

### Box 3. The balance sheet of the general government sector: structural position and impact on Lithuania's economy in 1999 to 2011

Excessive borrowing by governments in order to finance expenditures contributes to domestic demand and inflationary pressures within the economy. This makes national central bank to set interest rate at a higher level than it would be necessary to ensure price stability. Large public finance deficits lead to a rapid growth in public debt making investors' confidence to go down and increase the risk for private investments to be crowded out. After a country joins the EU, in particular the Economic and Monetary Union, its fiscal discipline often weakens and a risk of deficit bias arises. This is mainly associated with the elimination of exchange rate risk and lower interest rate risk premium as investors usually look upon the euro area members as lower risk countries. Recognizing that the Maastricht Treaty does not ensure fiscal discipline and a threat exists to the existence of the Economic and Monetary Union, the European Council signed the Stability and Growth Pact (SGP) in Amsterdam in 1997.

Based on the provisions of the SGP, the EU Member States have committed themselves to have their general government (in this box referred to as GG) balances close to balance or in surplus, and decided that in pursue of anti-cyclical policy the general government deficit should not exceed 3 per cent of GDP. In 2005, the European Council approved amendments to the SGP made to facilitate in principle the implementation of the pact requirements: fiscal position of Member States is now assessed on the individual basis and with respect to each Member State's economic and budget situation. It was agreed that GG balance is not the most appropriate indicator to be used to judge about the country's public finances and fiscal policy. There are two main reasons for it. First, GG balance is subject to many factors some of which are independent of government decisions. The main of them is fluctuations of economic activity. Cyclical fluctuations of economic activity make direct effect on GG revenues and expenditure, but because of their short-term nature there is no need for changing fiscal policy because of automatic stabilisers, which have to operate. Discretionary decisions by government usually have a lasting effect on GG revenues and expenditure because of fiscal inertia. Therefore it is important to distinguish between fiscal balance changes due to economy's cyclical fluctuations and changes that are most often caused by discretionary decisions of government institutions, i.e. to assess a cyclically adjusted (or structural)<sup>1</sup> GG balance. Second, received and paid interest is recorded in the GG general balance. But for the purposes of estimation of the extent to which fiscal policy is consistent with economic environment interest expenditure is not very important as it depends on public debt, which is the result of the fiscal policy in the previous period. Therefore, when analysing the fiscal policy impact on economy, interest should be subtracted from the GG balance (it is subtracted from revenues and expenditure) and the primary balance should be adjusted for cyclical fluctuations in economic activity. After doing this we obtain a primary structural balance which shows the public finances position when the economic activity growth is consistent with the long-term trend. The annual change of primary structural balance is consistent with the impact of GG finance on economic activity.

The GG structural balance is an indicator widely used by international institutions (ECB, EC, IMF, OECD). It became even more relevant when European leaders, excluding UK and Czech Republic, signed on 2 March 2012 the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union. The major elements in the treaty aim at fiscal discipline, coordination of economic policy and governance in the euro area. Regarding fiscal discipline, the most important aspects are the obligation of a balanced budget rule and national anchoring of automatic correction mechanisms for excessive deficits. The balanced budget rule means that Member States take an obligation to have their GG budgets balanced or in surplus and their medium-term objective must not exceed a structural deficit of 0.5 per cent of GDP<sup>2</sup>. According to the rule, automatic correction mechanisms should be also envisaged, which would start operating in case the actual GG balance deviated notably from the set medium-term objective. Therefore, the aim of this box is to calculate Lithuania's GG primary structural balance and assess the impact of fiscal policy on the economy in 1999 to 2011.

The ECB in cooperation with national central banks have worked out a method for disaggregating the GG primary balance<sup>3</sup> to be reviewed briefly here. Structural balance for period  $t$  is obtained by decomposing GG primary balance ( $B_t$ ) into two components: cyclical one ( $B_{c,t}$ ), related to the work of automatic stabilisers, and structural one ( $B_{s,t}$ ), related to discretionary government decisions. This is shown in equation 1:

$$B_{s,t} = B_t - B_{c,t}. \quad (1)$$

Annual change in  $B_{s,t}$  is used to estimate the country's fiscal position. i.e. the continued fiscal policy trend formed by discretionary decisions of government institutions. Fiscal position may be loosening, tightening or neutral. Cyclical component  $B_{c,t}$  of the primary balance is calculated as a difference between cyclical components of GG revenues ( $R_{c,t}$ ) and expenditure ( $E_{c,t}$ ). This is shown in equation 2:

$$B_{c,t} = R_{c,t} - E_{c,t}. \quad (2)$$

To estimate  $R_{c,t}$  and  $E_{c,t}$  first it is necessary to identify those components of GG revenues and expenditure, which are related to economic cycle through a tax base. Later, their elasticity with respect to the tax base, and finally, cycles of revenue and expenditure components by applying average long-term gaps of tax base must be calculated. The ECB, when working on this method identified four revenue items and one expenditure item that can be distinguished as being

dependent on economic cycle in all EU countries. On the revenue side, these are direct taxes paid by households working in private sector (GPM), direct taxes paid by companies (PM), indirect taxes related to private consumption (NTM), and social contributions paid by private sector (SOC). Unemployment benefits (NED) make up the only expenditure item which is related to economic cycle. According to a generally-approved assumption, the elasticity of other revenue and expenditure items with respect to economic cycle is zero. Cyclical components of revenues and expenditure formally could be written as in equations 3 and 4:

$$R_{c,t} = GPM_{c,t} + PM_{c,t} + NTM_{c,t} + SOC_{c,t}, \quad (3)$$

$$E_{c,t} = NED_{c,t}. \quad (4)$$

For these revenue and expenditure items macroeconomic bases were selected most showing corresponding tax bases. Direct taxes on households and social contributions paid by private sector are associated with the wage bill in private sector ( $W^P$ ). As GG compensation for employees and social insurance contributions do not depend on economic cycle and thus are inelastic with respect to it, wage bill in private sector is used. Private consumption expenditure (PCN) is a macroeconomic base for indirect taxes, gross operating surplus (F) is a tax base for corporate direct taxes, and the number of the unemployed (U) is a macroeconomic base for unemployment benefits. Using the above mentioned macroeconomic bases, cyclical components of revenues and expenditure can be rewritten as a sum of products of actual values of components during period  $t$ , their elasticities with respect to a tax base ( $\varepsilon$ )<sup>4</sup>, and cyclical component of a tax base ( $W^P_{c,t}$ ,  $F_{c,t}$ ,  $PCN_{c,t}$ ,  $W^P_{c,t}$  or  $U_{c,t}$ ). This is shown in equations 5 and 6.

$$R_{c,t} = GPM_t \cdot \varepsilon_{GPM;W^P} \cdot W^P_{c,t} + PM_t \cdot \varepsilon_{PM;F} \cdot F_{c,t} + NTM_t \cdot \varepsilon_{NTM;PCN} \cdot PCN_{c,t} + SOC_t \cdot \varepsilon_{SOC;W^P} \cdot W^P_{c,t}, \quad (5)$$

$$E_{c,t} = NED_t \cdot \varepsilon_{NED;U} \cdot U_{c,t}. \quad (6)$$

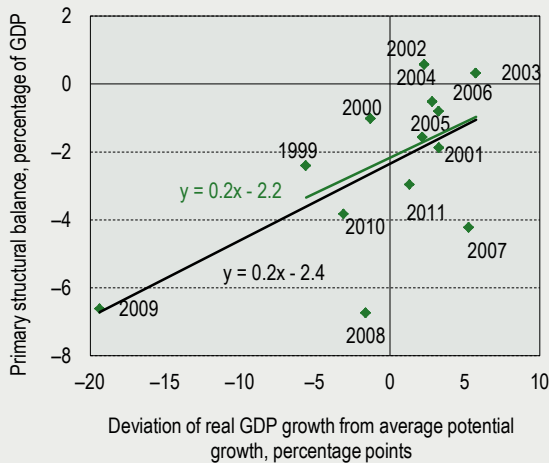
A cyclical component of a corresponding tax base is calculated using *Hodrick-Prescott* filter as a gap between a tax base and its long-term trend. The smoothing parameter value  $\lambda$  is equal to 100, and the “end point” problem is solved by including into calculations three-year forecasts for macroeconomic bases. It should be noted that a cyclical component is calculated based on real values of the tax base excluding inflation effect. This is based on the goal of the entire process, which is to estimate fiscal position with respect to the real economy cycle rather than the price cycle. Estimates for the elasticity of each revenue and expenditure item with respect to a tax base are different for each Member State. This was done after estimating regressions between annual changes in a particular item and the actual value of the corresponding tax base. The obtained values are revaluated every five years.

The above described analysis of individual GG revenues, expenditure, and their tax bases, and the cyclical position evaluation is one of the major benefits of the ECB method compared to more frequent cyclically adjusted balance estimation using the aggregate output gap and GG overall balance elasticity with respect to the output gap. The estimation of the cyclical position of individual tax bases makes it possible to take into account composition effects arising from different factors leading to the growth in economic activity. Two hypothetical scenarios for GDP growth could serve an example to this: in one case, the major factor for GDP growth is net export, and in another case GDP growth is stimulated by private consumption. In the first case, direct impact from GDP growth on GG revenues should be relatively low due to the fact that export is not taxed. Most likely GG revenues would grow due to secondary effects, i.e., due to higher revenues from direct taxes and social contributions which would grow because of higher household income, and increased profit tax revenues which would grow because of a higher corporate profit. In the second case, the same size increase in GDP would have a more significant effect on GG revenues due to private consumption, the rapid growth of which would result in an increase of indirect tax revenues. Cyclically adjusted GG balances should match based on the assumption that the GDP growth is the same in both cases, and after applying an estimate of aggregate output gap and similar elasticity of GG balance with respect to output gap. However, this would be in principal an erroneous conclusion, since in the first case the cyclic component of GG balance would be noticeably overestimated due to the fact that a significant portion of GG revenues would be wrongly considered as being cyclical due to the export-determined increase in the output gap.

The Lithuania's GG primary structural balances for 1999 to 2011 were calculated based on the above described method. This offers a possibility to find out the fiscal policy impact on the growth of economy. A linear regression provides an interesting insight into mean relationship between GG primary structural balance and the gap between real GDP growth and potential GDP growth (average real GDP trend growth was 4.5 per cent in 1999 to 2011). To estimate the GDP gap an assumption is made that actual economic activity fluctuates around the potential one. Chart A shows that the real GDP growth which exceeds the potential growth by 1 percentage point, has improved the GG primary structural balance on average by 0.2 per cent of GDP. GG sector becomes balanced only if the economy grows annually by more than one-tenth. And when the growth is smaller, the GG deficit increases. Based on this, the Lithuania's fiscal policy during the reference period can be seen as subject to strong deficit bias. The constant estimate provides an illustration for this, as GG deficit makes up on average 2.4 per cent of GDP when the GDP change corresponds to the potential one. Exceptional macroeconomic situation and real GDP and GG balance indicators during the economic downturn period (especially in 2009) may distort the results, but after the observation period was shortened up to 2008, no principal changes were noticed in primary conclusions, and GG deficit on average makes up 2.2 per cent of GDP (green line,

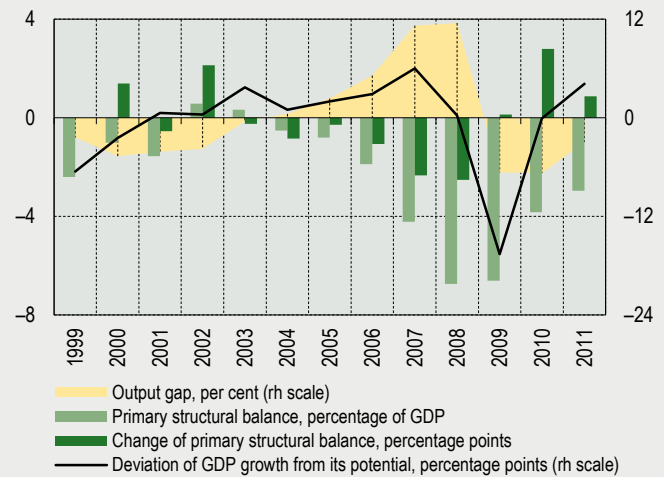
Chart A). According to Ch. Wyplosz and S. Krogstrup<sup>5</sup>, the deficit bias could be considered to have formed as a result of a “common pool” problem which arises when interested economic agents compete for public expenditure. The deficit bias emerge also when government fails to take full account of debt service costs in future or is not sure about its victory in the nearest elections.

Chart A. Primary structural balance and the output gap



Sources: Statistics Lithuania and Bank of Lithuania calculations.

Chart B. Primary structural balance and the output gap in 1999–2011



Sources: Statistics Lithuania and Bank of Lithuania calculations.

A simple linear regression would not be enough to find out the impact of fiscal policy on the economy over the review period. The country's fiscal policy evaluation is inaccurate because of changes in the pursued policy and economic cycle. A year by year analysis of the fiscal policy impact on economic cycle could be more appropriate. The ECB describes this impact taking into account the relationship between the GDP gap and fiscal impulse. Fiscal impulse is measured by a change in GG primary structural balance. A positive fiscal impulse during an economic upturn (when the GDP gap is positive) and negative during an economic downturn (when the GDP gap is negative) show a pro-cyclical fiscal policy. Anti-cyclical fiscal policy helps to reduce economic fluctuations: fiscal impulse and GDP gap are of opposite signs.

Chart B shows that real GDP in 1999 to 2002 was below the potential level and was growing at a lower rate. In 2000, the GG primary structural deficit decreased, in 2001, it remained largely unchanged, and a year later a small surplus was accumulated. The above ECB definitions therefore suggest that the fiscal impulse in 2000 was negative and the fiscal policy might be seen as pro-cyclical as it hampered economic recovery. In 2001, because of the absence of additional fiscal impulse its impact on economic cycle was neutral. Later, small structural surplus were recorded in the GG sector. The negative fiscal impulse surged up again in 2002 while economic activity just started approaching a potential level or running into recovery phase as evidenced by the growth rate. Amid GDP gap in 2002, which was negative, the structural deficit turned into a surplus, which means the fiscal policy was pro-cyclical. In 2003, a change in the structural balance was insignificant; therefore the fiscal policy should be seen as close to neutral, as a minor GG structural surplus prevented the accelerated growth of economic activity. The pro-cyclical nature of the fiscal policy showed itself again in 2004, and was especially pronounced in 2006 to 2008, when the GG structural deficit grew by 2 percentage points of GDP every year. In this period, GG expenditure was increasingly growing above revenues, which means that the fiscal impulse was positive giving an additional boost to economic activity. At that time, the national fiscal policy failed to comply with the EU requirements for strengthening fiscal consolidation during the economic upturn and use extra revenue generated during the upswing in the economic cycle to cut budget deficit and reduce debt rather than to boost current expenditure. As the GG structural deficit was gradually growing during this period, the country's fiscal position should be seen as constantly loosening. This situation lasted until 2009, when the GG revenues fell significantly following a deep recession of the economy, while the reduction of expenditure started only in the second half of the year. Although this reduction did not match (was markedly lower) the decline in revenues, but together with higher taxes it helped to stabilise the growth of structural deficit keeping the fiscal impulse broadly unchanged. Therefore, the 2009 fiscal policy should be seen as neutral. However, Chart B shows that the real GDP was well below the potential one and, from macroeconomic point of view, the higher GG consumption expenditure had a positive impact on GDP as it partly offset a decline in private consumption and investments. Lithuania's fiscal policy in 2010 is seen as pro-cyclical because of a negative fiscal impulse for the economy as a result of a decline in the GG structural deficit over the year and the real GDP remaining lower than the potential one. The initiated excessive deficit procedure for Lithuania and attempts to secure international funding for debt servicing were main reasons for the government to retrench expenditure. Social payments and compensation to GG employees were the main drivers behind the expenditure reduction. Lithuania's economy recovered in 2011, but the GDP gap continued to be negative. The fiscal impulse was also negative because of the decreased

structural deficit. Higher revenues were the main contributor to the structural deficit decrease as only a small portion of their increase should be considered cyclical due to the favourable composition effect. No extra decisions have been made, which could lead to a further reduction in expenditures. But improved situation in the labour market led to the reduction of unemployment benefits. Therefore, the fiscal policy for this period should be seen as pro-cyclical.

To sum it up, one can conclude that the reference period from 1999 to 2011 in principle can be divided into three phases. In the period from 1999 to 2003, the fiscal policy impact on the economy was heterogeneous. Between 2001 and 2003, fiscal policy was close to neutral, while in 2000 to 2002 it was pro-cyclical preventing economic activity from gaining momentum. The second phase, which is characterised by continuous increase in the policy pro-cyclicity, spans from 2004 to 2008. A high degree of pro-cyclicity of fiscal policy during this period was characteristic also for other EU countries, the euro area included. According to S. Deroose, M. Larch and A. Schaechter (2008)<sup>6</sup>, a degree of the pro-cyclicity in the euro area countries in 1999 to 2007 was higher than in the US. Too optimistic approach by policy makers to the rapid recovery of national economy or its fast growth in the future is mentioned as one of the major reasons for the above said. The third phase, which is characterised by a rapid decrease in structural deficit, spans from 2009 to 2011, but the fiscal policy impact should be seen as pro-cyclical. During the said period, it was characteristic of many European countries. Saving measures to consolidate public finances were introduced in many of them after financial crisis developed into a sovereign debt crisis and economic activity was well below its potential.

<sup>1</sup> Under the assumption that temporary and one off measures are absent.

<sup>2</sup> This margin can be raised to 1 per cent of GDP only for the countries in which the GG debt is significantly lower than 60 per cent of GDP and forecast dynamics is sustainable in the long-term.

<sup>3</sup> Bouthevillan C., Cour-Thimann P., Van den Dool G., De Cos P. H., Langenus G., Mohr M., Momigliano S., Tujula M. (2001) *Cyclically adjusted budget balances: an alternative approach*, ECB Work Paper, No. 077.

<sup>4</sup> In this box elasticity is understood as the ratio of the analysed GG revenue (or expenditure) item and average annual changes in its macroeconomic base.

<sup>5</sup> Wyplosz Ch., Krogstrup S. (2009) *A common pool theory of supranational deficit ceilings*. Author's accepted manuscript, p. 3–4.

<sup>6</sup> Deroose S., Larch M., Schaechter A. (2008) *Constricted, lame and pro-cyclical? Fiscal policy in the euro area revisited*, Economic Papers, Nr. 353, p. 25–26.