

Estimation of the Mechanisms for Automatic Fiscal Stabilization. The Romanian Case

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Abstract. *The set of fiscal rules within the Euro area are based on the functionality of the automatic stabilizers as a main instrument of the fiscal stabilization. This non-discretionary approach should guarantee that the evolution of the current budget deficit is anti-cyclic and thus it should contribute to the economic stability. According to the Convergence Program submitted to the European Commission, Romania proposes to access the Euro area in 2015. For this reason, the assessment of the automatic fiscal stabilization mechanism for the Romanian economy is essential, under the terms in which the adjustment mechanisms (possibly alternative) – at the markets' level are poor. This study makes an estimation for the extent of the automatic stabilizers for Romania, with the purpose of assessing the macroeconomic stabilizing role of the Romanian fiscal policy during the period 2000-2010, by using the official methods of the International Monetary Fund and of the European Commission.*

Keywords: fiscal policy; automatic stabilizers; rules versus discretion.

JEL Codes: E62, H61.

REL Codes: 8K, 8M.

Introduction

Since the foundation of the European Economic and Monetary Union, estimates have been made with reference to the fact that the fiscal health is an essential condition for the stability of the monetary union. The fiscal policy influences the assignment of resources between the public and private sectors, thus affecting the consumption, saving or investment behaviour, and, indirectly, the output level and the evolution of the economic cycles. In other words, within the Euro area, the national macroeconomic stabilization is the full responsibility of the fiscal policy. Thus, the fiscal policy should take the role of macroeconomic adjustment instrument role, given the absence of the national monetary policy or the rigidity conditions of the other instruments (the rigidity of the labour market, of wages and of prices, the low synchronization of the business cycles). Giving up the instrument of exchange rate within EMU involved the assignment of higher role of the national fiscal stabilizers in order to help economies in adjusting to the asymmetric shocks.

Within the Euro area, the Stability and Growth Pact pretended to be a modality to support and induce the fiscal discipline. But its rules do not provide enough stability to deal with the cyclic crises. Moreover, it cannot replace the coordination of the economic policies. Also, SGP omits their structure and causes, under the terms in which it refers to the limits of the deficits only. The previously mentioned arguments suggest the necessity to settle limits for the level of the public debt. The entire set of fiscal rules within the European Monetary Union (EMU) is based on the functionality of the automatic stabilizers. This study estimates the extent of the automatic stabilizers for Romania, with the purpose of assessing the macroeconomic stabilizing role of the Romanian fiscal policy during the period 2000-2010. According to the Convergence Program submitted to the European Commission, Romania proposes to access the Euro area in 2015. For this reason, the assessment of the automatic fiscal stabilization mechanism of the Romanian economy is essential, under the terms in which the adjustment mechanisms (possibly alternative) at the markets' level are poor.

“Fiscal policy can play an important role to help stabilize the economy during cyclical swings. Discretionary policy, however, typically involves implementation lags and is not automatically reversed when economic conditions change. In contrast, automatic fiscal stabilizers ensure a prompt, and self-correcting fiscal response. A simple rule of thumb applies: the larger

government is, the larger are the automatic stabilizers. Government size is determined by several factors, however, typically unrelated to stabilization goals, and increasing it beyond a certain level may have efficiency costs” (Baunsgaard, Symansky, 2009).

Buti et al. (2003) show that „It is often claimed that tax and welfare reforms that aim at enhancing efficiency may come at the cost of cyclical stabilisation. Reducing the generosity of welfare systems and lowering taxes may boost efficiency and output, and improve market adjustment to shocks. But, by reducing the size of automatic stabilisers, it may also imply less cyclical smoothing. This would be unwelcome in EMU given the loss of national monetary autonomy and the well-known pitfalls of active fiscal management. This paper argues that the alleged trade-off between efficiency/flexibility and stabilisation may not exist. We show that, if the initial level of the tax burden is high, reducing it may lead to higher output stabilisation in the event of a supply shock and higher inflation stabilisation in the event of a demand shock. Simulations show that European countries – especially small ones – might have a tax burden close to or even higher than the threshold level”.

Fedelino et al. (2009) consider that the activity of estimating the magnitude of fiscal stabilizers is an important issue. We can show what is the proportion of a estimated fiscal expansion that will come from the action of automatic stabilizers and what is come from discretionary measures.

Blanchard (2000) consider that “the automatic stabilizers widen the budget deficit when the output gap increases, and vice versa for a decrease in the output gap. This provides an appropriate fiscal response when the output gap is caused by demand shocks. However, if the economy is hit by a supply shock, offsetting this by fiscal demand changes will have inflationary consequences. So, with a supply shock, the automatic stabilizers will slow down the convergence to the new potential GDP, hence requiring a fiscal adjustment” (Blanchard, 2000).

1. Why are good the strong automatic fiscal stabilizers

The rules of fiscal policy based on the functionality of the automatic stabilizers have some clear advantages. The conjuncture public revenues and expenses (en. state-contingent), such as the costs for the unemployment

assistance absorb the economic fluctuations without delays in obtaining information and in implementation. Moreover, the impact of the automatic stabilizers has a short duration, and if they have a symmetrical functionality during the economic cycle, they do not contribute to the degradation of the structural budget position.

„The automatic stabilizers represent natural means to reduce the variations in the economic activity. Nevertheless, taking into consideration the fact that some countries, especially the small ones, may encounter an adverse monetary position, at the national level an active fiscal policy continues to be necessary. Considering arguments such as the synchronization, irreversibility and models uncertainty issues, the use of fiscal policy discretionary measures for stabilization purpose should be limited to exception cases: pronounced recessions, high risk of economic overheating or inflation acceleration” (Altar, 2009).

„With large fiscal stabilizers, implementation is timely and gradual as tax and expenditure react in a countercyclical manner to changing economic conditions. From a fiscal sustainability perspective, automaticity also provides a timely reversal of any fiscal expansion – the fiscal loosening in bad times is automatically followed by a tightening in good times. This may enhance the impact of a fiscal expansion on demand with respect to discretionary action, as the latter may raise solvency concerns and affect interest rates. On the other hand, this is not only in advanced countries but also in low-income and emerging market countries, here empirical evidence points to the prevalence of procyclical fiscal policies. In those countries, procyclicality reflects a bias in discretionary fiscal policy, enhancing the automatic stabilizers would provide some countercyclical pushback” (Baunsgaard, Symansky, 2009).

2. The estimation of the automatic fiscal stabilizers in Romania

The cyclic budget component has been estimated by means of two methods: (a) the aggregate method proposed by the International Monetary Fund in Technical Notes and Manuals, International Monetary Fund, Fiscal Affairs Department; (b) the disaggregate method proposed by the European Commission (the OECD methodology).

According to both methods, the overall fiscal balance may be decomposed as follows (Fedelino et al, 2009):

$$OB = CPB + CAPB \quad (1)$$

where:

CAPB = the cyclically adjusted primary balance and

CPB = the cyclical primary balance.

So, the changes in the *OB* can be decomposed into: (1) the automatic response of fiscal variables to changes in output; (2) the response of fiscal variables to changes in discretionary policy

$$\Delta OB = \Delta CPB + \Delta CAPB \quad (2)$$

$$\Delta AS = \Delta CPB = \Delta OB - \Delta CAPB, \quad (3)$$

where:

AS = automatic stabilizers.

Automatic stabilizers are one of the factors that explains changes in overall balances (ΔOB). Their name derives from the fact that they both help “stabilize” the business cycle and are “automatically” triggered by the tax code and by spending rules. For example, taxes that are a function of income react automatically to the cycle – with lower growth and correspondingly lower business profits or pre-tax household income, the government’s tax take will be lower while disposable income and, hence, consumption will decline by less than pre-tax income, helping ease the impacts of a slowdown. Similarly, some spending programs also react automatically to the cycle, such as unemployment benefits or other social transfers, which are designed to kick in when economic conditions deteriorate (Fedelino et al., 2009).

The difference between the two methods – the aggregate and the disaggregate methods – consists in the modality in which the cyclic budget component is estimated. Thus, according to the aggregate method proposed by the International Monetary Fund, the cyclic component is estimated as residual budget component, after which, the structural budget component is previously estimated. The disaggregate method proposed by the European Commission considers the structural budget component as a residual component, and this time the focus is on a more detailed method for the estimation of the cyclic budget component, as it is presented below.

The aggregate method. The change in the cyclically adjusted primary balance can be derived from cyclically adjusted revenue and expenditure. In particular, the cyclically adjusted component of revenue RCA is defined as:

$$R^{CA} = R \left(\frac{Y^p}{Y} \right)^{\varepsilon_R}$$

$$gap = \left(\frac{Y - Y^p}{Y^p} \right)$$

Where:

R is nominal primary revenue, Y^p is potential output (that is, the maximum output compatible, at any given time, with the absence of unexpected inflation), Y is actual output and ε_R is elasticity of revenue with respect to the output gap.

The potential GDP and the output gap have been estimated by means of the method recommended by the European Commission – the production function method. For the estimation of the potential GDP by means of the production function method, quarterly values related to the period 2000-2010 have been used. The main advantage for the estimation made by using this method is that the part of the economy's aggregate offer may also be reflected. In the case of the real GDP, we have used quarterly data in an SDDS format (Special Data Dissemination Standard), expressed in millions of RON, 2000 average prices for the period 2000-2010 and published by the National Institute of Statistics (INS). The seasonal adjustment of the data has been performed by using the DEMETRA program (Annex 1).

On the other hand, cyclically adjusted primary expenditure is similarly defined as:

$$G^{CA} = G \left(\frac{Y^p}{Y} \right)^{\varepsilon_G}$$

Where:

G is nominal primary expenditure and ε_G is the elasticity of expenditure with respect to the output gap. Then the cyclically adjusted primary balance is:

$$CAPB = R \left(\frac{Y^p}{Y} \right)^{\varepsilon_R} - G \left(\frac{Y^p}{Y} \right)^{\varepsilon_G}$$

And the cyclical primary balance is

$$CPB = OB - CAPB$$

An essential aspect is related to the structural budget component indicator. That is the reason why, according to the IMF method, the cyclic component, as we have previously mentioned, is calculated in the same way as the residual component: the structural component is eliminated from the total budget balance.

Thus, considering the accuracy of the economic theory, the structural budget component should be related to the potential GDP indicator. This happens, mainly, because, economically, it represents the budget deficit recorded at the level of the potential GDP.

Moreover, the initial official methods (Hagemman, 1999, Girouard et al., 2005) estimate the structural balance indicator at the level of the potential GDP. Especially for largely public understanding reasons, the European Commission estimates the structural balance related to the current GDP (as it can be noticed in Annex 2, the differences may be significant). Thus, so as the results could be comparable, the structural budget balance has been related to the current GDP indicator in both variants.

The disaggregate method. The budget cyclical component is determined according to the sensitivity of the budget deficit in case of economic fluctuations. Actually, the sensitivity of the budget deficit according to the cyclical evolution of the economy represents the variation in percents of the budget balance to the modification by one percent of the output gap. The structural component of the budget is obtained by subtracting the cyclical component from the component of the current budget balance, according to the following formula:

$$CAB_t = B_t - B_t^C = B_t - \sum_j B_{t,j}^C$$

where:

CAB_t = structural budget components (the cyclically adjusted component);

B_t = current budget balance;

B_t^C = cyclical budget components on categories of incomes and expenses.

The formula used to calculate the cyclical component is as it follows:

$$DC_{t,j}^C = B_{t,j} \times \alpha_j^{PIB} \times gap_t$$

The cyclical component of each category of incomes and expenses (CAB) is calculated by using the output gap and the elasticity estimated for the gross domestic product (α_j^{PIB}). The sensitivity of the budget deficit to the modification made in the gross domestic product (PIB); ϕ , actually, is the first derivative of the current budget balance (B_t) related to the gross domestic product and it is calculated as the difference between the sensitivity of the budget incomes (ϕ_v) and the sensitivity of the budget expenses (ϕ_G) to the variation of the domestic output:

$$\phi = \phi_v - \phi_G.$$

where:

$$\phi_v = \alpha_v \times \text{the share of the incomes in the gross domestic product}$$

where:

$$\phi_G = \alpha_G \times \text{the share of expenses in the gross domestic product}$$

The total elasticity of the budget incomes is obtained as an aggregate sum between the elasticities of the three categories of taxes (the direct taxes, the indirect taxes and the social contributions), balanced with their share in the total of the budget incomes.

Moreover, the total elasticity of expenses is obtained as a result of balancing the category of expenses taken into consideration with their share in the total of the budget expenses. By means of Granger causality tests, measurements have been made for the causality relations between the above-mentioned categories of budget incomes and expenses and the gross domestic

product. In order to estimate the elasticity of the budget incomes and expenses related to the gross domestic product (GDP), the cointegration procedure has been used (Annex 3). The results obtained for the cyclic budget component on the basis of the two methods are presented in Annex 4.

Conclusions

Firstly, the results obtained by means of the two methods are quite similar (Annex 4). In both cases, the results obtained for Romania show an improvement of the fiscal automatic stabilizers' extent, around the value of 0.40. This fact is also indirectly confirmed by the decrease of the discretionarism's degree in Romania, in other words, the improvement of the structural budget balance related to the level of the current GDP. Their level is lower if compared to the level considered in the case of the Euro area countries (0.5) (Bouthevillain et al., 2001), and this shows a lower efficiency of the automatic stabilizers' action in Romania in comparison with the Euro area countries. Nevertheless, we may say that their efficiency increased in comparison with the period 2000-2007, when the value estimated according to a fiscal reaction function proposed by Fatas and Mihov was of 0.35 only (Socol, 2009). Nevertheless, two aspects should be outlined. Firstly, the results of the estimations should be cautiously interpreted, as inflection points may occur in the differently used methods. For example, both methods use the output gap indicator (however, the potential GDP may be estimated based on different methods, thus obtaining different results; the elasticities of revenues and expenses may be estimated by means of the cointegration method, and also OECD proposes a method for their estimation, etc.) Secondly, we think that what is the most important for the economic, and especially social welfare, refers to the mechanisms for the transmission of the fiscal automatic stabilizers towards variables such as output, inflation, etc. rather than their value which, as a matter of fact, may also be interpretable. These aspects will be studied in a future study.

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Annex 1

According to the methodology described by Denis et al (2006), the Cobb-Douglas production function presents the gross domestic product as a combination between 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:

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

Years	Output gap
2000	-1.55
2001	-0.57
2002	-0.60
2003	-0.91
2004	0.86
2005	2.60
2006	6.05
2007	8.81
2008	9.13
2009	-1.92
2010	-4.00

Source: Author's calculations.

Annex 2

The cyclic budget deficit and the structural budget deficit in Romania

Table 1

Years	Output gap	Structural budget deficit (% GDP)	Structural budget deficit (% potential GDP)
2000	-1.55	-3.86	-3.43
2001	-0.57	-3.22	-4.06
2002	-0.60	-2.56	-3.89
2003	-0.91	-2.14	-3.78
2004	0.86	-1.09	-2.96
2005	2.60	-2.70	-1.42
2006	6.05	-4.36	-4.91
2007	8.81	-5.16	-6.13
2008	9.13	-8.57	-7.06
2009	-1.92	-8.26	-9.11
2010	-4.00	-6.53	-8.26

Source: Author's calculations.

Annex 3

The elasticities have been estimated by means of the Johansen co-integration method. According to the obtained co-integration coefficients, the long-term relations between the budget categories and the GDP have been deduced:

$$\ln(\text{taxdir}) = 1.51 \times \ln(\text{GDP}) - 7.96$$

$$\ln(\text{taxind}) = 1.11 \times \ln(\text{GDP}_{-1}) - 3.24$$

$$\ln(\text{contributions}) = 0.98 \times \ln(\text{GDP}) - 2.10$$

$$\ln(\text{che}) = -0.13 \times \ln(\text{GDP}) + 3.14$$

Annex 4

Years	Cyclic comp. method I	Cyclic comp. method II
2000 Q1	-0.172762814	-0.165628144
2000 Q2	-0.315440598	-0.112440599
2000 Q3	-0.688750479	-0.289750479
2000 Q4	-0.557238183	-0.317238183
2001 Q1	0.006812753	0.016812753
2001 Q2	-0.309759097	-0.909759097
2001 Q3	-0.048605298	-0.032605298
2001 Q4	-0.269053895	-0.276053895
2002 Q1	-0.255828014	-0.278828014
2002 Q2	0.057568848	0.085688476
2002 Q3	-0.303701906	-0.413701906
2002 Q4	-0.136447265	-0.736447265
2003 Q1	-0.146838721	-0.176830021
2003 Q2	-0.236395123	-0.212395123
2003 Q3	-0.241773786	-0.291993786
2003 Q4	-0.343882362	-0.443082362
2004 Q1	-0.130843163	-0.190843163
2004 Q2	0.064766317	0.074766317
2004 Q3	0.556285841	0.580285841
2004 Q4	0.412550337	0.312550337
2005 Q1	-0.02078931	-0.02088931
2005 Q2	-0.195439874	-0.185439874
2005 Q3	-0.293207274	-0.593207274
2005 Q4	-0.117773418	-0.217773418
2006 Q1	0.212612638	0.412612638
2006 Q2	0.227020844	0.226020844
2006 Q3	0.164005247	0.100005247
2006 Q4	0.561912256	0.661912256
2007 Q1	0.574645495	0.174645495
2007 Q2	0.57739359	0.49739359
2007 Q3	0.587500525	0.387500525
2007 Q4	1.404408497	1.604708497
2008 Q1	2.036642983	1.936642983
2008 Q2	2.357852867	2.857852867
2008 Q3	2.197433672	1.197433672
2008 Q4	1.39059687	0.79059687
2009 Q1	-0.166593973	-0.166593973
2009 Q2	-0.571386604	-0.571386604
2009 Q3	-0.495276168	-0.495276168
2009 Q4	-0.893274257	-0.851574257
2010 Q1	-0.845551741	-0.645551741

Source: Author's calculations.