

Fiscal discipline and economic growth – the case of Romania

Ionut Dumitru¹

Razvan Stanca

Abstract

The fiscal and budgetary policy should play a key role to alleviate the impact of the business cycle on the real economy. Procyclical fiscal policy is particularly undesirable in developing countries, as it not only exacerbates the business cycle, but also the high output volatility hurts the poorest people with low safety net. This paper assesses the structural budget deficit in Romania during 2000-2009 and evaluates the role of the fiscal policy during the business cycle. The paper concludes that the fiscal policy in Romania was highly procyclical, exacerbating the economic cycle. In order to escape from this procyclicality, Romania needs deep structural reforms in order to restore the sustainability of the public finances and put Romania on a sustainable growth path.

JEL Classification: E61, H3, H6

Keywords: structural budget balance, procyclicality of fiscal policy, fiscal discipline

¹ Lecturer at the Academy of Economic Studies Bucharest, mail ionut.dumitru@fin.ase.ro

I. Dumitru gratefully acknowledges financial support from research project IDEI code 2640/2008" The assessment of the prospect of euro adoption by Romania and the other New Member States. An interdisciplinary approach based on a multi-criteria analysis with non-additive measures."

1. How to conduct the fiscal policy during the business cycle?

Fiscal and budgetary policy is one of the main instruments the government uses to influence the economy through changes in taxation and spending. Through fiscal and budgetary policy the authorities can control the macroeconomic variables such as aggregate demand, disposable income, and eventually economic activity as a whole. Moreover, the governments can use the fiscal and budgetary policy to deal with some possible market anomalies and to reach redistributive targets. In this classical approach of the role of a government, fiscal and budgetary policy plays a key role to alleviate the impact of the business cycle on the real economy.

In the **Keynesian approach**, the government should adopt discretionary fiscal-budgetary decisions to counterbalance demand shocks and stabilize employment. This is more stringent in the case when automatic stabilizers are too weak and not enough to stabilize the economy and the discretionary role of the fiscal policy should be more active. This is particularly the case in emerging market economies with high tax evasion and underground economy, lack or low unemployment benefits, and weak government institutions. On top of this, if the monetary policy has some exchange rate and/or balance-of-payments constraints and consequently it cannot be countercyclical, the discretionary fiscal policy should be very active.

In the **neoclassical approach**, fiscal policy should remain neutral over the business cycle as discretionary fiscal decisions are considered to be quite ineffective. In the Ricardian equivalence theory, the fiscal measures have small impact on aggregate demand because they are offset by increases in private savings. If the Ricardian equivalence holds, the discretionary fiscal policies should be avoided and the government should rely only on automatic stabilizers. However, the Ricardian Equivalency relies on some assumptions which are not valid especially in the case of emerging economies. Moreover, the empirical evidence is not so supportive for the Ricardian equivalence.

Procyclical fiscal policy is particularly undesirable in developing countries, as it not only exacerbates the business cycle, but the high output volatility hurts the poorest people with low safety net. In addition, high output volatility increase macroeconomic uncertainty with negative effects on long-term growth through less incentives for capital accumulation (Serven, 1998) and squeezed resources for productive activities (Montiel, 2003).

Nevertheless, there are two main caveats to the desirability of countercyclical fiscal policy, valid especially in the case of developing markets, but also in some extent in developed markets. One is related to the need to signal credibility of policies and preserve the sustainability of public finances

and the current account (IMF, 2005) in bad times, which means that a fiscal adjustment in bad times (procyclical fiscal policy) could be unavoidable. The second one is related to a possible too low fiscal multiplier (Iletzki et al., 2009), even if a countercyclical fiscal policy is possible.

2. Empirical evidence of procyclicality and deficit bias in developing markets

Even though a countercyclical fiscal policy is highly recommended from the theoretical point of view, the empirical evidence points to an extensive use of procyclical fiscal policy in both developed and developing countries. There is a general temptation to adopt a procyclical fiscal policy in good times as there is a considerable political pressure for the governments to distribute the increasing budget revenues (although some of them are just temporary) to their political constituencies and interest groups rather than creating budgetary reserves for future countercyclical spending needed in bad times (Kumar and Ter-Minassian 2007). Moreover, a procyclical fiscal policy in good times fuels public debt accumulation as budget deficits from downturns are not offset by surpluses during upturns. The empirical evidence in both developing and developed economies shows that fiscal policy has been quite frequently procyclical, especially during upturns, as there is a deficit bias in all countries, irrespective if it is a developed or developing country.

Some political and financial factors have been found in the literature to largely explain the procyclicality of the fiscal policy:

- lags in the formulation and implementation of policy;
- difficulties in assessing the business cycle position;
- borrowing constraints and limited access to international capital markets in developing economies making pro-cyclical fiscal policy unavoidable during downturns;
- “common pool” problems, especially valid in the case of local governments; there is a moral hazard spending behavior of local governments reflecting implicit or explicit bailout insurance by the central government;
- “free rider” behavior of local governments taking advantage of funding conditions of the country as a whole, but breaking the fiscal rules of the central government;
- heavy spending pressures during good times;
- time inconsistency problems of policies agreed *ex-ante* but not adhered *ex-post*.

There is a fundamental difference in the literature between the assessment of the fiscal policy performed in developed countries and

developing countries. While fiscal policies in developed countries is usually acyclical or countercyclical, fiscal policies in developing countries is rather procyclical (Hausmann and Stein [1996], Gavin and Hausmann [1998], Talvi and Végh [2000], Lane [2003], Kaminsky, Reinhart, and Végh [2004], Gavin and Perotti [1997], Talvi and Vegh [2005], Ilzetzki and Vegh [2008]). Procyclical fiscal policies in developing countries are usually the result of cutting taxes and increasing expenditures during upturns, while being forced to implement restrictive policies during downturns when local and external financing constraints become evident.

It has been argued in the literature that the capacity of developing countries to adopt countercyclical fiscal policies is hindered by some factors, which can be classified in two categories.

The first category includes some factors related to the access to local and international financial markets. In the case when the access to domestic or external funding is limited, the capacity of the governments to pursue countercyclical fiscal policies in bad times is restricted (Gavin, Hausmann, Perotti and Talvi [1996], Caballero and Krishnamurthy [2004], Riascos and Végh [2004], Tytell and Wei [2004]). Gavin, Hausman, Perotti and Talvi (1996) suggest that the failure of developing countries to access international capital markets or even domestic financial markets in the case of adverse shocks led to a procyclical response of the fiscal policy. Therefore, developing countries cannot borrow simply resources in downturns and so have to cut spending. At the same time, the governments can borrow more easily to increase public spending during upturns (Catao and Sutton, 2002).

Moreover, there is strong empirical evidence that capital inflows to developing countries are procyclical (Kaminsky, Reinhart and Végh, 2004; Alesina and Tabellini, 2005), leading to procyclical fiscal policies.

Another factor in this first category is related to the relatively low financial depth in developing countries, in contrast with developed markets, which could lead also to procyclical fiscal policies in developing countries (Caballero and Krishnamurthy [2004]). When the country faces a financing constraint due to a low financial depth, higher government spending may crowd out private investment and, hence, may be contractionary for the economic activity. Caballero and Krishnamurthy find that fiscal policy is more procyclical in developing countries than in developed countries and the crowding-out effect of public spending on private investment is substantially larger in developing countries. Consequently, a countercyclical fiscal policy is constrained by a limited financial depth.

The second category of factors explaining procyclical fiscal policy in developing markets is associated to theories where the institutional framework plays a key role. Developing countries pursuing poor fiscal policies also have usually weak institutions, lack of enforcement of property rights for investors,

widespread corruption, repudiation of contracts, and the prevalence of political institutions that do not constrain their politicians (Acemoglu, Johnson, Robinson and Thaicharoen, 2003). Also, there are political economy explanations based on “common pool” problems and fragmented policymaking (Velasco, 1998; Tornell and Lane, 1999; Perotti, 2000, Stein et al., 1999; Braun, 2001; Talvi and Végh, 2005).

Tornell and Lane (1999) examine the fiscal process when powerful groups of interest interplay in a society with weak legal and political infrastructure. In their model, in the event of positive temporary shocks to income (such as favorable terms of trade shocks), public spending can grow more than proportionally (“*voracity effect*”). All power blocs compete for a share in fiscal revenue and they do not want to reduce their appropriation rate during upturns. Hence, the government would allow groups to even increase their appropriation rate by a larger amount and over-spend instead of saving the income windfall by running a budget surplus.

Procyclicality of the fiscal policy seems also to be more evident in more corrupt democracies. As voters observe the state of the economy during a boom they ask for more government spending and/or lower taxation, inducing a procyclical bias in fiscal policy (Alesina, Campante and Tabellini [2008]). The pressure to direct public resources to its political supporters induces governments to spend all available resources including borrowed resources during upturns, making fiscal policy both procyclical and deficit-biased (Ilzetzki, 2009).

However, developing countries with institutional quality beyond certain threshold levels may be able to follow counter-cyclical fiscal policies (Calderón, Duncan, and Schmidt-Hebbel, 2004).

Weak fiscal discipline, especially in developing markets has complicated monetary and exchange rate policies. If the budget deficit is monetized, inflation and inflationary expectations will increase, leading to a weakened investor confidence, capital outflows and depreciation of the exchange rate, lower investment and economic growth, and eventually further deterioration of the public finance position. Alternatively, a tightening of the monetary policy intended to offset the lack of fiscal discipline will lead to higher interest rates, appreciation of the exchange rate and increasing current account deficit, crowding out of private investment, and negative impact on investment and economic growth, also adversely affecting the fiscal position (Mohanty 2003).

3. Structural budget deficit – utilization and estimation methods

The cyclically-adjusted budget balance (structural budget deficit) is one of the key indicators for the analysis and conduct of fiscal policy. The structural budget deficit measures the underlying budget balance, meaning the fiscal position net of cyclical factors. The structural budget deficit is used in the analysis and conduct of fiscal policy for the following purposes:

- to separate the contribution of discretionary fiscal policy from the effect of the economic developments during the business cycle;
- to assess the fiscal impulse. The annual change of the structural budget deficit became a common measure of the impact of discretionary fiscal policy on the budget and on aggregate demand.
- to assess the sustainability of the fiscal policy.

The first attempt to estimate the structural budget deficit from goes back to the 1950s. Brown (1956) was among the first to calculate the full employment surplus, the predecessor of the structural budget deficit, which measured the level of the budget balance if the economy was operating at full employment. Thanks to the progress in statistics and computing technology, in 1970s a wide range of methods have been introduced to extract the temporary and permanent components from macroeconomic variables.

Basically, the estimation of the structural budget deficit is based on two alternative approaches.

The first approach, developed by Blanchard (1990), is based on the estimation of the cyclically adjusted measures of expenditures and revenues directly from regression-based analysis. More recently, there were used SVAR (structural VAR) methodologies (Dalsgaard and de Serres, 1999) and models based on unobserved component methods (Camba-Mendez and Lamo, 2002).

The second approach for estimating the structural budget deficit is based on a two-stage methodology: in the first step a cyclical component of the budget balance is estimated and in the second step this is subtracted from the headline budget deficit to obtain the structural budget deficit (or cyclically adjusted deficit). This two steps approach is generally used by governments and international institutions, including the European Commission, the OECD, the IMF and the ECB.

To obtain the cyclical component of the budget balance, we need two things, namely a measure of the cyclical position of the economy and a measure of the link between the cycle and the components of the budget. The cyclical position is usually measured by the output gap, meaning the difference between the actual and potential output. The link between the economic cycle and the

budget balance is reflected by some elasticities showing the percentage change in budgetary component associated with percentage changes in the level of economic activity. Such elasticities are generally obtained from regression analysis.

4. The structural budget deficit and the business cycle in Romania

We estimated the structural budget deficit for Romania based on the European Commission methodology.

In the framework of the EU budgetary surveillance (see Larch and Turrini, 2009) the cyclically-adjusted budget balance (CAB) is derived as:

$$CAB_t = BB_t - \alpha OG_t = BB_t - \alpha OG_t$$

where BB_t is the nominal budget balance-to-GDP ratio in year t , α the budgetary sensitivity parameter and the OG_t output gap in year t .

The output gap is the difference between the actual and potential GDP. To derive the potential GDP, we can use statistical methods based on data filtering (Hodrick-Prescott filter, Kalman filter, Band-pass filter, Wavelet transformation) or production function-based methods.

Although the use of a production function method would be desirable as it allows to decompose the contribution on production factors to the potential GDP, the alternative approach based on statistical data filtering is very often used due to data quality problems or data availability. Starting July 2002 the ECOFIN Council officially adopted a production function approach as a reference method to estimate the potential GDP for EU countries in the budgetary surveillance process.

The production function methodology used by the ECOFIN Council is based on the use of a Cobb-Douglas production function, NAIRU and total factor productivity (TFP) estimation (see more details in Denis, Mc Morrow and Roeger, 2002). NAIRU estimation is based upon multivariate Kalman filtering, the cyclical component following a Phillips curve type relationship, and NAIRU a random walk with stochastic drift term. The total factor productivity (TFP) of potential output is obtained from the Solow residual which is filtered with a Hodrick-Prescott filter. The Hodrick-Prescott filter is used also to estimate the non-cyclical rate of labour force participation.

The elasticity parameter α is derived by aggregating the elasticities of individual budgetary elements estimated through the methodology developed by the OECD (see more details in Girouard, N. and C. André, 2005).

The individual revenue elasticities, $\beta_{R,t}$, are aggregated to an overall revenue elasticity, β_R , using the share of each in the total current taxes ($\frac{R_i}{R}$) as weight (the weights are computed by the Commission services as an average over recent years):

$$\beta_R = \sum_{i=1}^4 \beta_{R,i} \frac{R_i}{R}$$

The expenditure elasticity, β_E , is derived as

$$\beta_E = \beta_{E,U} \frac{E_U}{E}$$

where $\beta_{E,U}$ is the elasticity of unemployment-related expenditures, (estimated on the basis of the agreed OECD methodology), and $\frac{E_U}{E}$ is the share of unemployment related expenditure in total current primary expenditure².

As budgetary variables are generally expressed in percent of GDP, the revenue and expenditure elasticities β_R and β_E (which measure the change in the level of a budgetary item with respect to the output gap) are transformed into sensitivity parameters as follows:

$$\alpha_R = \beta_R \frac{R}{GDP}, \alpha_E = \beta_E \frac{E}{GDP}$$

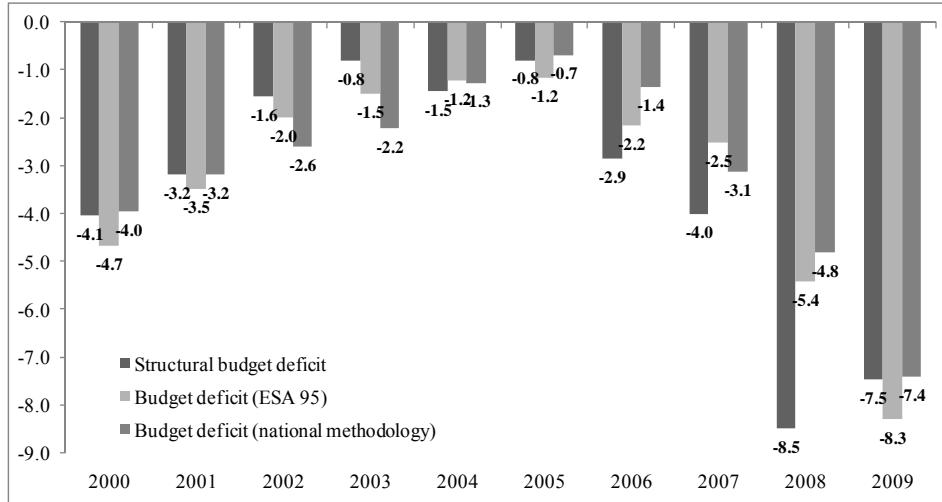
where R/GDP is the share of current taxes in GDP and E/GDP is the share of primary current expenditure on GDP.

The difference $\alpha_R - \alpha_E$ yields the sensitivity parameter of the overall budget balance α used in the equation defining the cyclically-adjusted budget balance (CAB).

Using the European Commission methodology, we computed the structural budget deficit for Romania in the period between 2000 and 2009 (figure 1). As we can see from the graph, Romania had a decreasing budget deficit until 2005. Starting with 2006, the budget deficit started to increase substantially (driven by the increase in expenditures – figure 2), towards 8.3% of GDP in 2009. At the same time, due to the high and positive output gap, the structural budget deficit was substantially higher than the effective deficit in 2006-2008.

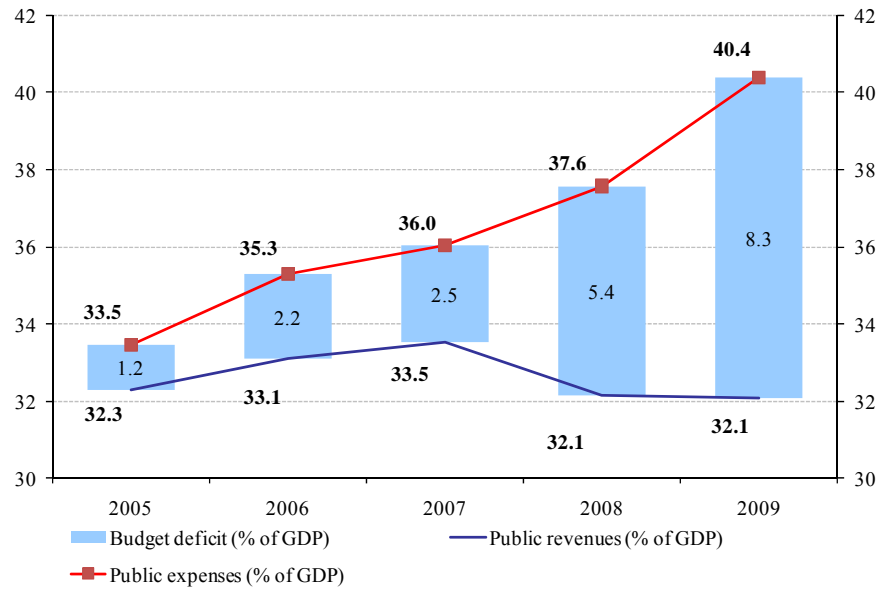
² The share is computed using OECD data or data from national source for non-OECD countries.

Figure 1 – Budget deficit and structural budget deficit in Romania (% of GDP)



Source: Ministry of Finance, authors own calculation

Figure 2 – Budget deficit in Romania (% of GDP)



Source: Ministry of Finance

When assessing the influence of the fiscal-budgetary policy on the economic growth we use the terminology such as a “tight fiscal stance/contractionary fiscal policy” or “stimulative fiscal stance/expansionary fiscal policy”. In this respect, the headline budget deficit is not the best measure of changes in fiscal policy, as the developments in the headline budget deficit reflect both changes in discretionary fiscal policy as well as the influence of the economy on budget revenues and government expenditures.

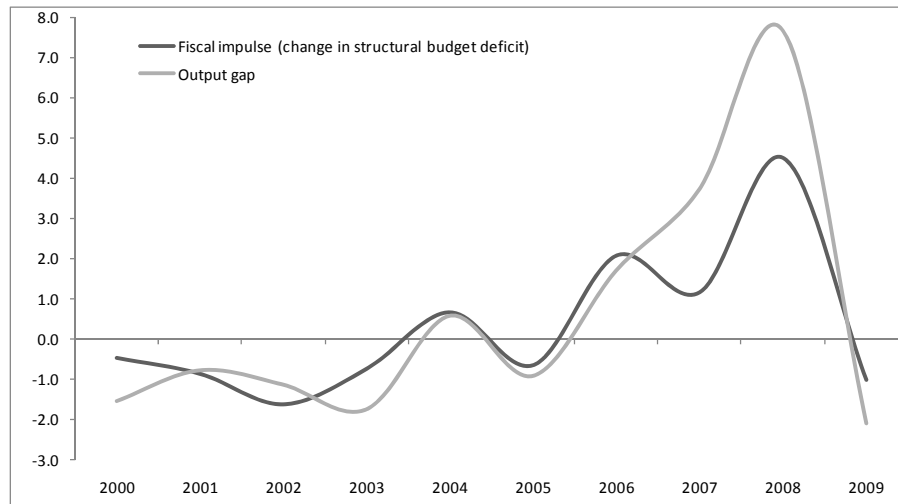
So, we need a measure which quantify if the influence of the fiscal policy are adding to, or subtracting from, aggregate demand pressures in the economy. In the literature this measure is defined as an indicator of **fiscal impulse**. Indicators of fiscal impulse can improve the interpretation of changes in fiscal policy. We are interested to focus on changes in discretionary policy that are likely to have an effect on aggregate demand. A focus on changes in discretionary policy implies the use of a structural fiscal balance that excludes cyclical influences.

We define the change in the structural fiscal balance as a measure of fiscal impulse. An increase/decrease in the structural budget deficit/surplus represents an expansionary fiscal impulse. Structural fiscal balance is one of the most common indicators of the effects of fiscal policy on economic activity, with increases in the structural deficit being considered as being expansionary, and decreases being considered as being contractionary (see Blanchard, 1993).

Changes in the headline budget deficit can give a misleading picture of the fiscal stance, especially in upturns, when a cyclical improvement of fiscal balance may mask a possible deterioration in the underlying position of public finances. This was the case in Romania starting with 2006, when the headline budget deficit was low, although the underlying fiscal position deteriorated substantially, as the structural budget deficit increased substantially.

In 2006-2008 the fiscal impulse (the change in the structural budget deficit) was positive, which together with a positive output gap created a highly procyclical fiscal policy, which exacerbated the economic boom and contributed to the overheating of the economy (figure 3). So, the fiscal policy in Romania failed to play its stabilization role during the business cycle.

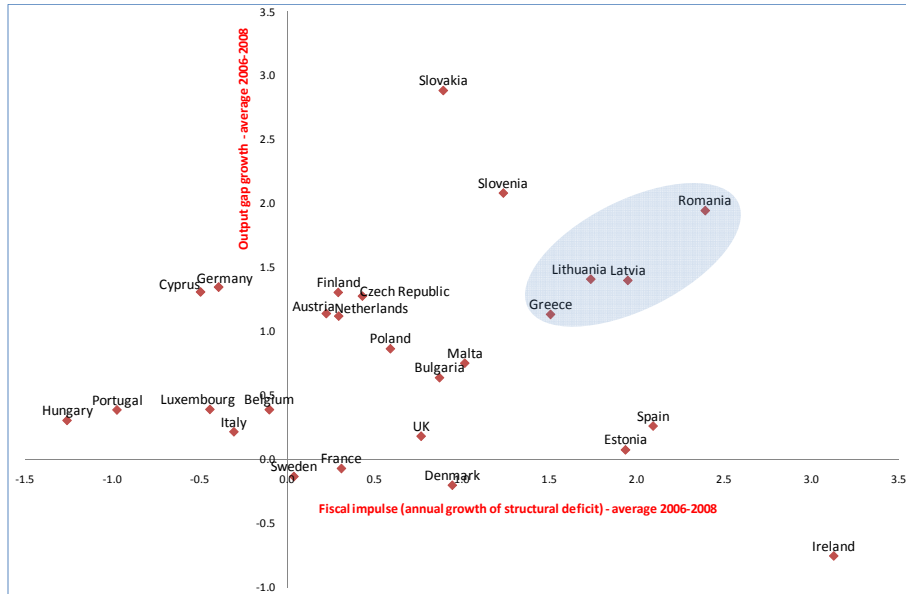
Figure 3 – Fiscal impulse and output gap in Romania (%)



Source: authors own calculation

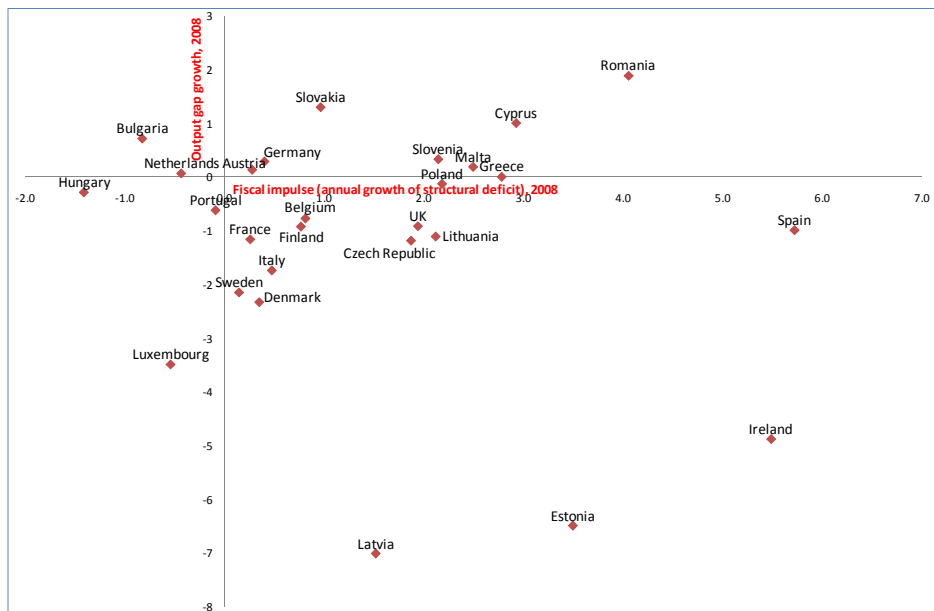
If we compare the change in the structural budget deficit and the change in output gap in 2006-2008 (figure 4) we can see that Romania had one of the most procyclical fiscal policies together with Greece, Lithuania and Latvia. In the pre-crisis period Romania had a very stimulative fiscal policy, with fast increase in structural budget deficit when the economy was booming with GDP above potential GDP. Even when the crisis already hit strongly the EU countries in 2008 Romania still had a procyclical fiscal policy (figure 5). Actually, according with the figure 3, Romania had always a procyclical fiscal policy since 2000, both in the upturns and in downturns.

Figure 4 – Fiscal impulse and output gap growth in EU27 countries in 2006-2008



Source: European Commission, authors own calculation

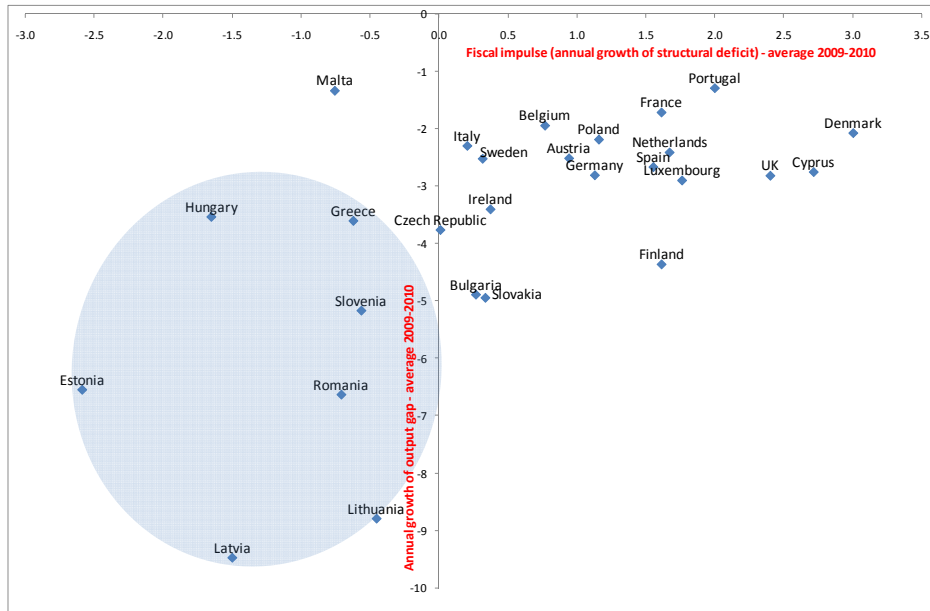
Figure 5 – Fiscal impulse and output gap growth in EU27 countries in 2008



Source: European Commission, authors own calculation

According with the official projections of the European Commission, Romania was projected to remain procyclical with its fiscal policy in 2009-2010 (2010). Actually, the countries which were procyclical in the pre-crisis period (in the upturn part of the business cycle), remain procyclical also in the downturn part of their business cycle when the crisis hit the economy (figure 6). This can be explained by the lack of the fiscal space needed to stimulate the economy through higher expenditures during the recession.

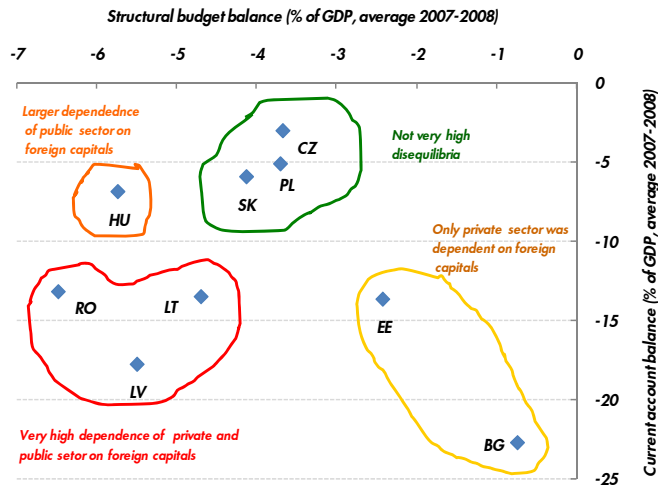
Figure 6 – Fiscal impulse and output gap growth in EU27 countries in 2009-2010



Source: European Commission, authors own calculation

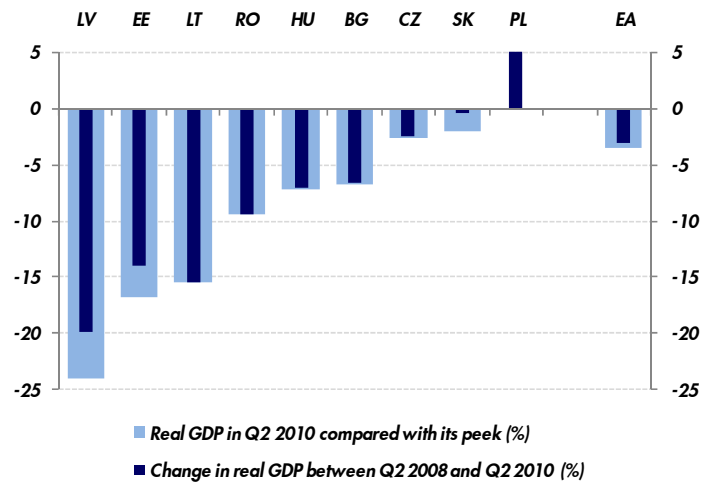
Economic activity plunged during the crisis in all countries which relied in a large extent on foreign capitals at the onset of crisis. Romania was one of the most vulnerable countries, as both the private and public sector were highly dependent on financing (figure 7). So, decline in real GDP was very large in Romania, real GDP contracting by -9.4% between 2008 Q2 and 2010 Q2 (figure 8).

Figure 7 – Structural budget deficit and current account deficit in CEE countries in 2007-2008



Source: European Commission, authors own calculation

Figure 8 – Real GDP developments in CEE countries



Source: EUROSTAT, authors own calculation

5. Conclusions

The fiscal and budgetary policy should play a key role to alleviate the impact of the business cycle on the real economy. Procyclical fiscal policy is particularly undesirable in developing countries, as it not only exacerbates the business cycle, but the high output volatility hurts the poorest people with low safety net. In addition, high output volatility increase macroeconomic uncertainty with negative effects on long-term growth through fewer incentives for capital accumulation and squeezed resources for productive activities.

In 2006-2008 the fiscal impulse was positive in Romania, which together with a positive output gap created a highly procyclical fiscal policy, which exacerbated the economic boom and contributed to the overheating of the economy. So, the fiscal policy in Romania failed to play its stabilization role during the business cycle. Actually, Romania had always a procyclical fiscal policy since 2000, both in the upturn and in downturn of the business cycle.

In order to reduce the structural budget deficit, Romania needs deep structural reforms in order to restore the sustainability of public finances and put Romania on a sustainable growth path.

References

- Alesina, A., F. Campante, and G. Tabellini. 2008. "Why is Fiscal Policy often Procyclical?" *Journal of the European Economic Association* 6 (5): 1006–1036.
- Balassone, F. and M. Kumar. 2007. "Cyclicality of Fiscal Policy." *Promoting Fiscal Discipline*. Washington, DC: International Monetary Fund.
- Blanchard, O. (1990) *Suggestions for a New Set of Fiscal Indicators*, OECD Economics Department Working Paper No. 79.
- Blanchard, Olivier (1993) "Suggestions for a new set of fiscal indicators." in H A A Verbon and F A A M van Winden eds *The political economy of government debt*. (North-Holland: Elsevier Science Publishers): 307-325.
- Borio, C. E. V., N. Kennedy and S. D. Prowse (1994), *Exploring aggregate asset price fluctuations across countries: measurement, determinants and monetary policy implications*, *BIS Economic Papers* No. 40.
- Brown, E.C. (1956) *Fiscal Policy in the Thirties: A Reappraisal*, *American Economic Review*, 46(5), 857-879.

- Budnevich, C. 2002. "Countercyclical Fiscal Policy: A Review of the Literature, Empirical Evidence and some Policy Proposals." Discussion Paper 2002 (41). World Institute for Development Economics Research, United Nations University.
- Buti, M. and P. van den Noord (2003) Discretionary fiscal policy and elections: the experience of the early years of EMU, OECD Working Paper No. 351.
- Chouraqui, J-C., R.P. Hagemann, R., N. Sartor (1990) Indicators of Fiscal Policy: A Reexamination, OECD Working Paper No. 78.
- Corbacho, A. and G. Schwartz. 2007. Fiscal Responsibility Laws, in Promoting Fiscal Discipline. Washington, DC: International Monetary Fund.
- Dalsgaard, A. and A. De Serres (1999) Estimating Prudent Budgetary Margins for 11 EU Countries: A Simulated SVAR Model Approach, OECD Working Papers No. 216.
- Denis, C., K. Mc Morrow, W. Roeger (2002) Production Function Approach to Calculating Potential Output Growth and Output Gaps - Estimates for the EU Member States and the US, European Economy, Economic Papers No. 176.
- Fatas, A. and I. Mihov (2002) The Case for Restricting Fiscal Policy Discretion, CEPR Discussion Paper No. 3277.
- Forni, L. and S. Momigliano (2005) Cyclical Sensitivity Of Fiscal Policies Based On Real-Time Data', Applied Economics Quarterly 50(3), 299-326.
- Foster, A. and G. Kaminsky. 2007. "Latin America's Access to International Capital Markets: Good Behavior or Global Liquidity?" Current Account and External Financing.
- Giorno, C., P. Richardson, D. Roseveare and P. van den Noord (1995) Estimating potential output, output gaps, and structural budget balances, OECD Working Papers, No 152.
- Girouard N. and C. André (2005), Measuring cyclically-adjusted budget balances for the OECD countries, OECD Economics Department Working Paper No. 434.
- Golinelli, R. and S. Momigliano (2008) The cyclical response of fiscal policies in the euro area. Why do results of empirical research differ so strongly?, paper presented at the European Commission Workshop Achieving and safeguarding sound fiscal positions, 17 January 2008, Brussels.
- Hallerberg, M., R. Strauch and J. von Hagen. 2001. "The Use and Effectiveness of Budgetary Rules and Norms in EU Member States." Report Prepared for the Dutch Ministry of Finance by the Institute of European Integration Studies.
- Ilzetzki, E. 2009. "Rent-Seeking Distortions and Fiscal Procyclicality". London School of Economics.

- Ilzetzki, E. and C. A. Vegh. 2008. "Procyclical Fiscal Policy in Developing Countries: Truth or Fiction?" National Bureau of Economic Research Working Paper No 114191.
- Jaeger, A. and L. Schuknecht (2003) Boom-Bust Phases in Asset Prices and Fiscal Behaviour, Mimeo.
- Jonung, L. and M. Larch (2006) Improving Fiscal Policy in the EU. The case for independent Forecasts, *Economic Policy* 21(47), 491-531
- Kaminsky, G. and C. Reinhart. 1999. "The Twin Crises: The Causes of Banking and Balance-of-Payments Problems." *American Economic Review*. 89 (3): 473-500. June.
- Kaminsky, G., C. Reinhart and C. Vegh. 2004. "When It Rains, It Pours: Procyclical Capital Flows and Macroeconomic Policies," NBER Working Paper 10780. Washington, DC: National Bureau of Economic Review.
- Kopits, G. 2001. "Fiscal Rules: Useful Policy Framework or Unnecessary Ornament?" IMF Working Paper 2001(145). Washington, DC: International Monetary Fund.
- Kopits, G. and S. Symansky. 1998. "Fiscal Policy Rules." IMF Occasional Paper 162. Washington, DC: International Monetary Fund.
- Kotlikoff, L. (1989) From Deficit Delusion to the Fiscal Balance Rule: Looking for an Economically Meaningful Way to Assess Fiscal Policy, NBER Working Paper No. 2841.
- Kumar, M., and T. Ter-Minassian. 2007. "Fiscal Discipline: Key Issues and Overview." *Promoting Fiscal Discipline*. Washington, DC: International Monetary Fund.
- Langenus, M. Mohr, S. Momigliano and M. Tujula (2001) Cyclically adjusted budget balances: an alternative approach, ECB Working Paper No. 77.
- Manasse, P. 2006. "Pro-cyclical Fiscal Policy: Shocks, Rules, and Institutions-A View from MARS. IMF Working Paper 2006(27). Washington, DC: International Monetary Fund.
- Mohanty, M. 2003. "Improving liquidity in the government bond markets: what can be done?" BIS Papers 20. Bank of International Settlements.
- Morris, R. and L. Schuknecht (2007) Structural balances and revenue windfalls. The role of asset prices revisited, ECB Working Paper No. 737.
- OECD (2001) Structural Budget Balances: A methodological note, http://www.oecd.org/Sources-and-methods/structural_budget_calculation.htm.
- Perotti, R. 1999. "Fiscal Policy in Good Times and Bad." *Quarterly Journal of Economics* 114(4):1399-1436.

Perotti, R., 2007. "Fiscal Policy in Developing Countries: a Framework and some Questions." Policy Research Working Paper 4365. The World Bank. September

Strauch, R., M. Hallerberg, and J. von Hagen (2004) Budgetary Forecasts in Europe – The Track Record of Stability and Convergence Programmes, ECB Working Paper, no. 307.

Talvi, E., and C. Vegh. 2005. "Tax Base Variability and Procyclical Fiscal Policy in Developing Countries." *Journal of Development Economics*. 78(1):156-190.

Van den Noord, P. (2000) The Size and Role of Automatic Stabilizers in the 1990s and Beyond, OECD Economics Department Working Paper No. 230.

Van den Noord, P. (2005) Fiscal gimmickry in Europe: one-off measures and creative accounting, OECD Economics Department Working Paper No. 417.