Fiscal Sustainability in Selected Transition Countries

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ABSTRACT

In the article, we review recent literature on fiscal sustainability with particular reference to problems that are specific to transition countries. While the original literature on fiscal sustainability is chiefly focused on industrial countries there are by now few works that have focused on fiscal sustainability in transition countries. Consequently, the article's purpose is to assess the short-, medium- and long-term sustainability of fiscal policy (under set assumptions) on the national level in the great majority of transition countries which we divide into three main groups, i.e. Central and Eastern Europe (CEE), Southern and Eastern Europe (SEE) and the Commonwealth of Independent States (CIS). Based on simple mainstream theory measures of fiscal sustainability, the results indicate that fiscal sustainability seems to be a problem in many transition countries, particularly in CEE (e.g. Czech Republic, Hungary, and Poland) and the SEE region (e.g. Albania and Croatia).

1. INTRODUCTION

Fiscal sustainability has drawn increased attention in transition countries, recently. Indeed, almost all transition economies have experienced large deficits in both balances since the start of the transition process.[1] On one hand transition economies collapsed, prompting the government to adopt an expansionary fiscal policy in the form of increased expenditures (to build up social and physical infrastructure) and extended tax incentives to encourage investment. Moreover, fiscal deficits expanded as governments tried to absorb the revenue and expenditure pressure associated with the sharp falls in GDP and fiscal restructuring. Consequently, a substantial increase in the public debt/GDP ratio has emerged in the region. Recently, there has been also noticed a shift from Keynesian to more classical oriented economic thinking and its conservative stance. Thus, the demands also supported by many international organizations (e.g. IMF) and international credit agencies for balanced budget balances and even budget surpluses have emerged considerably. Moreover, a stable public

[1] Unstable public finance had undoubtedly a significant role to play in the Czech and the Russian financial crisis in 1997 and 1998, respectively (McGettigan, 2000).

finance is an explicit criterion for many transition economies' eligibility for Economic and Monetary Union (EMU).[2]

The most common way of assessing a given economy's fiscal position is to analyse fiscal sustainability, where the 'sustainable' level of the fiscal imbalance was that level consistent with solvency, i.e. satisfies the criterion that the total public debt to GDP ratio should not increase. While the original literature on fiscal sustainability mostly focused on industrial countries (see Blanchard, 1990) there are, by now, a few pieces that, like this one, focus on fiscal sustainability in transition countries (for some early attempts, see Buiter, 1996; Budina and van Wijnbergen, 1997; Green et al., 2000, etc.). Work that is closely related to ours includes Pasinetti (2000) and builds upon some previous similar attempts for transition countries (see Fanizza and Mourmouras, 1994) in the following important direction, i.e. assessment of short-term, medium-term and long-term general government fiscal sustainability for twenty-four transition countries based primarily on 2004 data and/or 2001-2004 period average data.

The article is organized as follows. The next chapter briefly summarizes trends and developments of fiscal positions in transition economies. Chapter 3 introduces the concept of fiscal sustainability and discusses its main definitions and the main sustainability indicators that have been proposed by the theoretical and empirical literature. The empirical framework and results of the estimations of selected indicators under a variety of assumptions are presented in Chapter 4. The final section provides concluding remarks and some policy implications.

2. FISCAL IMBALANCES IN TRANSITION COUNTRIES

At the beginning of the transformation process fiscal policy had an important role in replacing the decline in private consumption which had appeared as a consequence of the collapse of output. Government expenditure in most transition economies in 1992 was significantly higher than in market economies with comparable levels of per capita GDP (in purchasing power parity terms), sometimes more than ten percentage points of GDP higher. Consequently, most transition economies implemented major fiscal reforms, some more successfully than others. In the early stage of the transition the need for major fiscal reforms was generally underestimated. The emphasis was more on the need for rapid privatization and 'getting the state out of the economy'; the need to reform state structures and the public administration in order to perform their very different but crucial roles in a market economy received less attention until a number of fiscal crises emerged (Economic Survey of Europe, 2000). Nevertheless, more recently practically all transition economies have admitted the need for totally new systems requiring not only new tax laws but also new fiscal institutions, new skills, technical knowledge, and political capital.

[2] Recently, an important step towards the Euro Area was taken by Estonia, Lithuania and Slovenia which joined the ERM II with effect from 28 June 2004 and latter by Latvia with effect from 2 May 2005 (ECB, 2005). Nevertheless, only Slovenia managed to fulfil all Maastricht criteria (including both fiscal criteria) and joined the EMU in 2007.

Within the transition process economic reforms have taken place with damaging impacts on existing public finances. First, by the destruction of central plans and the elimination of information on quantities of goods produced and their prices. Consequently, the government had to rely on other sources, including taxpayers' declarations that increased tax evasion. Second, the reforms dramatically increased the number of producers and thus of potential taxpayers. In fact, the large state enterprises which once provided the bulk of tax revenue have been replaced by new, small and difficult-to tax private producers. Since a tax culture never developed in the centrally planned economies, people reacted with hostility to the introduction of an explicit tax system. Finally, the economic reforms removed the restrictions on payment methods that had existed under central planning when all payments were channeled through the central bank. Accordingly, tax arrears and payments in the form of barter have grown, creating major difficulties for the new system (Tanzi, 1999).

Table 1: Public balances in selected transition countries, 1992-2003 (in % of GDP)

	1992–1997 (averages)	1998–2003 (averages)	1992–2003 (averages)
Czech R.	0.5	–3.4	–1.5
Estonia	–0.1	–0.4	–0.2
Hungary	–3.5	–5.4	–4.5
Latvia	–1.0	–2.2	–1.6
Lithuania	–4.1	–3.6	–3.8
Poland	–2.9	–3.4	–3.1
Slovakia	–4.1	–4.0	–4.0
Slovenia	0.2	–1.4	–0.6
CEE	*–1.8*	*–3.0*	*–2.4*
Albania	–14.4	–8.9	–11.6
Bulgaria	–1.7	–4.1	–3.3
Bosnia and Herzegovina	–6.9	–0.4	–3.6
Croatia	–1.6	–5.2	–3.4
Macedonia	–4.8	–2.4	–3.6
Romania	–3.4	–3.5	–3.5
Serbia and Montenegro	n. a.	–2.6	–2.6
SEE	*–5.9*	*–3.9*	*–4.9*
Armenia	–18.1	–4.0	–11.0
Azerbaijan	–6.0	–1.9	–3.9
Belarus	–3.2	–1.4	–2.3
Georgia	–13.1	–3.8	–8.4
Kyrgyz R.	–4.9	–1.6	–3.3
Moldavia	–9.3	–8.0	–8.7
Russia	–10.2	–1.1	–5.6
Tajikistan	–7.4	0.6	–3.4
Ukraine	–11.8	–1.1	–6.5
Armenia	–3.1	–0.9	–2.0
Azerbaijan	–11.2	–0.5	–5.8
Belarus	–7.6	–1.4	–4.5
CIS	*–8.8*	*–2.1*	*–5.5*
Total	***–5.5***	***–3.0***	***–4.3***

Notes: n.a. – not available.

Sources: EBRD (2006), EIU (2005), IMF (2005), author's calculations.

The patterns in public revenues and expenditure reflect local factors as well as the mixed advice transition economies received from Western economies and institutions such as the IMF and the WB. An analysis of the fiscal data of transition economies yields several stylized facts. Most importantly, almost all transition economies went through a dramatic fiscal adjustment. In fact, the turnaround in fiscal imbalances has been especially remarkable for CIS economies which reduced their average deficits from an average of 8.8 percent of GDP in the 1992-1997 period to a moderate fiscal deficit of 2.1 percent of GDP in the 1998-2003 period (see Table 1). The extent of this fiscal adjustment in CIS is more than twice as much as that of SEE economies whose average deficit was reduced from 5.9 percent of GDP to 3.9 percent of GDP in the same period. These fiscal imbalance trends were the outcome of a major revenue shock at the start of transition. For many CIS economies, independence from the Soviet Union also meant the loss of large fiscal transfers from Moscow which further compounded declines in government revenues from the recession and the flawed tax system with its weak administration.[3] Consequently, the CIS' average budget revenues declined from 29.3 percent of GDP in 1992 to 24.1 percent of GDP in 2003.

The sudden loss of control over state resources in CIS economies forced governments to sharply cut expenditures. In fact, the average expenditure for CIS economies fell from about 43.8 percent of GDP in 1992 to 25.0 percent of GDP in 2003. In some cases, the expenditure cuts were dramatic, as in Tajikistan and Armenia where general government expenditure declined from the CIS' highest levels of 65.7 percent and 46.7 percent of GDP in 1992 to the CIS' lowest levels of 15.6 percent and 18.9 percent of GDP, respectively. Accordingly, as the transition process progressed, especially after the Russian (financial) crisis of 1998, the fiscal balances of CIS economies improved in large part due to the boom in energy prices which positively effect CIS energy exporting economies as well as due to revenue collection improvements, expenditure restraints and the more prudent management of external debt reflecting the 'lesson of the Russian crisis'.

Contrary to the CIS and SEE fiscal imbalance trends, CEE economies started with much lower average fiscal deficits, averaging out at 1.8 percent of GDP in 1992-1997 and even deteriorating to an average 3 percent of GDP in 1998-2003, generally as a result of maintaining relatively high government expenditure shares (an average of 38.3 percent of GDP in the 1998-2003 period) and a moderate decline of government revenues in the period (e.g. in Czech Republic and Poland by more than ten structural points in the 1992-2003 period) (see Table 1). An important measure to deal with the revenue shortfall was the adoption of value-added tax (VAT). The rate initially adopted has generally been reduced, and in most CEE states VAT now provides about the same proportion of total fiscal revenue as in most Western European states (i.e. 15 to 25 percent). Moreover, a number of CEE and SEE economies have introduced, or are in the process of introducing, uniform personal income taxes.

As mentioned above, the recent worsening budgetary performance in CEE economies marks a departure from the pattern of most CIS and SEE economies. However, in some CEE

[3] For example, in 1992 both Uzbekistan and the Kyrgyz Republic lost transfers from Moscow which were equivalent to about 18 percent of GDP in 1991 (see Alam and Sundberg, 2002).

economies (e.g. Estonia – increasing government revenues, and Lithuania – declining government expenditures) a relatively significant improvement in the fiscal balance has been seen in recent years. While most CEE economies are clustered in a narrow band there are extremes, for example Czech Republic's overall budget in 2003 posted the highest deficit among all transition economies of 6.6 percent of GDP while Estonia posted a surplus of 1.7 percent of GDP. Nevertheless, when one looks at the change in primary balances CEE economies generally maintained the average balance of their primary budget, while CIS economies drastically reduced their large deficits in the 1992-2003 period since interest expenditure were growing in the same period. However, despite the declining share of expenditure in GDP, real public expenditure has been rising in many transition economies due to the relatively high GDP growth. Therefore, the fiscal reform process in the region consists more of ensuring that the budget process continues to require the necessary instruments for increasing efficiency, in the course of which further control over expenditure is likely to provide savings. In addition, less government interventions in the market, further reductions of budget deficits and structural reform of public finance aiming at improving the quality and efficiency of government remain important targets of economic policy in most transition economies.

3. THEORETICAL BACKGROUND AND EMPIRICAL METHODOLOGY

To decide whether a country may need debt reduction or not requires assessing if a country suffers of a solvency problem. The intertemporal solvency criterion does however impose some limits on the behavior of *non-interest* fiscal balance (i.e. the primary fiscal balance). Such solvency constraint implies that the discounted value of primary fiscal balances should be at least equal to the initial government debt; if a government is initially running primary fiscal deficits and has a stock of foreign debt, it needs to run primary fiscal surpluses over time to remain solvent. More specifically, as long as the discounted value of government debt is non-zero in the infinite limit, the public sector is solvent. This means only that the government cannot increase its debt faster than the real interest rate on this debt.

However, the theoretical criteria for government solvency are quite loose. Indeed, IMF (2002) and Croce and Juan-Ramón (2003) suggest that solvency is only a necessary condition for sustainability because solvency could be achieved with very large and costly future adjustments. Therefore, a non-increasing government debt to GDP ratio is seen as a practical sufficient condition for sustainability, i.e. a government is likely to remain solvent as long as the ratio is not growing. So, we can define a policy stance as sustainable if a borrower is expected to be able to continue servicing its debt without an unrealistically large future correction to the balance of income and expenditure (IMF, 2002, pp. 4). Moreover, this criterion is related to so called *fiscal primary gap*, which is the difference between the actual fiscal primary balance and the primary balance required to stabilize the debt to GDP ratio. Simple accounting identity helps shed light on the fiscal sustainability issue. According to Hemming and Miranda (1991, pp. 70-72) and Roux (1993, pp. 327) the (short-term) budget constraint is presented:

$$\Delta D_t / Y_t = (r_t - g_t) D_{t-1} / Y_t + B_t / Y_t + R_t / Y_t \qquad (1)$$

where D_t, Y_t, B_t, R_t stand for total public debt, nominal GDP, nominal primary (negative) balance of the public sector (i.e. the gap between *non-interest* expenditure and total revenue) and a residual factor applicable to he public sector, respectively. In addition, r_t represents the real interest rate applicable to the public sector and g_t the real economic growth rate. Note that the first part of right-hand area in equation (1) refers to the interest component of government expenditure ($(r_t - g_t)/ D_{t-1}/Y_t)$). Indeed, when $r_t > g_t$ this indicated upward pressure on the debt/GDP ratio, while $r_t < g_t$ indicates downward pressure. On the other hand, the remaining part of the right-hand area indicates *non-interest* flows of government. If it is negative, government runs a primary surplus, implying downward pressure o the debt/GDP ratio. If it is positive, government runs a primary deficit, putting upward pressure on the debt/GDP ratio. Depending on the magnitude and signs of the both right-hand parts there will be a net positive or negative effect on the debt/GDP ratio.

When assessing fiscal sustainability issue, the main priority is to indicate whether a continuation of the present policy stance (as expressed in the present relation between the levels of expenditure and revenue) causes the debt/GDP ratio to explode, implode or remain stabile. In this relation, Bispham (1987) developed a set of equations that fulfils that need. If interest is paid and the primary deficit ($b=B_t/Y_t$) is a constant ratio of GDP, the overall public deficit ratio is not constant. Hence, interest payments can cause the overall public deficit to change. What happened to the debt/GDP ratio depends on the relationship between the interest rate, r, and the economic growth rate, g, which can be presented as (if $g > r$):

$$D_t / Y_t = -b\left(\frac{1+g}{g-r}\right) \qquad (2)$$

or as (if $r > g$):

$$D_t / Y_t = -b\left(\frac{1+g}{r-g}\right)\left(\frac{1+r}{1+g}\right)^t + b\left(\frac{1+g}{r-g}\right) + \left(\frac{1+r}{1+g}\right)^t D_0 / Y_0 \qquad (3)$$

When $r > g$ the change in the debt/GDP ratio depends on the size and sign of initial debt/GDP ratio and primary balance. If there is initial public debt and primary deficit, the debt/GDP ratio explodes as $t \rightarrow \infty$ (fiscal policy is unsustainable). On the other hand, if government runs a primary surplus and have no initial debt (or have even initial net claims), government has an explosive net worth position. Although this situation is unlikely to appear in reality, fiscal policy will also bee unsustainable. However, if we want to estimate the (un)sustainability position when first and third right-hand term operate in opposite directions, we have to determine if:

$$\left| -b\left(\frac{1+g}{r-g}\right) \right| > \left| D_0 / Y_0 \right| \qquad (4)$$

Thus, according to the presented equations, to establish (short-run) sustainability, government should run a primary surplus sufficient enough to cover the excess caused by the real interest

rate over real growth rate, i.e. sustainable primary surplus (Mourmouras, 1994), which can be presented as (Gonzalez-Paramo et al., 1992, pp. 275):

$$-B_t / Y_t = (r_t - g_t) D_{t-1} / Y_t \quad (5)$$

Unsustainability is indicated as a position where the real interest rate, r_t, exceeds real economic growth, g_t, and where the primary balance, B_t, is persistently either in deficit, or in a surplus not large enough to cover the excess of the real interest rate over the real growth rate. Additionally, Buiter (1985) suggests an alternative indicator of sustainability, where it depends on the difference between actual primary surplus and the surplus that stabilizes net government wealth (as ratio to GDP). However, this indicator is hard to apply since the government net worth is very difficult to measure.

On the other hand, in order to measure the medium-term and long-term tax gaps (Blanchard, 1993) and the sustainable conventional public balance alternative indicators has been introduced. For example, sustainable budget deficit ($-GOVB_t$) is derived from equation (5) and equals the growth rate multiplied by the debt ratio:

$$-GOVB_t / Y_t = (r_t - g_t) D_{t-1} / Y_t - rD_{t-1} / Y_t = -gD_{t-1} / Y_t \quad (6)$$

Moreover, because equation (6) ignores the relationship between the real interest rate and the real economic growth rate, the conventional deficit is too crude a measure to use when analyzing the sustainability of fiscal policy. Therefore, as alternative the medium-term tax gap ($t^*_n - t$) can be taken, where the real interest rate, real economic growth rate and the projected path of no-interest expenditure are taken as given. In this respect, the required tax rate necessary to stabilize the debt/GDP ratio is as follows (Blanchard, 1993):

$$t^*_t = \sum (\exp + trf) / n + (r - g) D_0 / Y_0 \quad (7)$$

where *exp*, *trf* and *n* state for government expenditure, transfers (both as a ratio to GDP), and the numbers of years over which *govexp* and *trf* are incurred, respectively. However, equation (7) holds if the values of *n* and $(r - g)$ are not large. The long-run tax gap is similar to the medium-term tax gap. But, it is specified for a period of 30-40 years and allows for factors that change expenditure (e.g. demographics) (see Wickens, 1992).

Indeed, equations (2) – (7) provide a set of satisfied test indicators to determine potential unsustainability of public finance given that the current (primary) public balance is maintained and that the interest rate and economic growth rate are on a stabile (medium-run) path. Nevertheless, we should have in mind, that fiscal policy is sustainable only is the assumptions made about the variables hold. Therefore, the caution must be undertaken when setting the assumptions of the model.

4. THE EMPIRICAL FRAMEWORK

4.1. Assumptions and Data

First, we estimate public finance sustainability for twenty-four transition economies, i.e. the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia (CEE), Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Romania and Serbia and Montenegro (SEE) and Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyz Republic, Moldavia, Russia, Tajikistan, Ukraine and Uzbekistan (CIS).[4] However, in order to calculate a sustainable level of their fiscal balance some assumptions must be made. Indeed, this exercise is, by nature, quite sensitive to the various assumptions made about what is the steady state of the economies under consideration. Arbitrarily, the steady state for transition countries is considered to reflect the historical values of the key variables as follows:

- the equilibrium level of public debt (D/Y) is assumed to be for year 2004 (for short-term period) or the average of the 2001-2004 period (for medium- and long-term period) (EBRD and Eurostat data); alternatively, it is assumed for all sampled economies that governments are comfortable tolerating a debt ratio of 60 percent $(D/Y)^*$;
- the (nominal or real) interest rate (i or r) is the average of effective interest rates on public debt in 2004 (short-term) or in 2001-2004 period (IMF data);
- nominal (g_n) and real growth projections (g) are the average over the 2000-2008 period (EBRD and IMF data) for medium-term and the average over 2000-2040 period (UN/ECE GDP growth projections) for long-term period.

The empirical results are summarised in the next sub-section. First, the checking of short- , medium- and long-term sustainability of public finance is performed by applying methodology suggested by Fanizza and Mourmouras (1994). The results for the selected transition countries, including the scenario dynamics of public debt to GDP ratio in 5 and 10 years period, are reported in Table 2 and 3. And secondly, Wickens (1992) and Blanchard (1993) methodology is applied to calculate long-term public balance sustainability levels for the transition countries. Empirical results are reported in Table 4.

4.2. Empirical results

In this subchapter we apply equations (4) - (6) in order to assess fiscal sustainability in the great majority of transition countries. Firstly, we are concentrating on the short-term sustainability of twenty-four transition countries. In Table 2, first three columns (1-3) show the relevant magnitudes (public debt/GDP ratio, nominal rate of growth, and nominal interest rate) for the calculation of sustainable level of primary public balance. Thus, column 4 and 5 show the computation of equation (2), as applied to each transition country. Each figure represents the maximum fiscal deficit each country can sustain. More precisely, it indicates the maximum hypothetical ratio between fiscal deficit and GDP that each transition country can afford, while keeping a non-increasing public debt/GDP ratio. Columns 7 and 8 show the gap between the corresponding calculated (columns 4 and 5) and actual primary fiscal balance

[4] Due to data deficiencies other transition economies were not included in the sample.

(column 6). Since each year's deficit goes to increase the outstanding public debt, the higher is the (positive) gap between actual fiscal deficit and hypothetical fiscal deficit, the higher the speed at which the public debt decreases.

Table 2 shows the results of fiscal sustainability based on equation (2). In 2004 actual and calculated (short-term) sustainable fiscal levels seem to be the same, i.e. fiscal deficits of 0.6 of GDP, if we consider actual public debt in the CEE countries. On the other hand, if we take into considerations targeted public debt (i.e. 60 percent of GDP), the calculated (permitted) average fiscal deficit is relatively higher and the gap between actual and calculated deficit amounts to 1.2 percentage points.[5] However, this average covers substantial differences between the countries. Thus, the short-term fiscal policy stances of the Czech R., Hungary and Poland seem to be unsustainable. On the other hand, by far the most favorable position is that of Estonia. Indeed, Estonia is the only country of the CEE region with the budget surplus, i.e. 1.7 percent of GDP (in 2004). In the rest of the transition regions (SEE and CIS countries), only Croatia seems to have an excessive short-term fiscal deficit. Actually, in 2004 the gaps between actual and calculated primary fiscal balances are positive and high on an average level, indicating sustainable fiscal positions in the both transition regions.

However, the preceding employment of (short-term) fiscal sustainability indicator may give a distorter picture of the amount of adjustments that would reasonably be required for different reasons. Indeed, the calculated (primary) fiscal balances (as GDP ratio) can be distorted by for example speeding up privatization receipts (if the privatized assets would have yielded positive future net cash flow to the government) or by cutting back government capital formation (if the present discounted value of the future net cash flow to the government would be positive). Additionally, Buiter (1985) pointed out two further weaknesses of the one-period primary gap indicator. The first emphasizes that actual current primary fiscal balance could be affected by cyclical increases or reductions in public sector revenues and/or expenditures. And the second, the current nominal interest rate and growth of nominal GDP may be unrepresentative of their respective long-term expected average values. Hence, the need for the medium- and long-term perspectives emerges, which are adopted in the resumption of the paper.

Hence, we gauged medium-term fiscal sustainability of the same twenty-four transition countries. Under the set assumptions presented on the previous subsection the primary public balance seems not to be medium-term sustainable for the most of the countries in the CEE regions (exceptions are Estonia, Slovenia and Slovakia). Indeed, their calculated sustainable size as a percentage share of GDP is relatively small, fluctuating between 0.2 (Poland) and -3.0 (Slovakia) if we consider actual public debt. The lowest sustainable current account balance, namely in Poland, can chiefly be explained by the fact that this economy has been projected to have one of the lowest average growth rates of real GDP (3.6 percent p.a.) and one of the highest levels of real effective interest rates among all CEE countries (4.2 percent).

[5] While many of the transition countries under consideration reported public debt stock below tolerating benchmark for the EMU (60 percent of GDP), their sustainable public primary deficits could be even higher. In particular, this is valid for Baltic States, Slovenia and Romania where public debt to GDP ratio is well below the different transition region's averages.

On the contrary, Slovakia is confronted with one of the lowest real effective interest rate (1.7 percent). However, similar to short-term fiscal sustainability results, Estonia again shows the strongest sustainable fiscal position in the CEE region. Contrary to the CEE region, most of the remaining transition countries show sustainable medium-term fiscal policy stance. The only exceptions are Albania, Croatia and Macedonia (SEE region) and Armenia (CIS region). While Croatia and Macedonia have excessive fiscal deficit primarily due to relatively moderate real GDP growth averages (4.0 and 3.7 percent, respectively), high real effective interest rate is the main reason for unsustainable medium-term fiscal position in Armenia (7.5 percent) and Albania (4.9 percent).

In addition to the analysis above, a special attention is paid to the evolution in the debt to GDP ratio for periods of 5 and 10 years. If we assume, that relatively high real GDP growth rate and existent real interest rate (average 2001-04) is maintained, then only CEE region as a whole is faced with an increase of an average public debt to GDP ratio. Indeed, the average public debt to GDP ratio is planned to increase from 30.7 percent of GDP to 33.9 percent of GDP after 5 years and 37.2 percent of GDP after 10 years in CEE region. Actually, only Estonia and Slovenia are planning to have lower public debt to GDP ratio after 10 year period in the considered region. On the other hand, the average public debt to GDP ratio is planned to decline from 47.1 percent of GDP to 44.1 percent of GDP after 5 years (42.2 percent of GDP after 10 years) and from 49.3 percent of GDP to 39.3 percent of GDP (31.7 percent of GDP) in SEE and CIS region, respectively. There are only few countries where public debt is planning to rise under set assumptions, such as Albania, Croatia, Macedonia (SEE region) and Armenia and Belarus (CIS region). Nevertheless, in these circumstances the most significant lowering of public debt to GDP ratio is noticed in CIS region, in particular in Moldavia, Ukraine and Russia.

Finally, we consider briefly the long-term fiscal sustainability in all three transition regions under consideration. Table 4, because of its similarity to Table 2 and 3, does not need to be illustrated in detail. It refers to equation (6) which helps us to reveal long-term sustainability of public finance. The results indicate that practically all CEE countries (except Estonia) and majority of SEE countries show unsustainable long-term public finance.[6] The group of countries including Latvia, Lithuania, Slovenia (CEE), and Albanian, Macedonia and Romania (SEE) face moderate sustainability problems with the (negative) gaps between actual and calculated fiscal balance of around 1.0-2.0 percentage points. However, the most substantial long-term fiscal problems might affect countries, such as Czech R., Hungary, Poland, Slovakia (CEE) and Croatia (SEE).[7] On the other hand, practically all CIS countries under consideration (except Belarus) show sustainable long-term fiscal policy stance.

[6] When taking into account targeted public debt assumption (60 percent of GDP) the fiscal situation is slightly better in both of the regions since great majority of the countries have public debt below the assumed one.

[7] Indeed, Convergence Report (2004) set out that regarding the sustainability of fiscal developments, keeping the overall and primary balance ratios at current levels would not be sufficient to keep the public debt ratio below 60 percent of GDP in the medium to long term, which points to a need for further substantial consolidation. With the fiscal deficits projected for the coming years, all countries under consideration would not comply with the Stability and Growth Pact's medium-term objective of a fiscal position that is close to balance or in surplus. In addition, the revenue and expenditure ratios of the public sector are rather high. In this context, a more efficient and employment - friendly tax/benefit system could strengthen work incentives and make a significant

Table 2: Short-term fiscal sustainability in 24 transition countries

Country	Public Debt (D/Y) (2004) (1)	Growth rate of nominal GDP (g_n) (2004) (2)	Nominal interest rate (i) (2004) (3)	Calculated (short-term) primary public balance $((i-g_n)/(1+g_n))*(D/Y)$		Actual primary public balance ($-b$) (2004) (6)	Diff. (Actual-Calculated (actual public debt assumption) (7)	Diff. (Actual-Calculated (targeted public debt assumption) (8)
				Actual public debt assumption (4)	Targeted public debt assumption (60 % of GDP) (5)			
CEE (average)	*31.1*	*9.5*	*6.2*	*-0.6*	*-1.8*	*-0.6*	*0.0*	*1.2*
Czech R.	24.0	7.4	5.5	-0.4	-1.1	-2.2	-1.8	-1.1
Estonia	5.5	10.8	5.5	-0.3	-2.9	2.0	2.3	4.9
Hungary	60.7	8.7	8.3	-0.2	-0.2	-1.2	-1.0	-1.0
Latvia	14.7	14.8	5.4	-1.2	-4.9	-0.2	1.0	4.7
Lithuania	21.4	8.9	5.8	-0.6	-1.7	-0.1	0.5	1.6
Poland	50.1	8.8	7.1	-0.8	-0.9	-2.8	-2.0	-1.9
Slovakia	42.6	9.2	6.4	-1.1	-1.5	-0.8	0.3	0.7
Slovenia	29.5	7.5	5.5	-0.5	-1.1	0.2	0.7	1.3
SEE (average)	*42.9*	*10.6*	*4.7*	*-2.2*	*-3.0*	*-0.1*	*2.1*	*2.9*
Albania	55.6	8.8	7.6	-0.6	-0.7	-0.2	0.4	0.5
Bulgaria	48.3	6.4	4.0	-1.1	-1.4	1.7	2.8	3.1
Bosnia and Herzegovina	31.1	5.9	1.3	-1.4	-2.6	-0.7	0.7	1.9
Croatia	41.5	7.5	5.6	-0.7	-1.1	-4.2	-3.5	-3.1
Macedonia	37.6	2.6	2.4	-0.1	-0.1	1.6	1.7	1.7
Romania	26.2	24.1	9.9	-3.0	-6.9	-0.2	2.8	6.7
Serbia and Montenegro	60.2	19.0	2.1	-8.5	-8.5	1.2	9.7	9.7
CIS (average)	*39.9*	*19.4*	*3.2*	*-4.7*	*-8.0*	*0.2*	*4.9*	*8.2*
Armenia	35.6	16.0	0.7	-4.7	-7.9	-1.2	3.5	6.7
Azerbaijan	18.6	17.0	0.8	-2.6	-8.3	-1.0	1.6	7.3
Belarus	9.0	32.8	6.4	-1.8	-11.9	0.5	2.3	12.4
Georgia	54.3	13.3	2.8	-5.0	-5.6	-0.3	4.7	5.3
Kyrgyz R.	93.7	11.2	1.5	-8.2	-5.3	-3.7	4.5	1.6
Moldavia	60.6	20.1	2.1	-9.1	-9.0	2.9	12.0	11.9
Russia	21.7	25.2	5.6	-3.4	-9.4	6.2	9.6	15.6
Tajikistan	39.4	17.7	5.4	-4.1	-6.3	-2.1	2.0	4.2
Ukraine	26.0	21.1	3.3	-3.8	-8.8	0.3	4.1	9.1

Sources: EBRD (2006), EIU (2005), IMF (2005), Eurostat (2006), author's calculations.

contribution to fiscal consolidation, while promoting economic growth and real income convergence in the context of completing the process of transition to a market economy.

Table 3: Medium-term fiscal sustainability in 24 transition countries

Country	Public Debt (*D/Y*) (2001-04 averages)	Growth rate of real GDP (*g*) (2000-08 averages)	Real effective interest rate (*r*) (2001-04 averages)	Calculated (medium-term) primary public balance ((r-g)/(1+g))*(D/Y)		Actual primary public balance (*b*) (2001-04 averages)	Diff. (Actual-Calculated (actual public debt assumption)	Public debt (D/Y) after 5 years	Public debt (D/Y) after 10 years
				Actual public debt assumption	Targeted public debt assumption (60 % of GDP)				
CEE (average)	*30.7*	*4.8*	*2.3*	*-0.8*	*-1.7*	*-1.2*	*-0.4*	*33.9*	*37.2*
Czech R.	32.4	3.5	1.7	-0.6	-1.1	-2.9	-2.3	43.7	54.0
Estonia	5.5	6.4	1.5	-0.2	-2.6	1.8	2.0	-3.9	-11.3
Hungary	55.6	3.8	1.2	-1.4	-1.5	-2.6	-1.2	61.3	66.4
Latvia	14.6	6.7	3.3	-0.5	-1.9	-0.8	-0.3	16.2	17.5
Lithuania	21.6	6.6	5.1	-0.3	-0.9	-0.4	-0.1	22.1	22.5
Poland	41.7	3.6	4.2	0.2	0.4	-2.4	-2.6	55.1	68.8
Slovakia	44.6	4.2	1.7	-3.0	-4.0	-2.8	0.2	52.8	60.1
Slovenia	29.4	3.2	-0.3	-0.9	-1.8	0.2	1.1	24.2	19.7
SEE (average)	*47.1*	*4.7*	*-2.7*	*-3.4*	*-4.7*	*-0.8*	*2.5*	*44.1*	*42.2*
Albania	66.0	6.0	4.9	-0.7	-0.6	-2.2	-1.5	73.4	80.5
Bulgaria	62.9	4.3	-0.4	-2.8	-2.7	2.5	5.3	39.4	20.4
Bosnia and Herzegovina	46.0	5.1	-1.4	-2.9	-3.7	-1.9	1.0	44.5	43.3
Croatia	41.8	4.0	2.6	-2.9	-4.1	-3.1	-0.2	54.1	65.7
Macedonia	32.5	3.7	1.2	-0.8	-1.4	-1.3	-0.5	35.0	37.1
Romania	27.6	4.6	-14.6	-5.1	-11.0	-0.4	4.7	23.9	20.9
Serbia and Montenegro	53.1	5.3	-11.5	-8.5	-9.6	0.5	9.0	38.6	27.4
CIS (average)	*49.3*	*6.7*	*-4.2*	*-3.0*	*-5.2*	*-0.1*	*2.9*	*39.3*	*31.7*
Armenia	39.5	7.0	7.5	0.2	0.3	-0.4	-0.6	42.5	45.5
Azerbaijan	24.8	8.4	1.1	-1.7	-4.0	-0.4	1.3	19.2	15.3
Belarus	10.9	6.9	-37.2	-4.5	-24.8	-1.0	3.5	12.2	13.1
Georgia	56.8	5.2	2.5	-1.4	-1.5	-0.4	1.0	51.8	47.4
Kyrgyz R.	106.3	5.9	-2.3	-8.2	-4.6	-4.4	3.8	99.5	94.4
Moldavia	64.1	6.5	1.4	-3.1	-2.9	2.0	5.1	41.1	23.0
Russia	46.1	5.7	-10.4	-0.6	-0.8	4.3	4.9	15.6	-7.5
Tajikistan	57.1	8.1	-2.9	-5.8	-6.1	-1.8	4.0	46.4	39.2
Ukraine	37.9	6.9	2.2	-1.7	-2.6	1.1	2.8	25.2	15.1

Source: EBRD (2006), EIU (2005), IMF (2005), Eurostat (2006), author's calculations.

Table 4: Long- term fiscal sustainability in 24 transition countries

Country	Public debt (*D/Y*) (2001-04) averages)	Growth rate of real GDP (*g*) (2000-40 project.)	Calculated (long-term) public balance ((*g*/(D/Y)*)		Actual public balance (2001-04 averages)	Diff. (Actual-Calculated)	
			Actual public debt assumption	Targeted public debt assumption (60 % of GDP)		Actual public debt assumption	Targeted public debt assumption (60 % of GDP)
CEE	*30.7*	*3.1*	*-0.9*	*-1.7*	*-3.2*	*-2.3*	*-1.6*
Czech R.	32.4	2.4	-0.8	0.0	-6.9	-6.1	-6.9
Estonia	5.5	3.0	-0.2	-1.8	1.7	1.8	3.5
Hungary	55.6	2.6	-1.4	-1.6	-6.0	-4.5	-4.4
Latvia	14.6	3.6	-0.5	-2.2	-1.7	-1.1	0.5
Lithuania	21.6	4.0	-0.9	-2.4	-2.0	-1.2	0.4
Poland	41.7	3.7	-1.5	-2.2	-3.9	-2.4	-1.7
Slovakia	44.6	3.2	-1.4	-1.9	-4.7	-3.2	-2.8
Slovenia	29.4	2.1	-0.6	-1.3	-2.3	-1.7	-1.0
SEE	*47.1*	*5.1*	*-2.5*	*-3.1*	*-3.1*	*-0.7*	*-0.1*
Albania	66.0	6.9	-4.6	-4.1	-6.3	-1.7	-2.1
Bosnia and Herzegovina	46.0	6.2	-2.9	-3.7	-2.6	0.3	1.2
Bulgaria	62.9	4.0	-2.5	-2.4	0.0	2.5	2.4
Croatia	41.8	3.9	-1.6	-2.3	-5.7	-4.1	-3.4
Macedonia	32.5	5.5	-1.8	-3.3	-2.8	-1.0	0.5
Romania	27.6	3.9	-1.1	-2.3	-2.2	-1.1	0.1
Serbia and Montenegro	53.1	5.3	-2.8	-3.2	-2.4	0.4	0.8
CIS	*46.7*	*7.0*	*-3.2*	*-4.2*	*-1.1*	*2.1*	*3.1*
Armenia	39.5	10.0	-4.0	-6.0	-1.8	2.2	4.2
Azerbaijan	24.8	11.0	-2.7	-6.6	-0.3	2.4	6.3
Belarus	10.9	3.8	-0.4	-2.3	-1.3	-0.9	1.0
Georgia	60.9	6.2	-3.8	-3.7	-2.6	1.2	1.1
Kazakhstan	19.8	8.8	-1.7	-5.3	2.4	4.2	7.7
Kyrgyz R.	106.3	6.0	-6.4	-3.6	-5.2	1.2	-1.6
Moldavia	64.1	7.0	-4.5	-4.2	-0.3	4.2	4.0
Russia	46.1	3.7	-1.7	-2.2	2.4	4.1	4.6
Tajikistan	57.1	8.0	-4.6	-4.8	-2.6	2.0	2.3
Ukraine	37.9	5.3	-2.0	-3.2	-1.5	0.5	1.7

Source: EBRD (2006), EIU (2005), IMF (2005), Eurostat (2006), author's calculations.

5. CONCLUSION

The sustainability of public finance has been an important issue for transition countries in the last fifteen years. Policy-makers in transition countries have been facing a combination of historical expenditure commitments, uncertainty about new revenue sources coupled with uncertainty about the general macroeconomic situation in the country. Indeed, the state of public finance usually acts as a litmus test of the progress achieved and the degree of internal

consistency and soundness of transformation policy. In these circumstances, if fiscal policy is inconsistent there is a substantial and continuing risk that public deficits can leap out of control and eventually become unsustainable. Unsustainable government debt paths can eventually lead to sharp adjustments, if not to a crisis. Hence, fiscal sustainability is a highly desirable quality which should be measured on a regular basis in order to avoid unfavorable macroeconomic conditions. Moreover, fiscal policy sustainability has also become a recurrent theme for many transition countries, especially for new EU member states in the run-up to Economic and Monetary Union (EMU) since the Maastricht Treaty makes fiscal sustainability an explicit criterion for a country's eligibility for EMU.

By using mainstream (primary fiscal gap) theory (proposed by Buiter (1983) and Blanchard (1990)), the analysis ensures some degree of restrictiveness. Indeed, given the looseness of the theoretical criteria for solvency, a non-increasing public debt to GDP ratio is seen as a practical sufficient condition for the sustainability of fiscal policy; a country is likely to remain solvent as long as this ratio is not growing. In this respect the primary fiscal gap, defined as the difference between the required primary fiscal balance to GDP ratio and the actual primary fiscal balance to GDP ratio, is calculated for selected transition countries. Based on simple mainstream theory measures of fiscal sustainability, the results indicate that fiscal sustainability seems to be a problem in many transition countries, particularly in CEE (e.g. Czech Republic, Hungary, and Poland) and the SEE region (e.g. Albania and Croatia). In this respect, it is vital for these economies (especially for the CEE) to consolidate their fiscal (balance and debt) positions in order to be able to join the EMU as soon as possible.

Because of the simplicity and restrictiveness of the presented indicators, at least three main caveats should be set up at the end. First, all the indicators used in the analysis are sufficient (but not necessary) conditions for long-run sustainability. Indeed, for an economy it may be sub-optimal to prevent a country from smoothing expenditure because this would lead to overshooting a fiscal ratio that corresponds to a long-run equilibrium. Secondly, most of the indicators require assumptions about macroeconomic variables (e.g. GDP growth, interest rates etc.) which are implicitly assumed to be exogenous. However, most of the included variables tend to be endogenous and/or correlated with each other. Indeed, it is unrealistically to assume that changes in economic growth do not affect the primary surplus or vice verse. Finally, great majority of factors (such as demographics) that characterize the situation in transition economies are not included in these indicators.

REFERENCES

- Alam, A., and Sundberg, M. (2002). 'A Decade of Fiscal Transition.' Washington: World Bank, *Policy Research Working Paper*, No. 2835.
- Bispham, J.A. (1987). 'Rising public sector indebtedness: Some more unpleasant arithmetic.' In Boskin, M.J., Flemming, J.S. & Gorini, S. (eds.). 1987. *Private saving and public debt*, 40-71.
- Blanchard, O. (1990). 'Suggestions for a New Set of Fiscal Indicators.' Economics Department Working Paper 79. Paris: OECD.

- Blanchard O. (1993). 'Suggestions for a new set of fiscal indicators.' In Verbon, H.A.A. & Van Winden, F.A.A.M. (eds). (1993). *The political economy of government debt*, 307:25.
- Budina, N., and van Wijnbergen, S. (1997). 'Fiscal Policies in Eastern Europe.' *Oxford Review of Economic Policy*, Vol. 13 , No. 2.
- Buiter, W. (1983), 'Measurement of the Public Sector Deficit and its Implications for Policy Evaluation and Design.' In *International Monetary Fund Staff Papers*, 30, June 1983, pp. 306-49.
- Buiter, W. (1985). 'Guide to Public Sector Debt and Deficits.' Economic Policy: A European Forum 1: 13-79.
- Buiter, W. (1996). 'Aspects of fiscal performance in some transition economies under Fund-supported programmes.' *Centre for Economic Policy Research*, Discussion paper, no. 1535.
- Croce, E., and Juan-Ramon, H. (2003). 'Assessing Sustainability: A Cross-Country Comparison.' *IMF Working Paper* 03/145. Washington, DC, United States: International Monetary Fund.
- *Convergence Report* (2004, 2005). European Central Bank: Frankfurt.
- *Economic Survey of Europe (2000)*. Geneva: UN Economic Commission for Europe, 2000.
- *Economist Intelligence Unit (2005)*. London: The Economist. [URL: http://www.eiu.com], 14. 12. 2005.
- *Eurostat (2006)*. Brussels: European Commission. [URL:http://epp.eurostat.cec.eu.int/portal/page?_pageid=1090,30070682,1090_33076576&_dad=portal&_schema=PORTAL], 10.12.2005.
- Fanizza, D., and Mourmouras, A. (1994). 'Fiscal indicators.' *Seminar on Fiscal Policy Management in Economies in Transition (Lecture No. 16)* – 7-18 November. Washington D.C.: Fiscal Affairs Department and IMF Institute, International Monetary Fund.
- Gonzalez-Paramo, J.M., Rolàn, J.M., and Sebastian, M. (1992). 'Issues on fiscal policy in Spain.' In Bank for International Settlements. 1992. *Current issues in fiscal policy and their implications for the conduct of monetary policy*: 189-220.
- Green, C. J., Holmes, M. J., and Kowalski, T. (2000). Poland: A Successful Transition to Budget Sustainability?, *Economic Research paper* No. 00/5, Loughborough University.
- Hemming, R., and MacKenzie, G.A. (1991). 'Public expenditure and sustainable fiscal policy.' In Chu, K. & Hemming, R. 1991. *Public expenditure handbook*: 7-13.
- *International Financial Statistics* (2005). Washington: IMF.
- International Monetary Fund (2002). 'Assessing Sustainability.' *Policy paper prepared by the Policy Review and Development Department*, Washington: IMF.
- McGettigan, D. (2000). 'Current Account and External Sustainability in the Baltics, Russia, and Other Countries of the Former Soviet Union.' *IMF Occasional Paper*, No. 189.
- Pasinetti, L. L. (1998). 'The Myth (or Folly) of the 3% Deficits/GDP Maastricht "parameter". *Cambridge Journal of Economics,* 22: 103-16.
- Roux, A. (1993). 'The public debt: A medium-term perspective.' *The South African Journal of Economics,* 61(4): 324-33.

- Tanzi, V. (1999). 'Transition and the Changing Role of Government.' *Finance and Development*, Washington: IMF, Vol. 36:
- *Transition Report* (2006). London: EBRD.
- Wickens, M. (1992). *Fiscal Indicators*. Pretoria: Department of Finance, Unit of Fiscal Analysis and Policy planning.