



EVALUATION OF THE FISCAL-BUDGETARY POLICY SUSTAINABILITY IN ROMANIA

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Rezumat

Studiul urmărește să sistematizeze rezultatele prezentate de literatura științifică de specialitate referitoare la stabilitatea fiscală și la sustenabilitatea fiscală. Pe baza acestor rezultate, autorii au determinat o serie de indicatori relevanți referitori la calitatea finanțelor publice din România: a) poziția financiară, b) impulsul fiscal, c) nivel sustenabil de taxare, d) rata sustenabilă a cheltuielilor bugetare, e) deficitul taxării sustenabile, f) deficitul cheltuielilor bugetare. Acești indicatori sunt analizați din punctul de vedere al semnificației lor pentru sustenabilitatea fiscală din România în perioada 2001-2009.

Abstract

The study aims to systematize the results presented in the literature on fiscal stability, and fiscal sustainability issue. Based on these results, the authors determined a number of relevant indicators for the quality of public finances, for Romania: a) fiscal stance, b)

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fiscal impulse, c) sustainable tax rate, d) sustainable rate of budgetary expenditure; e) gap of sustainable tax; f) gap of sustainable budgetary spending. These indicators are then analyzed for their significance in terms of fiscal sustainability in Romania, during 2001-2009.

Keywords: sustainability, structural deficit, fiscal stance, fiscal impulse.

JEL classification: H62, H63

2. Determination of the structural deficit, of the fiscal stance and of the fiscal impulse for Romania¹

1.1 Conceptual preliminaries

The budgetary constraint of the Government² can be written as:

$$G - (T_T + T_N) + i \cdot B_{-1} + i^* \cdot E \cdot B_{-1}^{*g} = \Delta L^g + \Delta B + E \cdot \Delta B^{*g},$$

(1)

where:

- G is the public expenditure for goods and services (including the current expenditure and the capital expenditure);
- T_T signifies the fiscal revenues (less the transfer payments transfer);
- T_N signifies the non-fiscal revenues;
- B is the stock of the domestic public debt, at the end of the period, which incurs payments of debts at the market interest rate, i ;

¹The considerations from this chapter follow the conceptual and methodological suggestions of Richard Ageron in his book *The Economics of Adjustment and Growth*,

²Although we only take into consideration the state budget here („government's budget") the reasoning is valid for any budget and, by aggregation, it is valid for the consolidated general budget too.

- B^{*g} is the stock of the domestic public debt, in foreign currency, which incurs payments of debts at the market interest rate i^* ;
- E is the nominal exchange rate;
- L^g is the nominal stock of the credit received from the central bank³.

One can notice that the left side of equation (1) refers to the budget deficit (expenditure for goods and services and the service of duty, less the revenues to the budget), while the right side refers to the sources which cover the budget deficit.

The qualitative characteristics of equation (1) are the following:

- It doesn't take into consideration, explicitly, the foreign grants or the revenue derived from assets such as natural resources and the capital owned by the population, or the cash revenue from the sale of public assets, such as the income obtained from the privatization of the public enterprises (they are supposed to be included in T_N);
- It doesn't take into consideration, explicitly, the extra-budgetary activities, such as the activity of the special funds, which are those from the budget which don't observe the budgetary principle of not affecting the revenue.

The budget deficit from the left side of equation (1) is called **conventional fiscal deficit**.

Within the margin of this concept we may determine several fiscal deficits, as follows:

3. **the primary deficit** (no interest paid⁴) can be defined as:

$$D = G - T$$

where $T = T_T + T_N$ the total governmental revenue (fiscal revenues plus non-fiscal revenues).

Replacing this definition in equation (1) we obtain the budgetary constraint at the level of the primary deficit:

³ We either may accept that the Central bank grants interest-less credits to the government, or (as it is the case of Romania), this variable can be considered to be null.

⁴ Some authors refer here to the gross interests, although it is correct to take into consideration the net interests.

$$D + i \cdot B_{-1} + i^* \cdot B_{-1}^{*g} = \Delta L^g + \Delta B + E \cdot \Delta B^{*g} .$$

(2)

The conventional fiscal deficit can be very sensitive to inflation. The essential reason is the effect of inflation on the payments for the nominal interests on the public debt. Hence, another species of the conventional fiscal deficit is determined:

4. **the operational deficit**, which is calculated by subtracting the inflationist component from the payments (and cashes) at the nominal interest rate of the primary budget. Suppose, for instance, that the government doesn't have foreign debt ($B^{*g} = 0$). We have a new budgetary constraint (by operation in equation (2)):

$$D + i \cdot B_{-1} = \Delta L^g + \Delta B .$$

(3)

Let us divide both the left side and the right side, by factor P (general level of the prices in economy). We obtain:

$$d + i \cdot \left(\frac{P_{-1}}{P} \right) \cdot b_{-1} = \frac{\Delta L^g}{P} + \left(\frac{P_{-1}}{P} \right) \cdot \frac{\Delta B}{P_{-1}} ,$$

(4)

where d is the real primary deficit, and b is the real stock of governmental bonds. The last term of this equation ($\left(\frac{P_{-1}}{P} \right) \cdot \frac{\Delta B}{P_{-1}}$) can be rewritten as:

$$\left(\frac{P_{-1}}{P} \right) \cdot \frac{\Delta B}{P_{-1}} = b - \left(\frac{P_{-1}}{P} \right) \cdot b_{-1} = \Delta b + \left(1 - \frac{P_{-1}}{P} \right) \cdot b_{-1} ,$$

or

$$\left(\frac{P_{-1}}{P} \right) \cdot \frac{\Delta B}{P_{-1}} = \Delta b + \pi \cdot \left(\frac{P_{-1}}{P} \right) \cdot b_{-1} .$$

where π is the inflation ($\pi = \frac{\Delta P}{P_{-1}}$)

Let us replace this result in the budgetary constraint. We obtain:

$$d + (i - \pi) \cdot \left(\frac{P_{-1}}{P} \right) \cdot b_{-1} = \frac{\Delta L^g}{P} + \Delta b .$$

(5)

As $\frac{P_{-1}}{P} = \frac{1}{1 + \pi}$, we obtain:

$$d + \left(\frac{i - \pi}{1 + \pi} \right) \cdot b_{-1} = \frac{\Delta L^g}{P} + \Delta b, \quad (6)$$

or

$$d + r \cdot b_{-1} = \frac{\Delta L^g}{P} + \Delta b, \quad (7)$$

where r is the real interest rate, defined as follows:

$$r = \frac{1 + i}{1 + \pi} - 1$$

The expression $d + r \cdot b_{-1}$ from equation (7) measures the total fiscal deficit in real terms.

1.7. Evaluation of the structural deficit

Question is, how much does the intervention of the government (by the fiscal-budgetary policy) affect the fiscal deficit? The fiscal intervention of the government refers to the structural aspect of the budget deficit, to the extent to which the discretionary measures bear effect on the fiscal deficit⁵. This is explained as follows: the cyclic variations of the budgetary deficit, those variations which can be accounted for by the economic cycle, usually are reversible, through the automatic fiscal stabilizers, while the variations which are not self-adjustable, it means that they are generated by structural factors or by factors with structural action. Hence, this last category of variations of the deficit can only be managed through discretionary governmental actions, so that these interventions are considered to be structural.

A more accurate evaluation of the fiscal situation thus presumes the determination of a structural deficit, of a budget deficit from which the cyclic component is removed, that self-adjustable component at the level of the automatic fiscal stabilizers. This deficit is called **structural deficit**.

In order to determine the structural budget deficits we may use, in the most general meaning, budget elasticity in revenue adjustment,

⁵The cyclic variations of the structural deficit are the result of the action of the automatic fiscal stabilizers (where we must also take into consideration the economic lag). However, we must accept that lags also appear in the case of the fiscal discretionary interventions (delay intervals between the enforcement of the fiscal norm and the actual occurrence of the expected effect on the budget deficit).

T_s , and in total expenditure adjustment, G_s . This elasticity is applied to a variable, noted with GAP , which is defined as the rate of the *potential (at capacity) GDP* within the actual GDP, with the purpose to generate directly an estimation of the *level* of structural deficit D_s :

$$D_s = G_s - T_s = G \cdot GAP^{\eta_G} - T \cdot GAP^{\eta_T} \quad (7)$$

where η_G and η_T are, respectively, the elasticity associated to the expenditure and revenue incurred to correct the cyclic effects.

The determination of the structural budget deficit allows then to calculate the cyclic budget deficit, D_C :

$$D_C = (G - G_s) - (T - T_s) = G \cdot (1 - GAP^{\eta_G}) - T \cdot (1 - GAP^{\eta_T})$$

where G , is the total budget expenditure that has been registered in accountancy, and T is the budget revenue that has been registered in accountancy.

Of course, as we did for the conventional budget deficit, by removing the expenditure with the net interests to the public debt, by removing the expenditure with the net interests to the public debt from the structural deficit, we obtain the primary structural deficit, and by removing the effect of inflation on the net nominal interests from the primary structural deficit, we obtain the operational structural deficit.

As we have seen above, we need to determine the potential GDP (output), in order to calculate GAP variable.

There are two methods to calculate the potential GDP:

3. by estimating a production function which correlates the capital, the work and the total productivity of the factors. The potential output is then estimated as the level of the output which is consistent with the normal utilisation of the capital and with the natural unemployment rate – unemployment rate considered consistent with the stable nominal wage and inflation⁶;

4. by approximating the trend of the output, using statistic filters: **the Hodrick-Prescott filter, the Kalman filter.**

⁶*The natural values of these dimensions are determined by removing the cyclic fluctuations from the employment rate, unemployment rate and from the total productivity of the factors.*

1.8. Evaluation of the fiscal position

The fiscal position is determined as the difference between the conventional structural deficit and the conventional actual deficit⁷: $PF_t = D_S^t - D_A^t$. The significance of the fiscal position is as follows:

- f. if $PF < 0$: the structural deficit is lower than the actual deficit, which means that the cyclic deficit (generated by the economic cycle) tends to increase the budgeted deficit, which means that anti-cyclic processes operate within the economy;
- g. $PF > 0$: the structural deficit is higher than the actual deficit, which means that the cyclic deficit (generated by the economic cycle) tends to decrease the budgeted deficit, which means that pro-cyclic processes operate within the economy.

1.9. Evaluation of the fiscal impulse

The fiscal impulse is defined as the annual variation of the primary structural budget deficit, expressed as proportion of the output (actual or potential).

$$IF_t = D_{SP}^t - D_{SP}^{t-1}$$

A negative value shows an impulse of contraction of the demand, generated by the fiscal policy, while a positive value shows an impulse of expansion of the demand.

Although statistically, it is very difficult to evaluate, we must however take into consideration the fact that the variation of the structural components of the budget revenues and expenditure can be also the effect of the variation of other economic factors (besides the changes of fiscal policy), that is to say, the effect of the changes in the fiscal impulse⁸. Here are some examples of such factors:

- h. At the level of the structural variations: variations induced by the economic growth (variations of the natural resources revenues, variations of the taxation basis, variations generated by inflation);
- i. At the level of the structural expenditure: variations induced by the demographic variations and by other conjectures;

⁷Both deficits are expressed as proportion of the GDP.

⁸These factors act cyclically, at the level of the automatic stabilizers.

j. Change of revenue elasticity, just due to the structural modifications from the economy, generated by the governmental intervention through discretionary fiscal interventions⁹.

1.10. Consistency evaluations of the budgetary deficit rules

There are two ways to ensure the compliance with the rules of budget deficit:

- **the way of deficit:** it allows calculating the fiscal deficit that can be financed, given the targets for inflation and for other macroeconomic variables;
- **the way of inflation:** : it allows calculating the inflation consistent with the given targets for the fiscal deficit and for other macroeconomic variables.

Generally, the governmental budgetary constraint says that the fiscal deficit (the sum of the primary deficit and the payment of interest for the domestic and foreign public debt) must be financed either by issuing monetary commitments, or domestic bonds with interest, or by taking foreign loans.

If there are several macroeconomic targets, such as a specific inflation and a specific rate of output growth, such sources of financing can become interdependent and may determine the level of the primary deficit which can be financed from the area “below the line”. If the actual deficit exceeds the level that can be financed (given other political targets), the decision-makers must adjust their fiscal position or/and review the other goals.

Let us resume the budgetary constraint (equation (2)):

⁹*This makes quite unrealistic the hypothesis of the constant elasticity on the medium term. Hence, the measures intended to reduce the fiscal deficit (such as lower expenditure or lower expenditure with wages or with transfers towards households) do not always guarantee a sustained improvement of the public finances (Romania adopted, however, this measure in order to go beyond this economic and financial crisis; this was a condition of the European Union and of the International Monetary Fund, for the loan of 20 billion USD). There are authors (see, for instance,, Carsten Detken, Fiscal policy effectiveness and neutrality results in a non-ricardian world, ECB WP 3/1999) who say clearly that the compliance with the Maastricht conditions may lead the economy to an area of low-level balance.*

$$D + i \cdot B_{-1} + i^* \cdot B_{-1}^{*g} = \Delta B + E \cdot \Delta B^{*g} + \Delta L^g$$

where D is the primary deficit without the expenditure with the interest rates, $B(B^{*g})$ is the stock of the domestic (foreign) governmental debt at the end of the period, $i(i^*)$ is the interest rate for the domestic (foreign) debt, L^g is the net credit given by the central bank of the government, and E is the nominal exchange rate.

First, we need to ensure the consolidation of the governmental balance and of the central bank balance, in order to obtain a more complete definition of the public sector and a better measure of the expenditure and revenue of the public sector. Adding and deducting the amount $E \cdot \Delta R^*$ in the right side of the previous equation, which is the variation of the official reserves of the central bank (measured in the national currency), we obtain:

$$D + i \cdot B_{-1} + i^* \cdot B_{-1}^{*g} = \Delta B + E \cdot (\Delta B^{*g} - \Delta R^*) + (\Delta L^g + E \cdot \Delta R^*)$$

We will presume that the central bank gives credits only to the government. Its balance will be given by:

Assets	Liabilities	
L^g	C_U	M
$E \cdot R^*$	RR	
	NW^{cb}	

where C_U is the volume of currency in circulation, RR are the compulsory reserves kept by the commercial banks at the central bank, according to their liabilities in the form of deposits, and NW^{cb} are the profits or the net value accumulated by the central bank¹⁰.

¹⁰We will consider, in order to simplify the reasoning, that the minimal compulsory reserves don't bear interest (rigorously speaking, because the rate of the minimal compulsory reserve is an instrument of monetary policy, which allows the central bank to control the offer of currency in the economy, these reserves shouldn't even bear interest).

The *monetary basis*, M , is defined as the sum of the volume of currency in circulation and of the compulsory reserves kept by the commercial banks at the central bank:

$$M = C_U + RR$$

Therefore, the variation of the monetary basis, ΔM , is the variation of the credit for the government, ΔL^g , plus the variation of the official reserves, $E \cdot \Delta R^*$, minus the variation of the net value of the central bank, ΔNW^{cb} :

$$\Delta M = \Delta L^g + E \cdot \Delta R^* - \Delta NW^{cb}$$

It results that the net profit of the central bank is given by the interests cashed for the official reserves, $i^* \cdot E \cdot R_{-1}^*$. They are the source of increase for the net value of the central bank:

$$i^* \cdot E \cdot R_{-1}^* = \Delta NW^{cb}$$

Deducting the profit of the central bank, $i^* \cdot E \cdot R_{-1}^*$, from the fiscal deficit, and the increase for the net value of the central bank, ΔNW^{cb} , from the increase of the liabilities of the public sector, and noting with $B^* = B^{*g} - R^*$ the net debt of the public sector, we obtain:

$$D + i \cdot B_{-1} + i^* \cdot E \cdot B_{-1}^* = \Delta B + E \cdot \Delta B^* + \Delta L^g + E \cdot \Delta R^* - \Delta NW^{cb},$$

$$\text{where } \Delta B^* = \Delta B^{*g} - \Delta R^*.$$

From the definition given above to the variation of the monetary basis it results: $\Delta M = \Delta L^g + E \cdot \Delta R^* - \Delta NW^{cb}$, which means that we have:

$$D + i \cdot B_{-1} + i^* \cdot E \cdot B_{-1}^* = \Delta B + E \cdot \Delta B^* + \Delta M$$

1.11. Empirical evaluations of the structural deficit, of the fiscal position and of the fiscal impulse. The case of Romania

1.11.1. Determination of the potential GDP

There are several methods used to determine the potential GDP. By potential GDP we understand the GDP that can be obtained under the conditions of the full use of the labour and capital resources¹¹.

f. The Cobb-Douglas method based on the production function¹²: $Y_t = A_t \cdot K_{t-1}^{1-\alpha} \cdot N_t^\alpha$, where: K is the stock of capital, N is the labour, A is the total productivity of the factors¹³, α is work elasticity in relation with the output;

g. The method based on the estimation of work productivity increase: it resembles to the method of the production functions, just that the production function includes only the work and work productivity: $Y_t = N_t^{1-\alpha} \cdot R_t^\alpha$, where R is work productivity;

h. Methods based of statistical filtration: centred mobile averages, band filters, the Hodrick-Prescott filter, the Kalman filter, which eliminate the cyclic fluctuations and extract the trend¹⁴;

i. The method of the simultaneous econometric equations;

j. The method of the multivariate time series (VAR: autoregressive and structural vector).

For the necessities of this study we will use the data calculated in the Program of Convergence of Romania for 2006-2009, where we can find directly the values for the structural budget deficit and for the actual (current) budget deficit, without doing our own calculations starting from the potential GDP.

¹¹The natural resources from the classical classification of the production factors are included in the capital.

¹²A version of this method is the CBO (Congressional Budget Office) method used in the USA.

¹³The total productivity of the factors measures the influence of the technology (of the technical progress).

¹⁴The methods of statistical filtration don't actually calculate a potential GDP, rather a trend of the GDP, which is assimilated by convention with the potential GDP.

1.11.2. Determination of the fiscal position

We organise the data as shown in Table no.1:

Table no.1

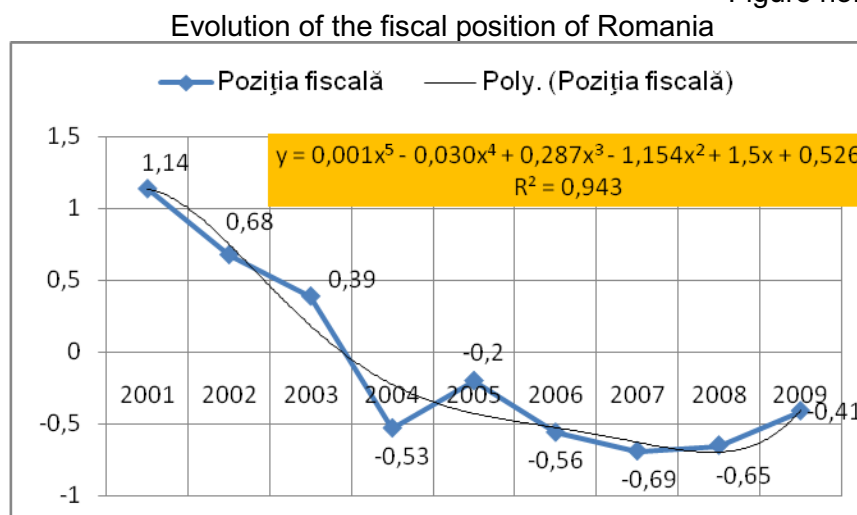
Fiscal position of Romania

% within the GDP

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Structural deficit	-2.36	-1.32	-1.11	-2.03	-1.70	-2.86	-3.39	-3.25	-2.41
Actual deficit	-3.5	-2.0	-1.5	-1.5	-1.5	-2.3	-2.7	-2.6	-2.0
Fiscal position	1.14	0.68	0.39	-0.53	-0.2	-0.56	-0.69	-0.65	-0.41

Figure 1 shows synoptically the evolution of the fiscal position of Romania:

Figure no.1



It can be seen that after 2004, the gap is permanently negative, which means that the actual budget balance account was larger, in absolute value, than the potential budget balance account. This yields the conclusion that the budget deficit has a high potential of unsustainability in the period 2004-2009.

1.11.3. Determination of the fiscal impulse

We organise the data as shown in Table no.2:

Table no.2

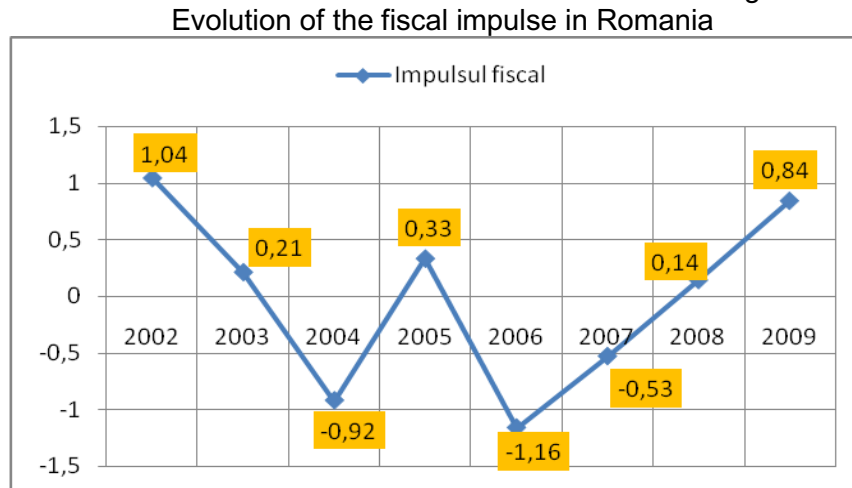
Fiscal impulse of Romania

% within the GDP

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Structural deficit	-2.36	-1.32	-1.11	-2.03	-1.70	-2.86	-3.39	-3.25	-2.41
Fiscal impulse	-	1.04	0.21	-0.92	0.33	-1.16	-0.53	0.14	0.84

Figure 2 shows synoptically the evolution of the fiscal impulse in Romania:

Figure no. 2



The increase of the fiscal impulse means the decrease of the structural budget deficit and vice versa. This means that in the period 2002-2004 and in 2006, there was a relaxation of the current budget

deficit (it could be increased without compromising sustainability), while in 2005 and in 2007-2009, there was reversed phenomenon: there was a tension which appeared in the fiscal sustainability, which prompted the reduction of the actual (current) budget deficit.

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