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SUSTAINABILITY OF THE PUBLIC DEBT AND BUDGET DEFICIT

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– Abstract –

This study is designed primarily for the project "Romania – Country Economic Memorandum" and "Romania 2000" conference that will be organised by the World Bank and Romanian Center for Economic Policies in October. It should also be helpful to government officials responsible for managing the external debt of Romania and to those with a general interest in public sector financial management in an economic system in transition --observers as well as practitioners.

This study attempts to explain the evolution of the external debt and budget deficit during the 1990-1998 period and attributes it to the general economic environment and macroeconomic policies applied in each sub-period. In doing so, the interrelationship between the progress in reforming the fiscal system and sustainability of budget deficits is analysed, as is the importance of fiscal income in partly determining public debt. A large range of the impacts of external debt and budget deficit management is discussed, including the ramifications for the money supply, inflation rate, interest rate, exchange rate, seigniorage and inflation tax, the contributions of privatisation and the re-allocation of resources, etc.

Special attention is dedicated to the breakpoint represented by the year 1997 when the budget deficit management and fiscal system were fundamentally changed. There are some estimations and useful ideas for macroeconomic policy makers presented for the post-2000 period, obtained by using a simulation-sustainability model.

1. Introduction

At the beginning of the transition period in 1990, the public debt in Romania was insignificant. During the following years, the accumulation process accelerated. By 1998, the domestic public debt, together with the country's external debt, already increased to nearly 40% of Gross Domestic Product. Although the indebtedness degree of the country continues to be smaller than levels registered in other European countries, more dangerous is its accelerating trend in conditions of some not so very high-performing macroeconomic policy management. In order to adhere to NATO and European Union actions and agreements with international financing institutions, such as the International Monetary Fund and the World Bank, the problem of public debt and budgetary deficits has become more and more sharp. The major difficulties proceed from weak performance of the Romanian economy doubled by the complex problems of economic reform and restructuring, but also by more restricted access to external financing on international markets.

The present paper attempts to answer certain questions related to governance mechanisms of public debt accumulation. In particular, it examines: a) some of the most important implications of public sector deficits on the dynamics of main macroeconomic indicators; b) factors that impact the degree of sustainability; and c) the possibilities for setting up fundamental parameters and a time horizon to stop the debt accumulation process. Certain plausible hypotheses will be selected and a few likely evolutions will be simulated.

2. The dynamics of public debt after 1989

There are various approaches in specialised literature regarding public debt and the public sector. In most official publications referring to public debt, the public sector is the "general government" or consolidated non-financial public sector, which consists of the central government, the local authorities and non-private social security and other organisations (this is the definition also used within our paper). Others add certain public corporations, while in many cases, some special credit institutions are also included in the definition. Similarly, certain publications refer to gross debt, others to net debt (i.e. gross debt net of public sector liquid assets); while in some cases more assets are netted out.

The exclusion of state financial institutions from the conventional definition of the public sector creates some problems. This is particularly the case in Romania where the State is the majority shareholder of most of the domestic commercial banks and two special credit institutions belong entirely to it. Almost all the domestic liabilities of public corporations and most of the domestic liabilities of the central government itself are assets of banks and credit institutions, partially or wholly owned by the State. This implies: a) that the size of the public debt may be very sensitive to the definition of the public sector, and b) that seigniorage revenue, which is defined as the change in the monetary base in real terms, may

accrue to the public sector, as it is conventionally defined here, in an indirect and not easily detectable way.

A particular criticism of the conventional definitions of public debts and deficits is the asymmetry in the treatment between the private and the public sectors in the presentation of their accounts. It is argued that instead of public debt, the concept of public net worth should be used, while the annual public deficits should be split between consumption and investment deficits (Eisner, 1989; Stournaras, 1990). Although this criticism is correct, the data needed to evaluate public sector assets makes it an impossible task. However, the ratio between consumption and investment deficits has serious implications for the sustainability of an increasing public debt, the transfer of burden on future generations and the balance of resources in the economy. It also provides a proxy for the evolution of the public sector's net worth (Odling-Smee and Riley, 1985). Therefore, it should be a necessary component in any study of public debts and deficits.

During the period after 1989, Romania faced more public debt accumulation as a new matter of macroeconomic policy, in contrast to other Central and East European countries such as Bulgaria, the Czech Republic, Hungary, or Poland. While the external debt of Romania was insignificant in 1990 (US$230 million), the other Central and East European countries were already confronted with debt amounts of many billions of US dollars (Hungary – US$21.3 billion, Bulgaria – US$10.9 billion, Czech Republic – US$4.4 billion). In the case of Poland, the figure was close to US$50 billion. Eight years later, in 1998, the external debt of Romania already increased to more than 9 billion USD, while the other countries (with the exception of the Czech Republic, where external debt was five times larger than in 1990) registered either a modest growth (e.g. the case of Hungary with growth of US$5.5 billion) or even a diminution (Poland with more than US$6 billion, partially caused by cancellation of a proportion of its external debt, and in Bulgaria with US$1 billion). One of the weakest performances of the Romanian economy after 1989 was the poor experience regarding the management of public debt and budget deficits.

The evolution of external debt in Romania, as a share of GDP evaluated in US dollars and respectively in Lei, is shown in Figures 1 and 2. The statistical data on which the graphs were based is presented in Appendix 1.

In Romania, contrary to advanced countries, the external debt is the main component of total debt. However, in later years one can see that the accumulation of domestic public debt became a more important source to cover deficits. For instance, in 1998 it represented close to 8% of GDP. This evolution is in direct connection with efforts to improve the management of domestic debt, especially by enacting a new rule in April 1997 regarding the development of a secondary market for state obligations, restricting access to external sources of financing, and taking over in public debt an important volume of non-efficient credits. For instance, the share of state loans approved by special normative documents evolved as follows: in 1992 – 8.1%; in the 1993-1996 period– an average level of 5.7% (with a maximum share of 11.7% in 1995); and in 1998-1999 – more than 30% during an accelerating restructuring process of the banking system.

It is remarkable to see that Romania has also begun to demonstrate the correlation between election cycles and accumulation of public debt. We can observe the jumps in

electoral years on the presented graphs--1992 and 1996--followed by calm debt accumulation dynamics between the two election moments. In the literature, there is a serious focus on evaluating the impact of political environment dynamics on public debt accumulation. Some authors even sought to quantify this impact (Roubini and Sachs, 1989). One of the most important conclusions of such studies is that there is a direct correlation between the degree of homogeneity of power coalitions and the dynamics of public sector deficits. As a verified rule, when the leading political coalition has a large number of parties with various political orientations, as is the actual situation in Romania, then the budget policy loses its coherence and deficits will increase. On the contrary, in countries where the political power is in the hands of only one strong party, the chance to apply an efficient management of public debt is greater.

The evolution of the gap between the share of debt in GDP evaluated in dollars and that expressed in Lei, shown on the graph in Figure 3, reflects the impact of domestic currency depreciation (the value of external debt being converted by the Lei/USD exchange rate at the end of each year). Moreover, the evolution in the 1990-1998 period in Romania demonstrates a strong reverse correlation between the change of the rate of real GDP and the dynamics of the mentioned gap (see Figure 4).

Figure 1

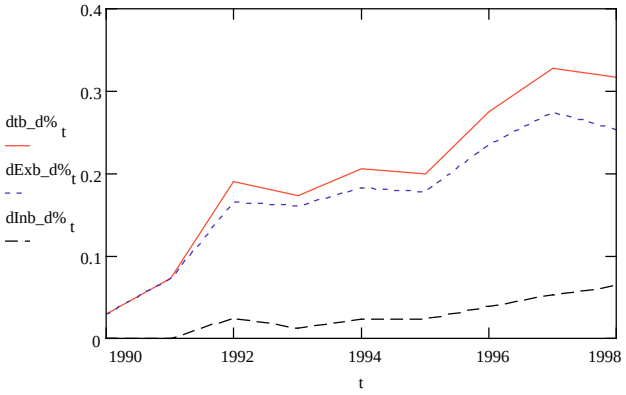


Figure 2

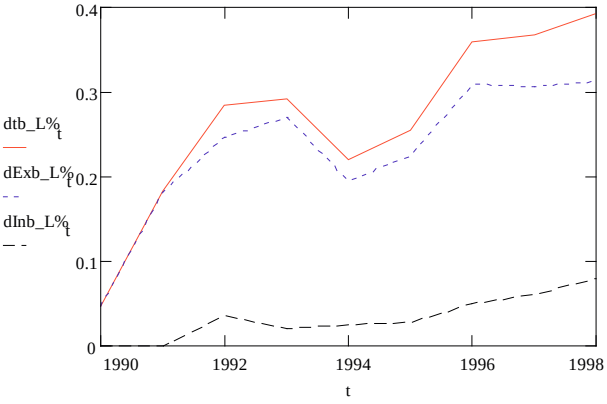


Figure3

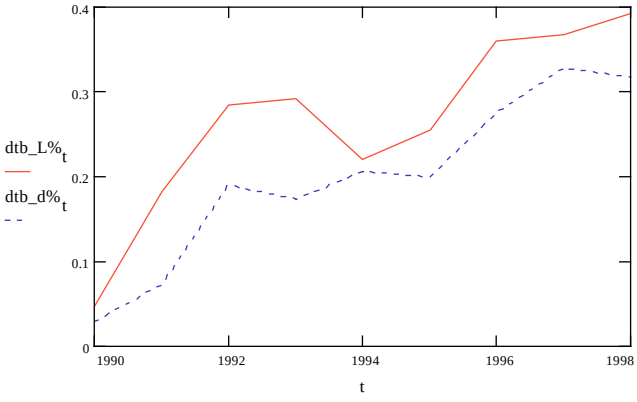


Figure 4

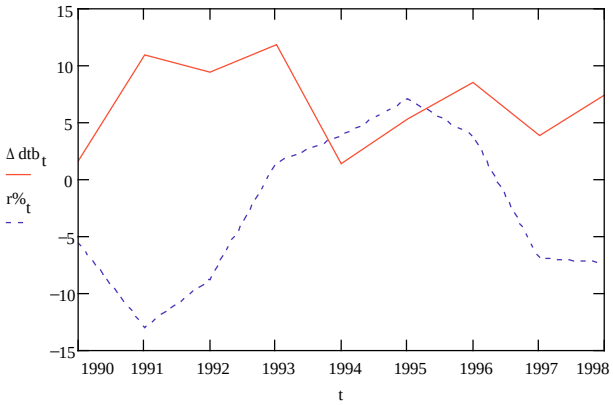


Figure 5

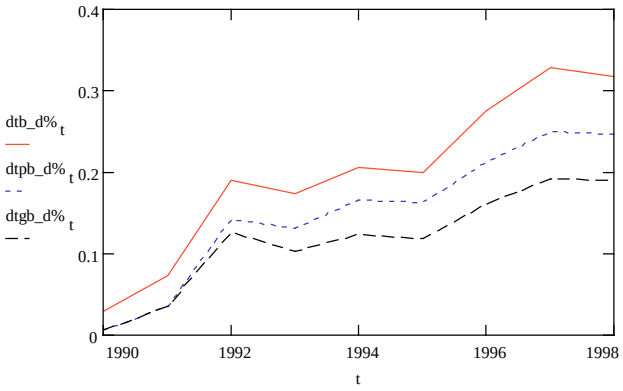
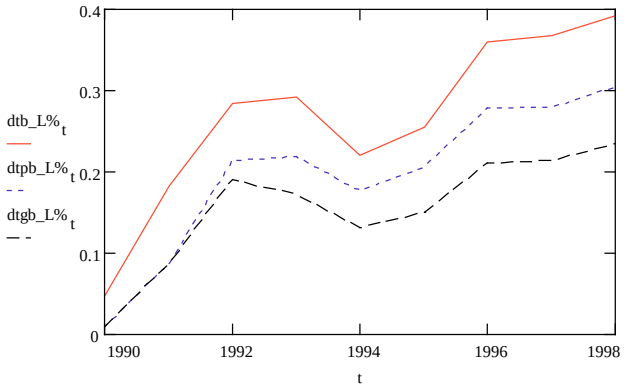


Figure 6



Another important aspect of analyses regarding the evolution of the public debt is represented by the distinction among main institutional sectors. In Romania, as we already mentioned, besides the conventional public debt owned by the so-called general government there is a part which corresponds to public corporations and special credit institutions. Figures 5 and 6 present the evolution of the three constitutive components of gross public debt, evaluated in dollars and respectively in Lei, computed with the exchange rate base registered at the end of each year.

The first line at the bottom of the graphs represents the dynamics of governmental debt, the second line traces the evolution of the gross public debt, and the third one, at the top of the graphs, expresses the evolution of the country's gross debt. The difference between the middle and first curve could be interpreted as gross public corporation debt, but the gap between the curve placed on the top and middle of the graphs represents the share of the non-public sector. Moreover, during the considered period, we can see an amplification trend of the two gaps which indicates a decrease in the share of government debt--both in gross public sector debt and in gross country debt.

Despite Romania's classification by the World Bank in international statistics as a "less indebted" country, together with Poland, Croatia, the Slovak Republic, Czech Republic, Estonia, etc. (while Hungary is classified as "moderately indebted" and Bulgaria as "severely indebted"), some alarming signals were emitted by certain external financing institutions last year. With a background of continuing economic recession for the consecutive third year and a rapid external debt-service burden, certain international agencies specialised in evaluating country risk declassified Romania's score. One of the most important arguments was the worsening of sustainability indicators in correlation with other negative occurrences, such as diminishing accumulation resources, decreasing domestic savings and investment rates, and increasing risk for foreign investments [1]. The fact that more than 90% of the gross country's debt is externally financed demonstrates the fragility of the national economy and the high degree to which it depends on external financing conditions for collecting new resources. In such conditions, the sustainability problem, already intensely preoccupying external financing institutions of Romania, should have to give serious incentives to those having an impact on macroeconomic policy decisions, especially to government.

3. An Estimation of the parameters in an equation of public debt dynamics

Quantifying the dynamics of public sector debt often starts from the well-known definition of the government's budget constraint. The change in the public sector debt D between two time periods, t and t –1, is given by the following equality:

$$D_t - D_{t-1} = i_t D_{t-1} + \Pi_t + a_t D_{t-1} - \Delta B_t \qquad (1)$$

where i is the average nominal interest rate on public sector debt, Π is the primary deficit (PSBR net of interest payments), a is the revaluation effect on existing debt (in Romania this is entirely due to the depreciation of the effective exchange rate of the Leu, since public debt is not sold, at least up to now, below or above its redemption value) and ΔB is the direct financing of the budget from the Central Bank [2].

Certain methodological remarks are due here. According to the Treasury's definition, the central government debt includes, among other liabilities, long-term loans made available to the government by the National Bank of Romania as well as treasury bills sold to the NBR. These long-term loans and treasury bills create debt service obligations for the central government. The implication is that ΔB in equation (1) is not the change in the monetary base, ΔM, but part of it, determined by changes in a special government account with the Bank. Another related point is the allocation of seigniorage revenue. Although the NBR does not pay dividends to the Treasury, it subsidises the activities of various commercial banks and special credit institutions partly or wholly owned by the State whose assets and liabilities are not included in the definition of public debt.

The direct financing of the budget from the NBR is the change, ΔB, in the outstanding balance of the government account with the Bank. When these accounts show a negative balance, this cannot exceed a certain limit set by law. It is this (constrained) change in the balance of this account that constitutes direct financing of the PSBR by the NBR and is not considered by the Treasury as additional debt. It should be noted that the effective limit constraining direct financing is lower than the one set by the law, because a (small) interest rate is charged on negative balances.

Finally, due to non-accurate primary statistical data, we used D, the public-sector gross debt (excluding government guaranteed debt) in order to evaluate the dynamics of public sector debt, and obtained ΔB as the difference between the sum of the first three components of equation (1) and ΔD. Then, dividing both sides of equation (1) by the nominal GDP, Y_t, and manipulating we obtain:

$$d_t - d_{t-1} = (i_t + a_t - g_t)\,[d_{t-1}/(1 + g_t)] + \pi_t - b_t \qquad (2)$$

where d_t and d_{t-1} are the public sector debt to GDP ratio in two consecutive years, t and t –1, π is the primary public sector deficit as a percentage of GDP, g is the nominal GDP growth rate between years t and t -1 and b is $\Delta B/Y$. Alternatively, we can approximate the nominal growth rate g as the sum of the change in GDP deflator p and the real GDP growth rate q and rewrite equation (2) as:

$$d_t - d_{t-1} = (i^*_t - q_t)\,[\,d_{t-1}/(1 + g_t)\,] + \pi_t - b_t \qquad (3)$$

where i* is defined as the real effective average interest rate on public sector debt--it is equal to the average real interest rate, i – p, plus the revaluation effect, a. Because of specific situations in Romania during this period, we considered the following two cases: 1) – including general government proceeds from privatisation and 2) – excluding them. Privatisation income contributed to the amelioration of the government budget for the actual period and probably for the next few years. However, viewing the dynamic equation of public debt in the long run, it would be excluded.

Applying equation (3) to explain the evolution of central government debt relative to GDP for which data on interest payments is more reliable in comparison to that regarding general government or total public sector debt, we obtain Table 1.

Table 1. The Evolution of the Central Government Debt to GDP Ratio (Percentage Points)

	$d_t - d_{t-1}$	π_t	$\frac{(i^*_t - g^*_t)\,d_{t-1}}{1 + g_t}$	b_t	Discrepancy (2)+(3)-(4)-(1)	i – p	a_t	i^*_t	q_t	$\frac{\Delta M_t}{Y_t}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1990	0.7	-1.0	0.5	-1.2	0.00	-13.6	301.3	287.7	-5.6	…
1991	7.9	-3.3	6.6	-4.5	-0.09	-186.1	2047	1861	-12.9	…
1992	10.2	4.4	5.5	0.3	-0.57	-184.4	347.6	163.1	-8.8	…
1993 1)	-1.8	-0.6	-0.9	0.1	+0.19	-207.4	192.4	-15.0	1.5	3.4
2)	-1.4	-0.2	-0.7	0.3	+0.19		196.9	-10.5		
1994 1)	-4.1	0.5	-4.5	-0.3	+0.38	-114.4	52.7	-61.7	3.9	3.9
2)	-3.8	1.2	-4.6	0.1	+0.38		53.9	-60.4		
1995 1)	1.9	1.2	2.5	1.6	+0.23	-17.5	52.1	34.6	7.1	2.0
2)	2.4	2.4	2.7	2.5	+0.24		53.6	36.1		
1996 1)	6.1	2.2	4.7	0.6	+0.18	-25.3	76.6	51.3	3.9	2.9
2)	6.5	3.8	5.1	2.1	+0.19		76.5	51.2		
1997 1)	0.4	0.1	1.5	2.1	-0.93	-107.2	116.5	9.3	-6.9	1.1
2)	-0.2	1.1	1.3	3.6	-1.00		113.2	6.0		
1998 1)	2.1	-2.1	4.7	1.0	-0.54	-17.5	39.6	22.1	-7.3	2.5
2)	3.4	0.2	5.2	2.6	-0.56		41.6	24.1		
Total 1)	23.3	1.4	20.5	-0.3	-1.1					
1989-98 2)	25.7	8.5	21.7	5.8	-1.2					
Average 1)	2.6	0.2	2.3	0.0	-0.1	-97.0	358.4	261.4	-2.8	2.6 [3]
1990-98 2)	2.9	0.9	2.4	0.6	-0.1	-97.0	359.1	262.0	-2.8	
Average 1)	6.3	0.0	4.2	-1.8	-0.2	-128.0	898.7	770.7	-9.1	…
1990-92 2)	6.3	0.0	4.2	-1.8	-0.2	-128.0	898.7	770.7	-9.1	
Average 1)	0.5	0.8	0.4	0.5	0.2	-91.1	93.4	2.3	4.1	3.1
1993-96 2)	0.9	1.8	0.6	1.3	0.3	-91.1	95.2	4.1	4.1	
Average 1)	1.2	-1.0	3.1	1.6	-0.7	-62.4	78.1	15.7	-7.1	1.8
1997-98 2)	1.6	0.7	3.2	3.1	-0.8	-62.4	77.4	15.0	-7.1	

1) including general government proceeds from privatisation
2) excluding general government proceeds from privatisation
3) 1993-98

The following conclusions can be drawn:

a) equation (3) predicts an acceptable evolution of the central government debt to GDP ratio for the whole period 1989-1998 (see the sum of discrepancies and their average in column 5), but much better for the sub-periods, although the year to year discrepancies appear to be significant for a number of years. This is mainly due to changing accounting practices regarding the treatment of capitalised interest payments on central government debt sold to NBR and the use of the trade weighted – rather than debt weighted – effective exchange rate to estimate the revaluation effects owing to the depreciation of the Leu;

b) the main cause of the increase in the debt to GDP ratio is the aggregate represented by column 5, which includes the impact of the real effective average interest rate on public sector debt (i*) in correlation with the real GDP growth rate (q) and inflation rate, by agency of the nominal GDP growth rate (g). For a number of years, the main cause is the primary deficit to GDP ratios;

c) exclusion of income from privatisation would produce a major impact both on the primary deficit side (π) and on direct financing from the Central Bank (b). This must be an important signal for authorities to the moment when the privatisation process will be finished;

d) after 1994, the dimension of parameter b became comparable with the average change in the monetary base relative to GDP (column 10).

4. Impact of the fiscal position on debt sustainability

Another important determinant of the debt dynamics that appears in equation (1) is the primary fiscal balance. A permanent increase in the fiscal primary surplus would improve debt sustainability through: (i) reducing the real interest rate by crowding out reduction; (ii) increasing income by increasing efficiencies in resource allocation and reduced interest rates; (iii) and increasing the demand for the money base as a result of reduced inflationary expectations (Garcia, 1998). Generally, large primary deficits are the story behind the accumulation of public debts and are in direct correlation with the development of conventional deficits.

Analysis of both the financial position and public debt composition during 1990-99 is the first step towards finding an answer to the question of whether fiscal policy can strike a balance by fending off debt accumulation and the extent to which the current debt can be curtailed through the achievement of a surplus in the future. Conventional deficits of the central government were kept under control between 1990-98; Romania's performance in this area is better than that of Hungary or Bulgaria, but worse than that of the Czech Republic, Croatia, Slovakia or Poland (as set out in the table of Appendix 2).

Moreover, conventional deficits of the non-financial consolidated public sector posted large swings on an annual basis—ranging from 0.4% to 4.6% of GDP—which may be regarded as moderate. Behind these developments stood the reform of the fiscal system that

was aimed at alleviating imbalances. Its influence on the volume and composition of incomes and expenditures is highlighted by data in Table 2 (the yearly data is also presented in Appendix 3).

Figures show that even once primary adjustment has taken place, the imbalance can take on a life of its own due to large outstanding debts and high interest payments. In addition, an average decrease in tax revenue by 4.8 percentage points from 1990-1991 to 1997-1999 led to higher expenditures because the government tried to cover generous social support programmes that replace high proportions of lost earnings. The exclusion of more and more people from the labour force generated by the restructuring process—the unemployment rate increased to 11.3% in July 1999—means that fewer workers are supporting a growing number of unemployed and retirees through higher tax burdens. In 1998, the social security deficit balance increased to 0.9% of GDP. Because the change in tax revenue and government expenditures had different effects on debt sustainability, the composition of fiscal adjustment is a critical variable.

Table 2. Change in the Consolidated General Government Balance

	Average 1990-1991	Average 1992-1996	Change	Average 1997-1999	Change	Average 1990-1998
TOTAL REVENUE	40.8	33.1	-7.8	36.0	2.9	34.7
Current	39.2	32.8	-6.4	33.8	1.0	33.8
A. Tax	34.3	29.7	-4.6	31.8	2.1	30.6
A1. Direct tax	23.2	20.9	-2.3	19.6	-1.3	20.6
Profit tax	6.1	4.0	-2.0	3.8	-0.2	4.4
Tax on salaries	7.2	6.6	-0.5	6.0	-0.7	6.5
Social security contributions	8.9	8.6	-0.3	8.8	0.2	8.5
Other	1.0	1.6	0.6	1.0	-0.6	1.2
A2. Indirect tax	11.2	8.9	-2.3	12.3	3.4	10.0
out of which:						
Excises and oil tax	10.0	3.0	-7.0	2.5	-0.5	4.4
V.A.T.	0.0	3.7	3.7	6.2	2.5	3.3
Customs tax	0.6	1.4	0.7	1.6	0.3	1.2
Other	0.5	0.9	0.4	1.9	1.1	1.1
B. Nontax	4.8	3.1	-1.8	2.0	-1.1	3.3
Capital	1.6	0.3	-1.4	2.1	1.8	0.9
Others	0.0	0.0	0.0	0.1	0.1	0.0
TOTAL EXPENDITURES	38.7	35.7	-3.0	39.5	3.8	36.5
Current	31.8	30.2	-1.5	35.3	5.1	30.9
Goods and services	12.9	12.6	-0.4	13.3	0.7	12.5
o/w:						
Wages and salaries	7.4	6.7	-0.7	5.8	-0.9	6.5
Interest payments for public debt	0.0	1.1	1.1	5.0	3.9	1.6
Subsidies and transfers	20.7	18.8	-1.9	16.8	-2.0	18.4
Subsidies	10.0	8.7	-1.3	2.4	-6.3	7.5
Transfers	10.7	10.1	-0.6	14.4	4.3	10.9
Capital	6.9	4.9	-2.1	3.7	-1.2	5.2
Lending minus repayments	0.0	0.5	0.5	0.5	0.0	0.4
OVERALL BALANCE (cash-net of privatisation receipts	2.1	-3.4	-5.6	-5.5	-2.1	-2.6
OVERALL BALANCE (cash-including privatisation receipts)	2.1	-2.7	-4.8	-3.5	-0.9	-1.8
PRIMARY Balance (including private)	2.2	-1.5	-3.7	1.6	3.1	-0.2
PRIMARY Balance (excluding private)	2.2	-2.3	-4.5	-0.4	2.0	-0.9

During the transition period, the composition of income was affected by numerous measures. The previous confiscated profit transfer tax was abolished in 1990 and replaced with a profit tax and was reformed in 1991 and again in August 1994 (currently, the rate is 38%). The inefficient turnover tax gave way to the VAT in July 1993. There was an initial, single 18% rate, followed by the introduction of a minimum level of 9% in 1994 for certain food items and medicines. The VAT was readjusted in February 1998 by increasing the tax rates for the above items from 9 to 11%, and from 18 to 22%, respectively. The former wage tax, based on the economy-wide gross average wage, was replaced with an individual wage tax which broadened the tax base by substantially reducing the number of exemptions. In addition, the enforcement of some regulations on the luncheon vouchers was delayed in 1999 and tax incentives were provided to strategic investors. Tax reforms introduced in 1998 envisaged an 8.1 percent increase in indirect taxes in H1 1999 compared to 1998 with a simultaneous reduction of direct taxes. The top priority for the year 2000 will be to enforce the personal income tax that encompasses all sources of personal income.

In the first years of transition, a few major decisions were taken to formulate a public expenditure strategy. They included the increased routing of expenditures through newly established extra-budgetary funds and accounts, improved transparency and accountability, and the establishment of the Treasury Directorate and Public-Debt Directorate. Control over expenditures in 1993 through 1995 was also reformed, except for spending on wages, salaries, pensions, benefits, and welfare payments. Subsidies and transfers were sharply cut and transparently incorporated into the government budget.

Therefore, during 1990-98, revenues and expenditures as a percentage of GDP fluctuated within a margin of as much as 32 to 42%. The composition of expenditures shows the swift pace of self-sustaining public debt through ever-increasing costs incurred by public debt service, reaching a 6.25% share-to-GDP ratio in the first half of 1999 from 0.2% in 1992. Transparent subsidies granted from the government budget to state-owned enterprises undergoing restructuring, along with the abolition of the window for financing the quasi-fiscal deficit through directed credits and interest-rate subsidies in 1992 to 1996, enabled policymakers to assess the real size of the economic imbalances and to implement several corrective measures.

Changing the structure of budget expenditures and revenues in Romania in the last years followed the new priorities of fiscal policy in EU countries. The purpose of tax system reforms has mainly been to broaden the tax base while at the same time lowering marginal tax rates. Reforms concerning the expenditure side have consisted mostly of reducing the share of subsidies and transfer payments (Kosterna, 1997). The consolidated non-financial public sector deficits do not always show the whole picture because they leave out quasi-fiscal operations that subsidise activities in the economy.

The quasi-fiscal deficit was higher than the conventional one, ranging between 8.2% in 1992 and 1.6% in 1993, and was chiefly financed through money creation (Croitoru, 1995). During 1991 through 1994, the government was a net creditor of the financial sector, thus spurring both external financing of the public-sector deficit and the external debt. On the other hand, 1996 saw an all-time high of the quasi-fiscal deficit, which widened to 6.5% on a cash basis and to 8.4% on an accrual basis (OECD Economic Survey, 1998).

There are also several options for measuring the deficit. The nominal cash approach permits international comparisons of deficits across countries. Accrual–based deficits open the door to a whole set of unconventional measures based on the consideration of public net worth or intertemporal budget constraints, and are already used frequently in specialised literature on debt sustainability.

Statistical data on governmental operations generally has a track record of payments so that the fiscal position is usually assessed on a cash basis. This system has the advantage of an easier assessment of the impact of governmental operations on the monetary aggregates, but its main drawback is that it distorts the government's commitments related to the use of financial resources. Calculations based on the two methods (accrual and cash) reveal that payments have been deferred since 1995 when the difference between the two assessment methods amounted to 0.4% of GDP. One year later, the figure edged up to a 1.9% share-to-GDP ratio, highlighting the government's default as a result of the election and thereby providing an overall view of the volume of arrears. Total conventional deficit of the consolidated non-financial public sector reached only 3.9% of GDP on a cash basis at the end of the fiscal year by carrying forward into 1997 some expenditures with the "thirteenth month" salary of public workers and some subsidies for farmers.

We can conclude that fiscal variables can define not only the speed of transition, but can also help assess the sustainability of government deficits. Fast reformers imposed severe budget constraints, measured as a reduction in subsidies and direct taxation, while compensating the losers of adjustment through higher social expenditures.

5. Estimation of seigniorage revenue contribution and its limits

In the paper's first section, the problem of income from seigniorage to cover part of a government's budget was eluded and implicitly included in equations (1) through (3). In this part, we try to present some possibilities for estimating seigniorage revenue.

The evolution of the current deficit in the transition period casts doubt on seigniorage's macroeconomic sustainability, allowing for the following possible options: (i) accommodation of expenditures with revenues; (ii) raising tax revenue from the public; (iii) maintenance of the deficit and financing through money creation; and (iv) maintenance of the deficit and financing by means of borrowing from domestic or foreign markets [3].

Deficit financing through money creation actually translates into financing through seigniorage—for households, this means that the real value of money will whittle down because of inflation. When it comes to assessing the change of the monetary base in real terms, the volume of seigniorage that may be raised by the government from households is conditional on the demand for money. This decreases against the background of a high inflation rate, thereby containing the capacity for financing the deficit.

The revenue raised through the printing of money is called seigniorage (Lienert et.all, 1997). Formally, seigniorage (S) is given by:

$S = \Delta Mt / P$ (4) or

$$S = \mu m \qquad (5)$$

where $\mu = \Delta Mt / Mt$ (the percentage growth in the nominal money stock).

Thus, seigniorage is defined as the change in the nominal money balance held by the public (ΔMt), expressed in terms of the price level (P), or equivalently, the percentage growth rate of the nominal money stock (μ) times the real money stock: $m = M / P$. To have a meaningful quantitative assessment of seigniorage, such an amount, St, is usually measured in terms of GDP. St is defined as:

$$St = \Delta Mt / GDPt \qquad (6)$$

where GDPt is nominal GDP.

Seigniorage received by the government, Sg, will be much smaller and will only reflect the government issuance of reserve money or high-powered money (H):

$$Sg = \Delta H / P \qquad (7)$$

or

$$Sg = \beta (H / P) \qquad (8)$$

where $\beta = \Delta H / H$, the percentage growth in reserve money.

Seigniorage (Sg) can be decomposed into a "pure seigniorage" component (h) that is desired by the public and an "inflation tax" component (π h) which, from the point of view of the public, is the reduction of the real value of money due to inflation, given by:

$$Sg = h + \pi h \qquad (9)$$

where $h = H / P$. The equivalent formula for expression (7) above is:

$$Sgt = \Delta ht + \Delta Pt / Pt*ht-1 \qquad (10)$$

Expression (10) is also used in the measurement of nominal and real fiscal and quasi-fiscal deficits as net seigniorage collected by the Central Bank—equal to seigniorage (Sgt) less the interest paid on commercial bank reserves (Rocha and Saldanha, 1992). Croitoru (1995), measuring the fiscal and quasi-fiscal deficit in Romania during 1990-1995, used expression (10) but changed it as:

$$\Delta H / P = \Delta h + (\pi / 1+\pi) h-1 \qquad (11)$$

Because Romania is characterised by a high inflation rate, we used expression (10) in our work based on the monthly change in reserve money and a correction coefficient for inflation. The seigniorage results for the 1990-1994 period were similar to figures obtained by Croitoru and they are presented in Table 3.

Table 3. Seigniorage and Inflation Tax Figures in Romania

Indicators	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999 H1**
Inflation Rate (Change Dec./Dec.)	199.2	295.5	61.7	27.8	56.9	151.4	40.6	30.8
Gross Seigniorage (% of GDP)								
In Nominal Terms	7.7	8.2	4.3	3.4	1.8	4.9	1.3	10.3
In Real Terms	6.9	6.8	4.0	3.1	1.4	4.1	1.1	3.0
Gross Pure Seigniorage (% of GDP)	-3.4	-2.4	1.0	1.5	-1.6	-0.4	-1.0	-1.6
Inflation Tax (% of GDP)	10.3	9.2	3.0	1.7	3.0	4.5	2.1	4.6
Broad Money (% of GDP)	30.8	22.3	21.4	25.3	27.9	24.8	27.3	21.7
GDP (Bill. Lei)	6029.2	2035.7	49773.2	72135.5	108919.6	250480.2	338670	474830

The presented data reveals that the government of Romania obtained a larger volume of seigniorage for financing the deficit in the first years of transition to a market-oriented economy. The level of seigniorage was much higher in the years with three-digit inflation rates, i.e. 1992, 1993, and 1997. The sharp decline in seigniorage in recent years [4] helped to circumscribe this indicator to the limits close to those recorded usually by market economies, i.e. 1-1.5% (Coricelli, 1997). It should be pointed out that enforcement of Law No.101/1998 regarding independence of the Central Bank stipulates price stability as the main goal of the latter. This had a sensible impact on containing the government's access to financing through seigniorage. The upturn developed by this indicator in the first half of 1999 is undoubtedly linked to the pressing liquidity needs revealed by the banks undergoing restructuring (BANCOREX and Banca Agricolã) and to the efforts made by the central bank to pre-empt a systemic crisis. The subsequent takeover of the public debt by issuing zero coupon bonds in the amount of ROL 6,617 billion and approximately USD 246 million helped to finance the deficit.

Additionally, during the tightening of monetary policy, seigniorage dropped off as a result of lower economic growth that decelerated expansion of reserve money. This, in turn, means that a larger portion of the deficit must be financed by increased debt. The smaller the deficit that needs to be financed by debt, the more monetary authorities are on the upward-sloping portion of the Laffer curve and accept inflation. The question is who determines how large seigniorage must be. In the Sargent-Wallace story, the issue is that the Central Bank must choose between fighting present inflation with "tight" monetary policy now or fighting future inflation with "easy" monetary policy (Dornbusch, 1996). In fact, that translates into a need for the co-ordination of monetary policy and fiscal authority.

The drop in income from seigniorage and inflation taxes points to the high level of demonetisations affecting the Romanian economy over the past few years. The slow process

of re-monetisation and financial deepening in Romania lagged far behind those recorded by Poland, Slovakia, and Hungary. This leads us to the conclusion that the 3% deficit-to-GDP ratio laid down as a convergence criterion for integration with the European Union may prove inappropriate as the permissible level to maintain, as monetary security appears to be much lower (Kosterna, 1997). Both households and companies grapple with rampant inflation after being freed from the illusion of money so that governments find themselves in the position of resorting to alternative financing sources, such as debt increases. However, as long as inflation sticks to moderate levels, resorting to the inflation tax should prevail over debt increases. Dornbusch and Fisher claim that, in general, the cost of swiftly curbing inflation down to moderate levels (e. g. 20%) may exceed benefits, particularly in such circumstances as financial instability (Coricelli, 1997, p. 46).

6. The relationship between the public sector and external deficits

The impact of public sector deficits on the balance of resources in a national economy is a central theme in macroeconomic policy. Macroeconomic theory offers a rich menu of linkages between public sector deficits and the rest of the economy. As far as the linkages between public sector and external deficits are concerned, we will only refer to two theories which can be considered as being at the two opposite extremes, noting that intermediate, and rather more plausible, views may be considered as combinations of these two extreme ones. The purpose of this exercise is to examine whether the Romanian experience justifies either of them and hence derive some clues for the future.

The first case goes back to Ricardo and has been revived recently by Barro (1988). According to this viewpoint, changes in budget deficits cause offsetting changes in private savings through anticipations of changes in future taxation. Therefore, they have no effect on national savings and, consequently, on the current external account The second “extreme” view is the one related by the New Cambridge Group (Fetherston and Godley, 1978) and is derived from UK empirical evidence. According to it, the private sector’s (household and corporate sector) net acquisition of financial assets is zero. That is, private disposable income is equal to private consumption and investment expenditure. Therefore, the national income identity implies that a government budget deficit must be matched by an equal current account deficit (and a change in government budget deficit by an equal change in the current account deficit). This view is consistent with the Mundell-Fleming model under perfect capital mobility and a floating exchange rate.

We present in the table of Appendix 4 the relevant evidence for Romania regarding the evolution of the general government financial balance, the current account balance, private savings, investment etc., all relative to GDP and on a national accounts basis. Separating the whole period 1990-1998 into three equal periods that can be characterised as relatively homogeneous and taking the average ratios for the three periods, we obtain tables 4a and 4b, which are different versions of the same identity.

Table 4a. The National Income Identity (I)

	GGFS	PS	PI	CAS	Discrepancy (1)+(2)-(3)-(4)
	(1)	(2)	(3)	(4)	(5)
1990-1998 Average, % of GDP	-1.44	16.69	20.74	-5.82	0.32
1990-1992 Average, % of GDP	0.87	17.27	23.90	-6.73	0.97
1993-1995 Average, % of GDP	-1.63	19.00	21.00	-3.63	0.00
1996-1998 Average, % of GDP	-3.57	13.80	17.33	-7.10	0.00
1993-95 / 1990-92 Changes between Averages, % of GDP	-2.50	1.73	-2.90	3.10	-0.97
1996-98 / 1993-95 Changes between Averages, % of GDP	-1.94	-5.20	-3.67	-3.47	0.00

Table 4a is based on a version of the national income identity expressed by equation (12) which presents the general government financial surplus separately from private savings (PS) and private investment (PI). GGFS includes current and investment expenditure on the expenditure side. Such presentation is helpful if the objective is to separate the budget deficit from the private sector's savings-investment gap:

$$GGFS + PS - PI = CAS \qquad (12)$$

where CAS is the current account surplus on a national accounts basis ("net lending"). On the other hand, Table 4b is based on another version of the same identity:

$$NS - NI = CAS \qquad (13)$$

which gives the CAS as the difference between national gross savings (NS) and investment (NI).

Despite the considered period being very short, we attempt to extract some conclusions. Data in Table 2a shows that although the average general government financial deficit (GGFS) has increased by 2.5 points and about 2 points between two consecutive three year periods, the current account deficit (CAS) has changed in two different ways: in a contrary sense during 1993-95 and in the same sense during 1996-98. This implies that for the first period, it seems that the "New Cambridge" hypothesis was in contrast to the Romanian experience, but for the next period (1996-98) it appears to be more realistic.

On the other hand, the resulting data from Table 4 shows that the average private savings ratio (PS) has increased little between the first two periods (1995-92/1992-90), but it was accompanied by a compensatory increase in government dissavings, implying a quasi-

stagnation of the national gross savings ratio (+0.6 points). Between the last two considered periods (1996-98/1993-95), there was a general crisis in savings and investment with both sectors registering significant decreases. However, government savings fell more than private savings. While the current account deficit has changed significantly--+3.1 points between the first two periods and about –3.5 points between the last two periods—the numbers do not agree with neo-Ricardian conclusions. The transmission mechanism is also in contrast to the one underlying neo-Ricardian theory. For instance, considering the changes between the two periods, in Romania it was private investment (PI) rather than private savings (PS) that adjusted to government dissavings. As is evident from Table 4a, the fall in private investment was almost three percentage points of GDP, while the increase in private savings was less than two points. In fact, the change in private savings was smaller and in investment larger. Nonetheless, there were quite a different situation between the last two periods with negative changes in private savings and private investment.

Table 4b. The National Income Identity (II)

	NS	NI	CAS	Discrepancy (1)-(2)-(3)
	(1)	(2)	(3)	(4)
1990-1998 Average, % of GDP	19.62	25.89	-5.82	-0.44
1990-1992 Average, % of GDP	22.17	29.87	-6.73	-0.97
1993-1995 Average, % of GDP	22.77	26.00	-3.63	0.40
1996-1998 Average, % of GDP	13.93	21.80	-7.10	-0.77
1993-95 / 1990-92 Changes between Averages, % of GDP	0.60	-3.87	3.10	1.37
1996-98 / 1993-95 Changes between Averages, % of GDP	-8.84	-4.20	-3.47	-1.17

We could generally classify the explanations for the decline in private investment during the whole transition period into three groups: 1) income policy combined with price and profit margin control and an appreciating real exchange rate; 2) structural constraints; and 3) a crowding out mechanism. Referring to the first group of causes, many times during the transition period average pay in industry was rising faster than productivity, as encouraged by official guidelines. In contrast, most advancing Central European countries were restricting pay increases in correlation with the evolution of productivity. This phenomenon was reinforced after the election of a socialist coalition government in 1992 that provided large increases in minimum wages and made wage indexation its official policy. A same kind of policy was applied for a short period after the new elections in 1996. Especially during the first years of transition—but in a certain measure up to now—the rather unorthodox and bureaucratic controls on prices, profit margins and house rents, as well as an (ex-post) non-accommodating exchange rate policy, caused a profit squeeze and a reduction in housing investment. For the second explanation, it can be mentioned that the removal of barriers protecting Romanian industry prior to Romanian's EU preparations and entry into CEFTA exposed the Romanian economy to world competition which required rapid adjustment The scarcity of managerial skills and qualified personnel, the inability of most

Romanian firms to absorb technological advances beneficial to the quality of their products or to the cost of their production, bureaucratic impediments combined with a rather erratic industrial policy, and a financial system biased against the provision of venture capital resulted in the failure of Romanian industry to adjust to the new, more competitive environment. In relation to the third explanation, the presence of a growing public sector deficit, along with the fall in private investment, is sometimes used as an argument in favour of the operation of a crowding out mechanism through credit rationing because lending interest rates were fixed by authorities at low levels up until 1995 (real rates were negative many years after 1989). Although it is not an easy task to support the crowding out through credit rationing argument for the 1992-95 period during which private investment continued to fall, there is no doubt that the 1990-94 government guidelines on income policy, the rather old-fashioned price and profit margin controls, along with labour market rigidities were, on the whole, creating a crowding out mechanism. This view, which effectively suggests that it is the overall stance of economic policy that matters, seems to be justified by events in the following years which witnessed the reversal of macroeconomic policy. This is mainly measured by a more severe income policy effectively based on a drastic reduction of the degree of wage indexation and a change of exchange rate policy. Also, this was partly a result of an accord with the IMF signed in 1993-94 regarding a macrostabilisation programme that had as main result a drastic diminution of the inflation rate.

Before we close this section, it is worth looking at the relationship between external debt and the current account. The relationship between changes in net external debt, the current account and net capital inflow (Dornbusch, 1987, p. 99) may be written as:

$$\Delta (NFB) = CAD - (NILTC + NISTPC) \qquad (14)$$

where Δ (NFB) is the change in net external debt, CAD is the current account deficit, NILTC is the net inflow of long-term capital (direct and portfolio investment), while NISTPC is the net inflow of short-term private capital.

The net inflow of private capital traditionally covers part of the current account deficit (Table 5), with net inflow of long-term capital being the dominant item (direct and residential investment).

Table 5. The Romanian Balance Of Payments

								bill. $	
	1990	1991	1992	1993	1994	1995	1996	1997	1998
CAB	-1.80	-1.29	-1.46	-1.23	-0.52	-1.77	-2.57	-2.14	-3.01
Net Inflow of Private Capital	0.14	-0.91	-0.50	0.37	-0.77	0.21	1.33	-1.11	2.11
Balance Item	n.a.	0.14	0.40	0.15	0.94	0.46	0.36	1.10	0.38
Balance of Payments	-1.83	-2.42	-3.28	-2.31	-1.67	-3.18	-3.99	-4.52	-4.61
Before Official Borrowing									

Up to 1995, the prevailing negative interest rates along with an underdeveloped financial market were discouraging short-term capital inflow. In crisis periods, domestic capital was also fleeing abroad, avoiding the existing exchange controls in various ways. Although data on capital flight is not available, the sign of the balancing item in the balance of payments accounts is sometimes used by the non-technical press as an indicator of such movements. The reversal of macroeconomic policy in 1993-1995 and in 1997-1998 with the application of a stabilisation programme in accordance with the IMF standby agreement caused an increase in net capital inflow (both long-term and short-term) and, apparently, a reversal of capital flight. The authorities' change of attitude toward foreign capital (the relevant low was modified in favour of direct investment while the implementation of a gradual deregulation of financial and product markets started immediately), the overall stance of economic policy, and the 1998 programme caused an increase in private long-term capital inflow. In addition, the increase in real interest rates and gradual deregulation of financial markets, along with the creation of new opportunities for short-term investment, attracted short-term capital.

7. Can public sector deficits be sustained?

As we have seen, the persistent public sector primary deficits (excluding income from privatisation) during 1992-98 (with a small exception in 1993) have caused a new record increase in public sector debt. In addition, they have reduced the country's national savings ratio to very small levels in comparison to previous periods and to international standards, reduced the public sector's net worth since they are due to consumption and not public investment deficits and are crowding out private investment. In fact, it is national investment—private and public investment—that has been crowded out by current government dissavings, as the table of Appendix 4 and Table 4b show. They have failed to boost the economy, casting doubt on whether a small, open economy like Romania, suffering from structural impediments, can use an expansionary fiscal policy to boost output—especially during a period in which its trade partners are following restrictive policies.

Very few would now object to the view that the current fiscal situation in Romania is unsustainable, especially if we consider the recent external debt-service burden crisis in this year. It is so because the persistent primary deficits (generated indeed during some extraordinary--still too much prolonged--circumstances of transition, but not, however, during like in a period of war) combined with rising real interest rates may, at some point in the future, crack the public's confidence, and hence create a crisis with unforeseen consequences in the government's ability to generate primary surpluses to repay the existing debt (e.g. capital flight) (Spaventa, 1988).

To see what the dynamics of debt accumulation involve, we can solve equation (3) recursively to obtain

$$d_T = d_0 \, v^T + \Sigma (\pi^m - b_m) \, v^{T-m} \qquad (m = 1, 2, \ldots, T) \qquad (15)$$

where: $v = (1 + i^* + p) / (1 + q + p)$, while it has been assumed, in order to simplify calculations, that the real effective interest rate, i^*, the real growth rate, q, and the change in the GDP deflator, p, are constant: $i^*_t = i^*$, $q_t = q$, $p_t = p$. Using equation (15) we

can predict the debt to GDP ratio for some future moment T, making assumptions about the relevant parameters. A high real growth rate relative to the effective real interest rate tends to reduce the debt to GDP ratio, d, while persistent primary deficits net of (real) central bank financing tends to increase it. We consider it useful to simulate the evolution of public sector debt for the next ten years using past parameter values that conform to the data in Table 1. The simulation output is presented in Table 6.

Romania's determination to reduce its inflation rate in order to stabilise its economy and achieve the conditions to be accepted into the EU in the future restricts its ability to increase the direct financing of budget deficits by NBR (as we already analysed in this paper) and also implies that (real) interest rates will have to tend to European levels. A rather safe and helpful assumption to make is that the growth rate q will be equal to the average effective real interest rate i* on public debt, although it looks to be in contrast to past experience. We can see from Table 1 that only in 1997 was i* small, 6%, which is already plausible for the growth rate. This assumption can be justified only when the following events happen: a rapid increase in marginal real interest rates on government borrowing with short-term new government borrowing and high real interest rates prevailing world-wide. It also has a theoretical appeal--it corresponds to the optimum growth theory's "golden rule of accumulation" [5]. Under the assumption q = i*, equation (15) becomes:

$$d_T = d_0 + \Sigma (\pi^m - b_m) \qquad (16)$$

If, for instance, the 1990-1998 average $\pi - b$, which was equal to 0.3%, is assumed to prevail during the next decade, then taking into account that $d_0 = d_{1999} = 1$, the corresponding ratio at the end of the next decade will be only 1.03. Another example: if the 1996 average $\pi - b$, which was equal to 1.7%, is assumed to prevail during the next decade, then the corresponding ratio at the end of the next decade will be only 1.17. That is, the debt to GDP ratio will be 17% higher than it is today. Similarly, the corresponding ratio, d_T, for a very large T will tend to infinity. In fact, d_T will always tend to infinity for a very large T, unless the "average" future primary deficit is zero. An interesting, and empirically appealing, case arises, when the primary deficit is positive but declining. It can be shown (using the so-called d'Alambert's theorem on the convergence of infinite series) that d_T will converge to an infinite limit for a very large T, if the primary deficit, $\pi - b$, is declining at a constant rate. If $q > i^*$, it can be shown from equation (15) that d_T will always be bounded, provided that primary deficits remain bounded. In the special case where the primary deficit, $\pi - b$, is constant, d_T will converge to $(\pi - b) / (1 - v)$ for a very large T. It should be noted, however, that this limit will be a very large one (and may not be practically sustained). For instance, if $\pi - b$ remains at the 1996 level for reasonable values of q and i* (7.1% for q, as it was in 1996, and 6.0% for i*, as it was in 1997), d_T will be close to 4.00, which is a very high debt to GDP ratio – either by historical or by international standards. Finally, if $q < i^*$ the debt to GDP ratio increases without limit [6].

Table 6. The Simulation of Debt Evolution for Ten Years

The Value of Parameters, as in the Year*):	Value of Indicator v**)	Time Horizon ($d_0 = 100$)	
		5 Years	10 Years
1995	1.204	239	585
1996	1.317	388	1519
1997	1.054	111	124
1998	1.227	258	695

*) See Table 1 (Excluding General Government Proceeds from Privatisation)
**) See Equation (15)

7. Conclusions

The main conclusions of the paper are the following:

1) The record increase in the public debt to GDP ratio of the transition period is due to a very large increase of social consumption expenditures without a parallel increase in tax revenue;

2) Record primary deficits occurred during election years (1992 and 1996), indicating the presence of a political business cycle;

3) Real average effective interest rates on central government debt were negative for some years (1993 and 1994) but are increasing and probably stabilising;

4) There were many oscillations in the evolution of current account deficits relative to GDP and in public sector deficits in the background of a severe decrease in savings and investment (both private and governmental). Many times, they were non-correlated through the operation of various crowding out mechanisms;

5) High public sector consumption deficits should not continue. The country's savings ratio is now the lowest in the European area despite a relatively constant household savings ratio, while a rapidly growing public debt may crack public confidence and lead to capital flight;

6) a better correlation between fundamental macroeconomic indicators and including pressures that come from international financing institutions, as appears to be the trend in recent years, will be necessary in order to ensure the sustainability of public sector debt and the credibility of the Romanian economy for the future.

Appendix 1

t	dtb_d%$_t$·100	dExb_d%$_t$·100	dInb_d%$_t$·100	dtb_L%$_t$·100	dExb_L%$_t$·100	dInb_L%$_t$·100
1990	3	3	0	4.6	4.6	0
1991	7.4	7.4	0	18.3	18.3	0
1992	19	16.5	2.4	28.4	24.7	3.7
1993	17.4	16.1	1.3	29.2	27.1	2.1
1994	20.6	18.2	2.4	22	19.5	2.5
1995	20	17.8	2.3	25.4	22.5	2.9
1996	27.4	23.6	3.8	35.9	30.9	5
1997	32.8	27.4	5.4	36.7	30.7	6
1998	31.8	25.4	6.4	39.2	31.3	7.9

dtb_d – Gross Country's Debt to GDP Ratio, in USD
dExb_d – Gross External Debt to GDP Ratio, in USD
dInb_d – Gross Internal Public Debt to GDP Ratio, in USD
dtb_L – Gross Country's Debt to GDP Ratio, in Lei
dExb_L – Gross External Debt to GDP Ratio, in Lei
dInb_L – Gross Internal Public Debt to GDP Ratio, in Lei

Appendix 2

The Fiscal Position of a Selection of Transition Countries, 1990 - 98

			Bulgaria	Czech Republic	Croatia	Poland	Romania	Russian Federation	Slovakia	Slovenia	Hungary
		1990	–8.5	–0.2	...	3.1	0.3	...	–0.2	–0.3	0.4
		1991	–3.8	–2.1	...	–3.8	–1.9	–13.9	–3.8	2.6	–4.9
	Government	1992	–5.8	–0.2	...	–6.0	–4.4	–5.5	–2.8	0.3	–6.7
Budget	Budget as	1993	–11.0	0.1	0.2	–2.8	–2.6	–9.9	–6.2	0.3	–5.6
	Deficit to GDP	1994	–6.5	0.9	0.6	–2.7	–4.2	–11.4	–5.2	–0.2	–7.4
	%	1995	–6.6	0.5	–0.8	–2.6	–4.1	–5.5	–1.6	0.0	–2.4
		1996	–10.9	–0.1	–0.1	–2.5	–4.9	–8.1	–4.4	0.3	–1.9
		1997	–3.7	–1.0	–0.9	–1.3	–3.6	–7.3	–5.7	–1.1	–4.0
		1998	1.3	–1.6	0.9	–2.5	–3.1	–5.0	–2.7	–0.6	–5.4

Source: NBR data, Annual Report for 1998, p. 28.

Consolidated General Government Balance (IMF adjustments)
(in Percent of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 Half	1999 Program
TOTAL REVENUE	39.8	41.9	37.4	33.9	32.1	32.1	29.9	30.6	35.0	42.3	33.8
Current	39.5	38.9	36.6	33.6	31.9	32.0	29.8	29.4	32.6	39.4	33.5
A. Tax	35.5	33.2	33.5	31.3	28.2	28.8	26.9	26.7	30.9	37.9	31.2
A1. Direct Tax	22.7	23.7	25.0	21.6	20.1	19.6	17.9	16.9	17.8	23.9	18.4
Profit Tax	7.1	5.1	5.3	3.8	3.8	3.9	3.3	4.3	3.3	3.9	2.4
Tax on Salaries	6.8	7.6	7.6	6.6	6.5	6.4	6.1	5.6	5.5	6.8	4.8
Social Security Contributions	7.9	10.0	10.3	9.3	7.9	7.9	7.5	6.6	8.7	11.0	8.9
Other	1.0	1.1	1.8	2.0	1.9	1.4	1.0	0.4	0.4	2.2	2.3
A2. Indirect Tax	12.8	9.5	8.5	9.7	8.1	9.3	8.9	9.8	13.1	13.9	12.7
Out of Which:											
Excises and Oil Tax	11.8	8.3	6.9	3.7	1.6	1.5	1.4	1.7	2.5	3.4	3.7
V.A.T.	0.0	0.0	0.0	3.6	4.6	5.2	4.9	4.7	6.6	7.2	5.9
Customs Tax	0.2	1.1	1.3	1.3	1.1	1.4	1.5	1.3	1.7	1.9	1.9
Other	0.8	0.1	0.2	1.0	0.8	1.1	1.1	2.1	2.3	1.4	1.2
B. Nontax	4.0	5.7	3.1	2.3	3.7	3.2	2.9	2.7	1.7	1.6	2.4
Capital	0.3	3.0	0.7	0.2	0.1	0.1	0.1	1.2	2.4	2.6	0.0
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
TOTAL EXPENDITURES	38.7	38.7	42.0	34.2	33.9	34.7	33.8	34.2	38.3	46.1	35.9
Current	30.8	32.7	36.7	29.3	28.1	28.8	28.2	28.8	34.3	42.7	32.7
Goods and Services	12.3	13.6	14.1	12.0	12.4	12.6	11.8	10.7	12.9	16.3	10.6
o/w:											
Wages and Salaries	7.2	7.7	7.5	6.8	6.7	6.5	6.0	4.9	5.5	7.0	4.8
Interest Payments for the Public Debt	0.0	0.0	0.2	0.9	1.4	1.4	1.7	3.4	5.4	6.1	5.4
Subsidies and Transfers	19.8	21.6	25.9	18.1	16.3	17.4	16.5	14.1	16.0	20.4	15.1
Subsidies	8.3	11.7	16.5	8.6	5.8	6.6	6.1	2.5	1.7	3.1	1.5
Transfers	11.6	9.9	9.4	9.5	10.5	10.8	10.4	11.6	14.4	17.3	13.5
Capital	7.9	6.0	4.1	4.3	5.5	5.3	5.2	4.8	3.3	3.1	2.7
Lending minus Repayments	0.0	0.0	1.1	0.5	0.2	0.6	0.3	0.6	0.6	0.3	0.2
OVERALL BALANCE (Cash- Net of Privatisation Receipts)	1.0	3.2	-4.6	-0.8	-2.5	-3.8	-5.5	-4.6	-5.6	-6.3	-3.0
OVERALL BALANCE (Cash- Including Privatisation Receipts)	1.0	3.2	-4.6	-0.4	-1.9	-2.6	-3.8	-3.6	-3.3	-3.8	-2.0
PRIMARY Balance (Including Private)	1.0	3.3	-4.4	0.6	-0.5	-1.2	-2.2	-0.1	2.1	2.8	3.4
PRIMARY Balance (Excluding Private)	1.0	3.3	-4.4	0.2	-1.2	-2.4	-3.8	-1.1	-0.2	0.2	2.4

Appendix 4

Gross Savings

	1990	1991	1992	1993	1994	1995	1996	1997	1998	H1 1999
Real GDP (%)	-5.6	-12.9	-8.8	1.5	3.9	7.1	3.9	-6.9	-7.3	-3.9
Current Account Balance (CAS)	-8.7	-3.5	-8.0	-4.5	-1.4	-5.0	-7.3	-6.1	-7.9	-6.0
	1.03	3.25	-4.61	-0.37	-2.40	-2.92	-4.05	-3.91		
General Government Balance(GGFS)	1.0	3.2	-4.6	-0.4	-1.9	-2.6	-3.8	-3.6	-3.3	-3.8
General Government Balance on Current Transaction(GGFSCT)	8.6	6.2	-0.1	4.4	3.9	3.2	1.6	0.7	-1.8	-1.9
Private Sector Gross Savings (PS)	12.6	15.3	23.9	20.6	19.8	16.6	17.2	14.4	9.8	6.2
(PS=NS-GGFSCT)			26.5	22.8	23.3	18.7	20.6		9.8	
National Gross Savings (NS) (NS=PS+GGFCT)	21.2	21.5	23.8	24.9	23.6	19.8	18.8	15.0	8.0	4.3
E=(Pib-Cf)/PIB	20.8	24.1	23.0	24.0	22.7	18.7	17.4	14.7	9.2	4.2
Gross Household Savings (GHS) (calculat pe baza conturilor nationale ca pondere in venitul disponibil)		1.6	3.4	4.0	7.3	7.6	5.5	…	…	
Private Gross Investment (PI)	22.3	22.1	27.3	24.7	19.3	19.0	20.6	17.0	14.4	7.7
Gross State Investment (GST)	7.9	6.0	4.1	4.3	5.5	5.3	5.2	4.8	3.3	2.6
Gross National Investment(NI)	30.2	28.0	31.4	28.9	24.8	24.3	25.9	21.8	17.7	10.3

NOTES

[1] In a recent paper published by Standard & Poor's it is shown that various factors have eroded the advantages of Romania's moderate debt burden: high political risk; policy slippage; and a rapid rising external debt-service burden because of continued borrowing to finance budget deficits, and loss-making, state-owned enterprises and banks (Standard and Poor's, 1999).

[2] To estimate parameters i and a in equations (1)-(3), we used the following relations:

$$i_t = Db_t / D_{t-1}$$

where Db is general government interest, and respectively

$$a_t = (D_t / D_{t-1}) [1 - (CS_{t-1} / CS_t)]$$

with CS being the exchange rate (Lei/USD) at the end of year.

[3] Bernard Laurens and Enrique G. de la Piedra (1998) point to three possibilities to secure government borrowing: voluntary private sector purchases of government debt in the domestic market, foreign borrowing, and forced placement of government debt--such as the creation of a "captive" market for government securities by forcing institutions to invest a certain share of their portfolios in such securities.

[4] It is noteworthy that the differences between the size of this indicator, after using this assessment method, do not affect the conclusions of our analysis. Thus, consistent with calculations made by Nina Budina (1998), gross seigniorage in Romania equalled 7.8% in 1992, 7.4% in 1993, 9.8% in 1994, 2.9% in 1995, and 5.25% in 1996.

[5] Approaches to the problem of debt accumulation using differential equations end up with an indeterminacy in the case where g = i, while the present method, starting from equation (3) and solving it recursively to obtain equation (15), avoids it (OECD, 1989).

[6] This is the so-called Domar's law.

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