economy. For the real GDP we have used quarterly data in SDDS format (special data dissemination standard), units million Ron, 2000 medium prices, for the 2000-2010 period, published by the National Institute of Statistics. Regardless of the method used to calculate potential GDP, the first step in processing the quarterly data is the seasonal adjustment of GDP series. The seasonal adjustment of data was made using TRAMO-SEATS method.

Estimating the potential GDP using the production function approach includes following the next steps (Denis et al., 2006): determining the form of the production function; estimating the parameters of the production function; determining the

input of the production factors; calculating the total factor of productivity (PTF); determining the potential GDP.

Considering the lack of the data on the Romanian economy, and also the considerable use of a Cobb-Douglas production function in the economic literature, we have also chosen to use such a function, with constant scale output and decreasing factorial output, supposing the coefficient for the capital to be 0.35 and for the labor 0.65. The coefficients represent a mean of those used in other studies where the potential GDP is estimated for Romanian economy: the coefficients of Dobrescu (2006) – 0.65 and 0.35; Denis et al. (2006) – 0.63 and 0.37. For low variations of these coefficients the obtained results are approximately the same.

Following the methodology described by Denis et al. (2006), the Cobb-Douglas production function presents the GDP as a combination of labor force (L) and capital (K), corrected for the degree of excess capacity (UL, UK), and adjusted for the level of efficiency (EL, EK). Potential GDP is calculated using the formula:

$$Y = (U_L L E_L)^\alpha (U_K K E_K)^{1-\alpha} = PTF * L^\alpha * K^{1-\alpha}, \tag{1}$$

where PTF contains both the degree of excess capacity and the adjusting for the level of efficiency. Having considered that, the Cobb-Douglas production function on Romanian economy has the form:

$$Y = PTF * L^{0.65} * K^{0.35}. \tag{2}$$

Regarding the labor input (L), in Romania the data series for working population contain important changes – structural breaks – in the fourth quarter 2001 – first quarter 2002 period, which is the result of the change in the INS methodology. Due to these results, we have used as labor input the number of employees.

We calculated the total factor of productivity (PTF) with the formula:

$$\ln PTF = \ln Y - (\alpha * \ln(L) + (1-\alpha) \ln(K)). \tag{3}$$

The relation to determine the potential GDP is:

$$Y = PTF^{pot} * L^{pot \alpha} * K^{pot(1-\alpha)}. \tag{4}$$

The potential values of the factors that make up the potential GDP are the trend components of these factors filtered with Hodrick-Prescott. Having calculated that, the output gap is determined using the next relation (real GDP – potential GDP)/potential GDP). Potential GDP by production function approach and real GDP is shown in Figure 1.

To calculate the individual contribution to GDP growth of one factor, we use the following relationship, obtained by differentiating the production function:

$$\frac{\partial y}{y} = \frac{\partial tfp}{tfp} + \alpha \frac{\partial l}{l} + (1-\alpha) \frac{\partial k}{k}, \tag{5}$$

where  $\frac{\partial y}{y}$ ,  $\frac{\partial tfp}{tfp}$ ,  $\frac{\partial l}{l}$  and  $\frac{\partial k}{k}$  represent the growth rates of GDP, total factor productivity, labor and capital respectively.

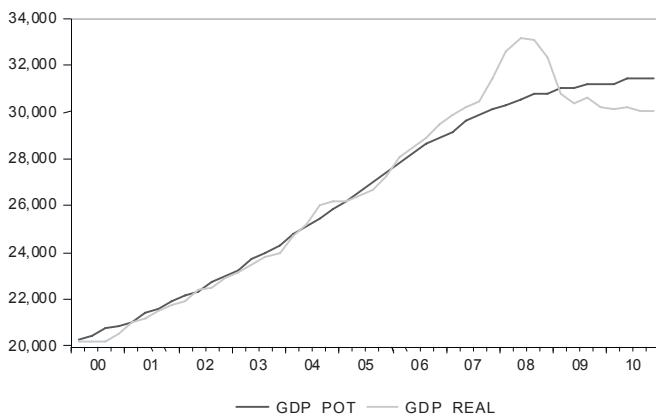


Figure 1. Potential GDP by production function approach and real GDP

Table 2. The contribution of factors to potential GDP increase

Years	Potential (GDP) increase	Capital (K) contribution	Labor (L) contribution	Total productivity factors (TFP) contribution
2001	4,90	1,07	-1,59	5,42
2002	4,75	1,20	-0,83	4,38
2003	5,53	1,41	-0,09	4,21
2004	6,20	1,69	0,49	4,03
2005	5,92	2,02	0,81	3,09
2006	5,43	2,38	0,83	2,22
2007	3,99	2,68	0,62	0,68
2008	2,33	2,85	0,28	-0,80
2009	1,37	2,82	0,04	-1,49
2010	0,62	2,68	0,12	-2,19

Source: Author's calculations.

The interpretation of the results (Table 2) shows some interesting things related to the reduced quality of fiscal adjustment in Romania.

Romania's post-crisis economic potential is half of the precrisis one. The potential GDP increase ratio decreased by a half from the precrisis period. If during the period 2004-2008 Romania had a potential GDP increase rhythm of 5-6%, our estimations show that it will get decrease to 2.5-3% on a medium term.

The simple reach of strictly quantitative targets does not provide the change of the economic growth model. The International Monetary Fund (2011) and National Forecast Commission (2011) forecasts regarding the contribution of production factors to economic growth are not consistent with each other. In case both International Monetary Fund and National Forecasting Commission of Romania forecast an average 2.8-2.9% economic growth rhythm for the period 2010-2015, when the factors' contribution to the economic growth are detailed, there are significant differences between the calculations of two institutions. If IMF anticipates a major contribution of the capital factor to the economic growth (3.4%) and a nega-

tive contribution of the total-factor productivity (TFP) (0.4%), NFC estimates an average contribution of the capital factor which is much lower than 1.2% and a significantly positive contribution of the TFP (1.6%). This means that IMF considers that intensive elements of economic growth – TFP contribution – institutional development, add on technical progress, research development innovation, competitiveness increase, add on investments in human capital, financial markets maturity etc. – have a lower contribution if compared to the extensive ones – keeping the sustainable growth model – while NFC forecasts a change of the model by predominant elements of economic growth quality until 2015.

Romania has not made qualitative "jumps" in substantiating and implementing of the fiscal policy. Several causes contributing to the fiscal and budgetary policy drifts during the precrisis period are still present. The efficiency of the automatic stabilizers has not increased. The level of the coefficient showing this thing is of 0.35 for Romania, which is lower if compared to the level considered in the case of the Eurozone countries (0.5). The multi-annual budget plan exists in principle only, still high number of budget rectifications illustrating this weakness. The public investments have a low multiplying effect. The calculations for the public investments multiplier in Romania show a value of 0.5-0.7, which means a very low effect of them in the real economy. There is no prioritization for public projects. (Socol et al., 2011).

Romania does not benefit from the cheapest financing source – the European funds. At the end of 2011 Romania had an absorption degree of 3.7% of the GDP, approximately 8 times less funds per capita if compared to Estonia, 5 times less than Poland and 4 times less than the Czech Republic.

**IV. Conclusions and recommendations.** Large fiscal adjustment should be continued for a longer period of time and completed with appropriate communication to the public and with targeted support for the most disadvantaged groups due to the crisis. The social risk remains high in Romania and the credible reforms are those which can be of some degree of affordability for the population. The fiscal adjustment needs to be symmetrically approached, both on the revenue side and expenditure side. The structural measures to increase revenues are linked to the encouragement of burdens private sector – predictability, stability and reduction of fiscal and administrative burden, to the improvement of the contribution to the state budget and to a strong commitment to decrease tax evasion. In a timeframe of two years, Romania needs differentiated taxation with fiscal deductibility in order to reduce social polarization and to ensure participatory growth. This system is sustainable, it is a good automatic stabilizer that largely solves macroeconomic imbalances. It is necessary for Romania to implement budgetary discipline mechanisms established at the EU level in order to minimize the risk of creating macroeconomic volatility by the government. Finally, a program of urgent measures in healthcare system reform is relevant: controlling spending in the state sector, tax incentives for establishment of private clinics, expansion of private insurance mechanisms.

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