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215

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Financing the Deficit of the State Budget by National Bank of Georgia (1996–1999)

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Contents

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Jacek Cukrowski (born 1960) received his M.Sc. degree in Systems Engineering in 1985, Ph.D. in Computer Science in 1990, Postgraduate Diploma in Sociology and Politics in 1993, Ph.D. in Economics in 1995. In 1997 he defended Habilitation Thesis in Economics. In 1992–1999 he worked as a researcher in the Economics Institute in the Academy of Science of the Czech Republic. Since 1998 he has been a docent of Charles University (Czech Republic), and Professor of University of Finance and Business (Poland), since 1997 with CASE Fundation.

Abstract

In this paper the concept of total gross seigniorage is used to analyze sources of revenues of National Bank of Georgia (NBG) and their distribution in the period 1996–1999. A comprehensive framework for measuring total seigniorage and its main components is presented and estimates of seigniorage revenues (sources and uses) are computed and analyzed. It is shown that in the considered period fiscal revenues from NBG have not been extensively financed by the money supply (consequently, cannot be estimated by the monetary seigniorage), but have been mostly covered by the reduction of the non government debt hold by central bank. Since the stock of international and private domestic assets hold by National Bank of Georgia is limited, in long run NBG cannot rely on it. The only way how, in the future, NBG can finance large deficits of the state budget is to use monetary seigniorage. This, however, will have to be accompanied by significant growth of monetary base and will cause a danger of large inflation.

1. Introduction

In the aftermath of the breakdown of the Soviet Union, internal armed conflict and the war in Abkhazia, during the first years of independence Georgia experienced significant economic crisis. In 1992–1993 Gross Domestic Product (GDP) reduced almost by 70%. The economy shifted to the shadow sector. The government unable to collect taxes had to get external debt resulting in significant foreign outstanding arrears. In the same time huge monetary emissions caused hyperinflation (percentage change in end-year consumer prices amounted about 7488% in 1993 and 6474% in 1994).

In 1994 government initiated the process of intensive system transformation based on, in general terms, a transition to a market economy and involved economic liberalization accompanied by the privatization of the state-owned sector. In 1995 national currency – lari (GEL) was introduced and a number of reforms were implemented to stabilize and liberalize the Georgian economy. Subsequent macroeconomic reforms aimed at strengthening the budget, enforcing national currency stability, reducing inflation rate and ensuring economic growth.

In the following years significant progress has been achieved in establishing macroeconomic stability. Inflation has sharply fallen and reached the level of 10.9% in 1999. After a massive output decline, real GDP started to increase, showed solid growth in 1996 and 1997 (11,2% and 10,8%, respectively) and stabilized at the level of about 3% in 1998 and 1999. Deficit of the state budget decreased from 6,8% of GDP in 1996 to 3,7% of GDP in 1999 (3,9% of GDP in 1998).

Reforms of tax legislation, and as a result, improvement of the tax base played a substantial role in realization of tax and fiscal program. However, notwithstanding the rate of improvement in budgetary revenue collection, there are still serious difficulties. The main reasons for budget revenues shortfall are: The shadow economy, tax evasion, low level of registration, as well as the poor financial conditions of enterprises and organizations. Deficit financing in Georgia is carried out mainly through loans from the National Bank of Georgia (by direct borrowing) and loans from abroad (mainly from international organizations). We have to note that the credits from NBG are critical for financing the deficit of the state budget. In particular, in 1996 about 73% of the budget deficit (5,2% of GDP) has been financed by NBG. In subsequent years budgetary revenues from NBG decreased but still remain significant (about 3,0%, 1,4% and 2,7% of GDP, respectively) [1]. On the other hand in the period considered the monetary

[1] See Section 4.

policy of the National Bank of Georgia, aimed to achieve economic growth with minimal inflation, was rather strict. The analysis aims to explain from which sources NBG is able to finance so big part of the budget deficit and what could be the long run consequences of such practices for the economy.

Theoretical focus of the paper is on adequacy of different concepts of the measuring the contribution of seigniorage to the financing budget deficit. For example, applying the common concept of monetary seigniorage, which is defined as the change in a country's base money stock deflated by the general price level, the Georgian government should have received 51,6 million GEL in 1996, while in fact it received almost four times more, i.e., 195,8 million GEL. Similar differences can be found in all other years of the analyzed period. Therefore, in theoretical context the analysis intends to show that if the portfolios of actual central banks are diversified between government debt and non government debt, the monetary seigniorage provides no information about the flow of seigniorage to the budget.

2. Seigniorage Revenues

A number of authors consider seigniorage revenues as an important source of government finance [see, e.g., Drazen, 1989; and Gross, 1993]. Recent research shows that the seigniorage in several Western European countries as a share of GDP varies between 2 and 4% [Horrendorf, 1997]. The importance of seigniorage as a revenue instrument in transition economies has been also frequently analyzed [see, for example, Hochreiter, Rovelli and Winckler, 1996; Budina, 1997; Cukrowski and Janecki, 1998; Cukrowski and Stavrev, 1999, 2000]. The results indicate that the experiences in collecting seigniorage revenue differ across countries and revenues from the creation of monetary base and execution of monetary policy play very different budgetary roles in countries in the process of transition to market economy.

As mentioned in the introduction in subsequent years significant part of the budget deficit has been financed by National Bank of Georgia, however, without corresponding growth in the monetary base. This phenomenon cannot be easily explained by the concept of monetary seigniorage (frequently used in the economic literature), and requires deeper analysis of the sources of central bank revenues.

In the analysis which follows we adopt the concept of gross seigniorage, proposed by Klein and Neumann, (1990) and Neumann (1996), which encompasses most of other commonly used concepts of seigniorage [see Neumann, 1996]. In particular, we define

total gross seigniorage as the real gross resource flow to the government sector associated with base money creation [Neumann, 1996]. Formally, we specify total gross seigniorage s as

$$s = s^M + s^I + s^{OP} + s^{NI} \tag{1}$$

where s^M is monetary seigniorage defined as a change in base money stock ΔM deflated by the general price level p:

$$s^M = \frac{\Delta M}{p} = \frac{\Delta M}{M} m \tag{2}$$

(m denotes real balances);
s^I describes net interest revenues on the stock of non-government debt

$$s^I = \frac{i^P A^P + i^F A^F}{p} \tag{3}$$

A^P and A^F denote a private sector debt and foreign debt, respectively (i^P and i^F stand for corresponding nominal interest rates);
s^{OP} describes net revenues from the central bank operations

$$s^{OP} = \frac{G}{p} \tag{4}$$

G denotes revenue from central bank's operations;
s^{NI} denotes net reduction of the non-government debt by the central bank

$$s^{NI} = -\frac{\Delta A^P + \Delta A^F}{p} \tag{5}$$

ΔA^P and ΔA^F denote changes in domestic private sector debt and foreign debt, respectively;

Monetary seigniorage (2) measures the actual wealth transfer which the private sector has to make in order to receive base money in the amount of ΔM from the central bank. Expression (3) describes the flow of interest revenue on the stock of non-government debt that the central bank bought in the past in exchange for non-interest bearing base money (the debt service on the central bank's stock of government debt is not included here because it is merely an inside transaction between the government and the central bank). Expression (4) describes seigniorage from realized gains from assets trading (central bank's financial operations). Expression (5) describes central bank revenues from the reduction of the non governmental debt hold by the central bank. It

have to mentioned that in developed countries net investment in domestic private and foreign debt is typically a positive value, and, consequently, it is considered as an use of the seigniorage [see e.g., Neumann, 1996]. However, in the case of NBG (see Section 4) the non government debt is being reduced from year to year, and to large extent corresponding revenues are used to finance budget deficit. Consequently, in the present analysis the central bank revenues from the reduction of the non governmental debt are considered as the source of the seigniorage rather than an use.

3. Distribution of Seigniorage Revenues

Most empirical literature presents a proxy for actual seigniorage flow to the government based on two implicit assumptions: (1) the government receives the seigniorage revenues regardless of the legal and institutional regulations governing the relationship between the government and central bank; (2) the amount of seigniorage revenue transferred to the government does not depend on the specific ways and means in which the creation of seigniorage is induced by the central bank. This is a simplification which does not take into account the cost of money production and the existence of the central bank in general. Note that the cost of the central bank could be significant [Klein and Neumann, 1990] show that in the period 1974–1987, about 16.9% of German monetary seigniorage was used to cover the Bundesbank's operating costs).

A more precise analysis presented by Neumann (1996) shows that total seigniorage is used for

– covering the cost of money production and central bank operation s^C,

– replacement investment to make up for the exchange rate induced loss of assets (in terms of domestic currency) s^{RI},

– budget finance s^G,

– the increase of the central bank capital and reserves (or is transferred to the third parties) s^O.

Thus,

$$s = s^C + s^{RI} + s^G + s^O \tag{6}$$

where

$$s^C = \frac{C^{Coin} + C^{CB}}{p} \tag{7}$$

C^{Coin} denotes the cost of coinage, and C^{CB} stands for the central bank's cost of printing notes and maintaining operations;

$$s^{RI} = \frac{L}{p} = -\frac{\Delta eA^F}{ep} \tag{8}$$

L denotes a book loss (defined as a positive number), and e is an exchange rate;

$$s^G = \frac{\Delta A^G + (R^G - i^G A^G)}{p} \tag{9}$$

A^G denotes government debt and R^G appropriated profit;

$$s^O = \frac{R^O}{p}, \tag{10}$$

R^O denotes profit transferred to the third parties or used for reserves and capital accumulation.

Part of the seigniorage transferred to the central government budget s^G (specified by expression (9)) is called fiscal seigniorage [see Neumann, 1996]. In general, there should be two additional terms in the numerator of the expression (9): R^{Coin} – revenue from coinage (in the case where the government has rights to issue coins as in Germany, for example); and T^B – taxes on central bank's property and income (when the central bank has to pay taxes on property and income as, for instance, in Japan). In the case of Georgia the government receives fiscal seigniorage through: (1) net borrowing from the central ba (ΔA^G), and (2) appropriation of the central bank's profit, net of interest payments on the central bank's stock of government debt (R^G-$i^G A^G$). Thus, fiscal seigniorage is fully determined by expression (9).

4. Empirical Analysis

The empirical analysis of sources and uses of seigniorage revenues presented in this section is based on data from the central bank balance sheets and its statements of income and expenditures and profit distribution (the main data sources are the *Annual Reports of National Bank of Georgia for the years 1996,1997,1998,1999*) . Since data for 1995 (and before 1995) are unaudited (and rather not consistent) the sample period selected covers years 1996–1999. All the data are reported annually and denoted in the analysis which follows by subscript *t*.

According to the Section 3 the total seigniorage s_t is allocated to the following uses:

$$s_t = s_t^C + s_t^{RI} + s_t^G + s_t^O \tag{11}$$

where the cost seigniorage s_t^C is computed as

$$s_t^C = \frac{C_t^{Co\&Bn} + C_t^{CB}}{p_t} \tag{12}$$

C^{CB} – costs of maintaining operations of central bank,
$C^{Co\&Bn}$ – costs of coinage and printing banknotes,
replacement seigniorage s_t^{RI} is determined as

$$s_t^{RI} = \frac{L_t}{p_t} = -\Delta e \frac{A_{t-1}^F}{e_{t-1} p_t} \tag{13}$$

fiscal seigniorage s_t^G is computed as

$$s_t^G = \frac{\Delta A_t^G + (R_t^G - i_t^G A_t^G)}{p_t} \tag{14}$$

and the increase of the central bank capital and reserves s_t^G is determined as

$$s_t^O = \frac{\Pi_t - (R_t^G - i_t^G A_t^G)}{p_t} \tag{15}$$

where Π_t denotes the total profit of the central bank in the period considered.
On the other hand, the total seigniorage s_t is the sum of the following sources:

$$s_t = s_t^M + s_t^I + s_t^{OP} + s_t^{NI} \tag{16}$$

where the monetary seigniorage s_t^M is computed as

$$s_t^M = \frac{\Delta M_t}{p_t} \tag{17}$$

seigniorage revenue from the stock of interest-earning foreign and domestic private assets s_t^I is determined as

$$s_t^I = \frac{IR_t - IE_t}{p_t} \tag{18}$$

where IR_t and IE_t correspond to interest revenues and interest expenditures, respectively;

and seigniorage revenue from central bank's operations s_t^{OP} is computed as

$$s_t^{OP} = \frac{RE_t - IR_t}{p_t} \tag{19}$$

where RE_t denotes the total revenue of the central bank from assets trading.

Finally, the investment seigniorage s_t^{NI} is computed as a residual, i.e.,

$$s_t^{NI} = s_t - (s_t^M + s_t^I + s_t^{OP}) \tag{20}$$

In Table 1, the sources and uses of seigniorage for the overall sample period 1996–1999 are presented in GEL (all flows are expressed in 1996 prices).

The year by year developments of the sources of total gross seigniorage as a fraction of GDP are presented in Figure 1. The distribution of the total gross seigniorage in subsequent years as a fraction of GDP is presented in Figure 2.

As shown in Figure 2, in the whole period considered revenues from NBG were significantly used for government purposes. Fiscal seigniorage in the considered period amounted about 5,2% of GDP in 1996, 3% in 1997, 1,4% in 1998 and 2,7% of GDP in 1999. Reduction of the non government debt hold by NBG was the main source of the budgetary revenue from the central bank (Figure 3) [2]. In 1996 about 70% of the budgetary revenues from central bank was financed by the decrease in non government debt hold by NBG. In 1998 NBG used resources from the reduction of the domestic private sector and foreign debt not only to increase credit to the government but also to cover other losses (in 1998 the decrease in non government debt hold by NBG amounted exceeded the budgetary revenues from central bank by 15%).

It is worth mentioning that changes in fiscal seigniorage in Georgia are not closely correlated with changes in the monetary base, and, consequently with the monetary seigniorage (Figure 4). Since total seigniorage is used to cover all central bank expenses it usually overestimates flow of the resources from the central bank to the budget (Figure 5). Finally, we would like to stress that there is no direct correlation between yearly inflation rates and neither corresponding values of fiscal seigniorage nor monetary seigniorage (see Figure 6) [3].

[2] It has to be mentioned that the reduction in the non government debt has been estimated as a residual, and consequently, it accommodates all possible errors in the data used. Nevertheless, we believe that the numbers presented are significant enough to represent an actual trend.

[3] Since there are only a few observations in the analysed period (to few for proper econometric analysis), the figure presented gives just a hint, and does not pretend for anything more.

Table 1. Sources and Uses of Seigniorage in Georgia (in 1996 prices)

		1996	1997	1998	1999
		Million of GEL			
Total	S_t	216.6	135.4	178	172.3
Sources					
Monetary	S_t^M	51.6	71.3	6.7	55.7
Interest Revenues	S_t^I	11.7	32.9	43.1	51.8
Revenues from CB operations	S_t^{OP}	13.6	11.8	10.5	8.7
Revenues from disinvestment	S_t^{NI}	138.3	21.0	49.2	63.1
Uses					
Costs	S_t^C	19.7	6.1	16.7	20.1
Replacement for exchange rate loss	S_t^{RI}	-1.4	1.6	99.1	7.0
Reserves and Capital	S_t^O	1.0	3.4	-68.5	33.4
Fiscal	S_t^G	195.8	125.8	62.1	118.8
		Percent of total			
Sources					
Monetary	S_t^M	23.8%	52.7%	3.8%	32.3%
Interest Revenues	S_t^I	5.4%	24.3%	24.2%	30.1%
Revenues from CB operations	S_t^{OP}	6.3%	8.7%	5.9%	5.0%
Revenues from disinvestment	S_t^{NI}	63.9%	15.5%	27.6%	36.6%
Uses					
Costs	S_t^C	9.1%	4.5%	9.4%	11.2%
Replacement for exchange rate loss	S_t^{RI}	-0.6%	1.1%	55.7%	3.9%
Reserves and Capital	S_t^O	0.5%	2.51%	-38.5%	19.4%
Fiscal	S_t^G	90.4%	92.9%	34.9%	68.9%

Figure 1. Developments of the Sources of Total Gross Seigniorage as a Fraction of GDP

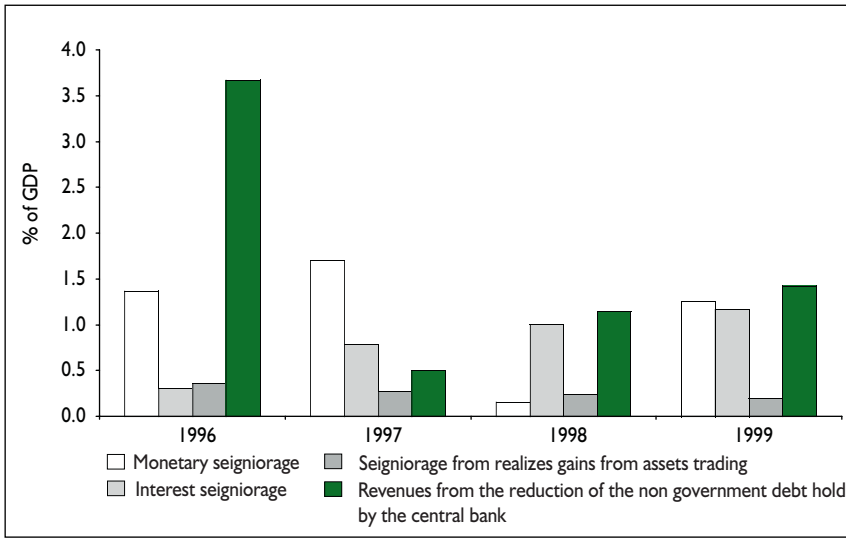


Figure 2. The Distribution of the Total Gross Seigniorage as a Fraction of GDP

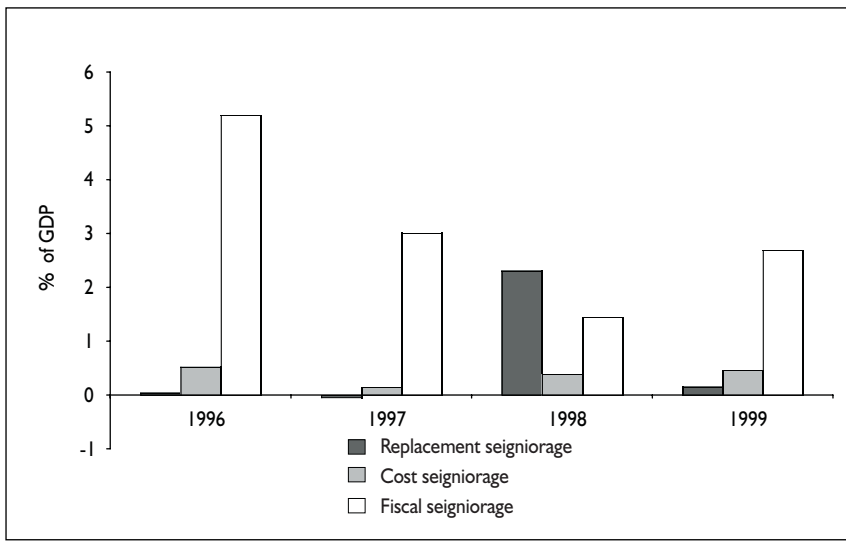


Figure 3. Revenues from the Reduction of the Non Government Debt Hold by NBG and Fiscal Seigniorage as a Fraction of GDP

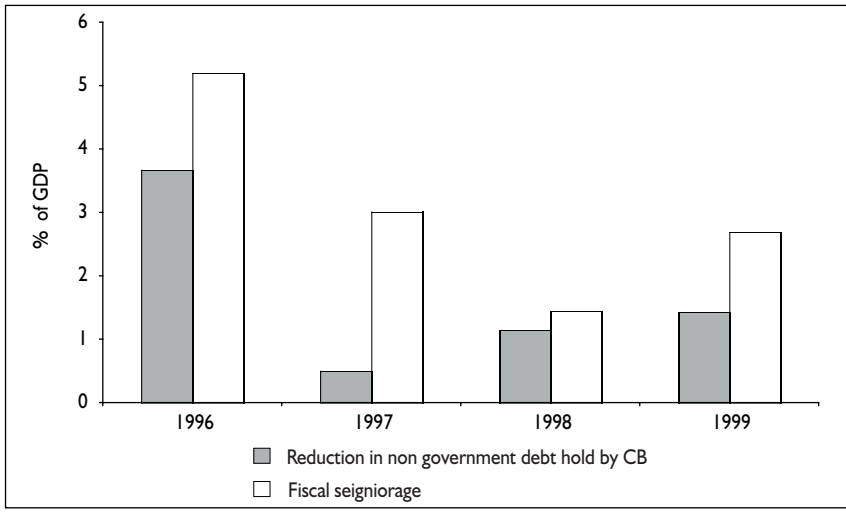


Figure 4. Monetary and Fiscal Seigniorage as a Fraction of GDP

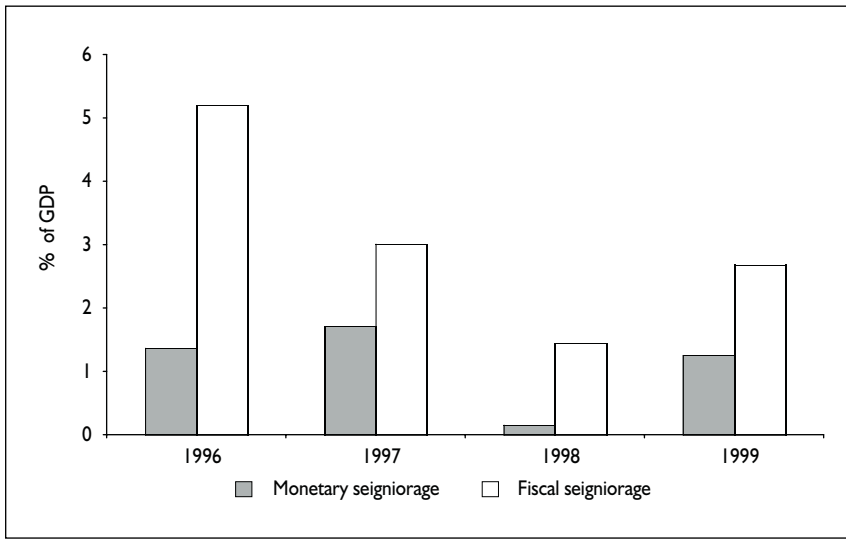


Figure 5. Total and Fiscal Seigniorage as a Fraction of GDP

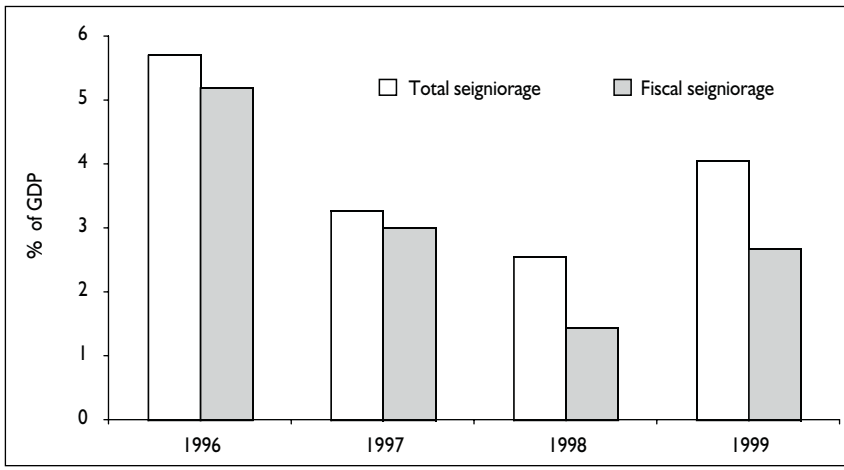
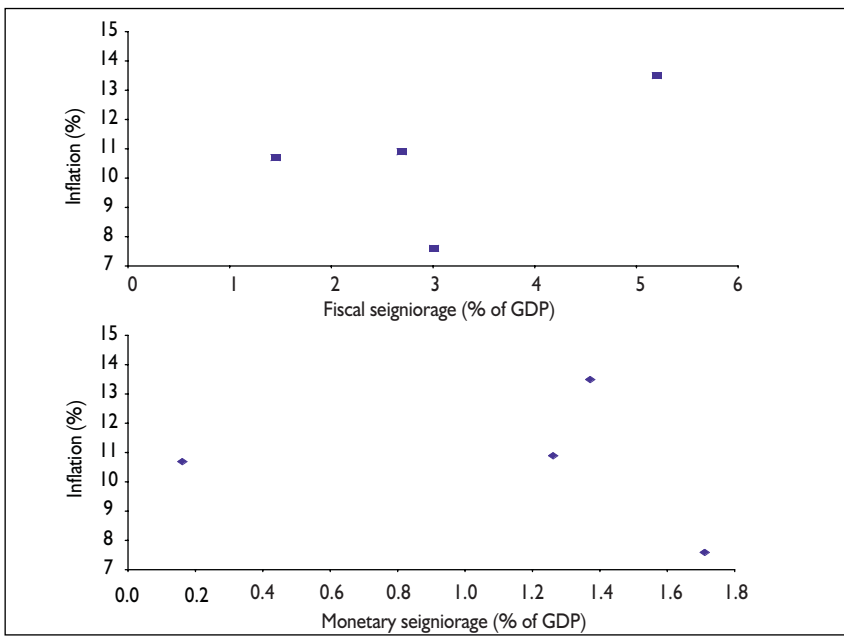


Figure 6. Relationship between Yearly Inflation Rate and Fiscal Seigniorage and



5. Macroeconomic Comment

According to official documents of the National Bank of Georgia the main target of NBG in the considered period was to ameliorate macroeconomic imbalances, and to achieve economic growth with minimal inflation and an optimal level of the exchange rate. As a result the monetary policy of NBG was very strict. In accordance with these targets money supply grew with a simultaneous reduction in net international assets, growth in net domestic assets (in 1998 and 1999), and extensive lending to the government.

As a result of very tight monetary policy, in last few years the National Bank of Georgia has mainly been supplying money through direct credits to the government and very rarely played a role of a lender of last resort. In 1998, out of the total credits of 294,1 million GEL 97,6% represented credits to the government and only 2,4% went to commercial banks. In 1999 the total credits to commercial banks were even lower (i.e., in 1999 of 147,2 million GEL total credit, 146,7 million GEL (99,7%) was issued to the government, and only 0,5 million GEL (0,3%) to commercial banks). On the other hand the minimum reserve requirement increased in 1998 from 12% to 16%. In 1999 the stock of net claims on the government and its growth exceeded corresponding targets defined by IMF by 101,4 million GEL and 101,3 million GEL respectively.

As mentioned above, although the main policy instrument used by the NBG was direct lending to the government this practice did not have much influence on the yearly inflation. This is because, only part of the transfers from the National Bank of Georgia to the government resulted from relatively restricted money supply. Taking into account that the NBG's flow balance sheet can be written as

$$\Delta A_t^F + \Delta A_t^P + \Delta A_t^G + \Delta A_t^{fixed} = \Delta M_t + \Delta K_t \qquad (21)$$

where the left hand sums the changes in net foreign assets, in loans to the private sector, loans to the government (net of government deposits) and fixed assets of NBG; the right hand side sums changes in the monetary base and the NBG total capital accounts;

and presented as in Table 2, it becomes clear that the other part of an extensive credits to government was financed by the reduction in of net assets of NBG (mainly net international assets).

Table 2. Flow Balance Sheet of National Bank of Georgia for the Period 1996–1999 (in million GEL)

	1996	1997	1998	1999
Change in net foreign assets	-141,10	-12,82	-233,47	-45,69
+				
Change in loans to the private sector	-0,99	-27,39	39,73	40,97
+				
Change in loans to the government (net of government deposits)	194,87	131,22	172,14	65,70
+				
Change in fixed assets of NBG	3,77	0,99	4,73	9,41
=				
Change in monetary base	51,61	76,96	7,47	70,39
+				
Change in capital and reserves	4,93	15,05	-24,34	0,00

The shares of these two sources in the financing of the budget deficit in the subsequent years of the period considered are presented in Table 3 (the monetary seigniorage and the revenues from the reduction of net assets are definitely the main sources of the financing of the budget deficit, moreover, in some years, e.g., 1998 and 1999, revenues from these sources have been used for the financing of other expenses of NBG).

Table 3. The Shares of the Monetary Seigniorage and Revenues from the Reduction of Net Assets in the Financing of the Budget Deficit

	1996	1997	1998	1999
Deficit of the state budget (% of GDP)	6,8%	6,1%	3,9%	3,7%
Fiscal seigniorage (in % of GDP)	5,2%	3,0%	1,4%	2,7%
Share of NBG in financing budget deficit	76%	49%	36%	72%
Monetary seigniorage as a percentage of fiscal seigniorage	26%	57%	11%	46%
Share of the revenues from the reduction of net assets as a percentage of fiscal seigniorage	70%	16%	104%	100%

We have to stress that, the extended financing of the deficit of the state budget by the NBG is still costly. It does not result in higher inflation (because of restricted money supply), but it mainly reduces net assets of the National Bank of Georgia. Since the stock of international and private domestic assets hold by NBG is limited, in long run the only way how NBG can finance the deficit of the state budget to the similar extend is to use monetary seigniorage. This, however, will have to be accompanied by significant growth of monetary base and will cause a danger of large inflation.

The key reform challenge is therefore to reduce the size of the deficit of the state budget (see Table 3) caused by extremely low tax revenues (with about 7,4% of GDP in 1999 and 6,9% of GDP in 1998 tax revenues in Georgia are among the lowest in all transition economies). Thus, improving tax compliance will be the key to overcoming budgetary crisis and ensure successful continuation of macroeconomic stabilization. The major challenge will be to improve tax system to balance the decline in profit and turnover taxes from the contracting state sector with increased revenues from other sources, such as VAT and personal income tax.

Delay in the implementation of the tax reform, accompanied with the extended financing of the budget deficit by the National Bank of Georgia, sooner or later will result in significant increase of monetary base and destabilization of the economy.

6. Concluding Remarks

This paper has presented and applied new insights from the seigniorage literature to the problem of financing the budget deficit in Georgia through seigniorage revenues during the process of market reforms, i.e., in the period 1996–1999. In particular, contrary to other empirical studies we have not relied on the simple concept of monetary seigniorage, which measures the flow of the additional monetary base the government can issue, but instead we have used (1) the new concept of *total gross seigniorage* which measures the total flow to the government sector and (2) *fiscal seigniorage* which measures the portion of seigniorage received for budget finance.

An empirical analysis of sources of seigniorage revenues in Georgia for the period 1996–1999 has revealed that the monetary authorities' interest earnings on non-government debt (*interest revenues*) and revenues from central bank operations are important sources of total seigniorage revenues, and therefore, the conventional concept of monetary seigniorage inadequately measures the total flow of seigniorage. In particular, the results show that an estimation of the total seigniorage by monetary seigniorage

understates the total flow of seigniorage revenues. At the same time, the results indicate that most of the budgetary revenues from NBG in the considered period have been financed by the reduction of the private sector debt, monetary seigniorage should not be used a proxy for the total flow to the government sector.

Moreover, the research presented shows that the average flow of seigniorage revenues to the budget was higher than it is usually the case in other countries in transition. Thus it confirms the common belief that in several transitional economies revenues from central bank seigniorage still play a significant budgetary role. We have to stress, however, that in Georgia in the period considered the flow of the resources from the central bank to the budget was not connected with inflationary monetary emissions. Instead most budgetary revenues from NBG have been financed by significant reduction of net international and private domestic assets. Since such practices are surely not sustainable, the problem of financing budget deficit has to be realized by central bank and fiscal authorities. Since the stock international and private domestic assets hold by National Bank of Georgia is limited, in long run NBG can finance the deficit of the state budget only using monetary seigniorage. This, however, will be accompanied by significant growth of monetary base and large inflation.

Finally, it is important to stress that the results presented in this paper imply a weakening of the link between inflation and seigniorage. In particular, much like Klein and Neumann (1990), we would like to emphasize that the increase in a yearly change of monetary base (and a country's inflation rate) does not automatically imply higher fiscal seigniorage revenues. Nor (as it has been shown in the case of Georgia) does the inverse necessarily hold, i.e., a decrease in a yearly change of monetary base (associated with the decrease in the rate of inflation) does not automatically imply smaller seigniorage revenues for budget deficit financing. The increase in the scope of temporary budget deficit financing can be achieved by the relevant central bank policy and increasing central bank efficiency instead of by raising the rate of inflation [4]. However, an analysis of the efficiency of legal arrangements and operational procedures of the National Bank of Georgia has been left for further research.

[4] Klein and Neumann (1990) show that a central bank with a sufficient extent of operational independence might be able to influence the amount of seigniorage acquiring to the government even at unchanged rates of money growth.

Appendix. Data Sources

The main sources of data used for the calculations of the total gross seigniorage and its components are: (1) National Bank of Georgia Balance Sheet and (2) the National Bank of Georgia Statement of Revenue and Expenditure. The simplified forms of these two documents (for 1996–1999) are presented in Table A1 and Table A2 below. A short description follows of how Table A3 (containing all the data used for the computation of the total gross seigniorage and its components) is constructed.

Table A1. National Bank of Georgia Balance Sheet as of December 31, 1995,1996,1997,1998,1999 (GEL)

	1995	1996	1997	1998	1999
ASSETS					
Gold and foreign currency assets					
Gold	883209	875959	699292	956925	1038400
IMF related assets	204543817	203344161	196512495	149934576	411233875
Other foreign assets	243773088	249263150	308791301	292575809	327469977
Domestic currency assets					
Loans to the Government	112445213	296718389	437139344	541523103	646004776
Loans and deposits with banks	2329910	13337196	3240939	5139277	479316
Government Debt Securities				70337352	28080133
Other assets	43248352	30683838	45069089	56050853	98039745
Fixed assets	3678774	7448186	8436258	13161869	22576651
Total assets	**610902363**	**801670879**	**999888718**	**1129679764**	**1534922873**

Table A1. National Bank of Georgia Balance Sheet as of December 31, 1995,1996,1997,1998,1999 (GEL)

	1995	1996	1997	1998	1999
LIABILITIES					
Foreign currency liabilities					
Banks	4747144	2361746	551572	8311198	5270476
Loans and liabilities to IMF	346107191	449664432	530367308	688859655	1014616990
Other	44986117	89194451	75639902	80318501	99566347
Domestic currency liabilities					
Notes and coins in circulation	173965907	215593128	298266914	273346099	350659346
Deposits					
Deposits of the Government	13668255	3075603	12271780	14853121	11376937
Deposits of Banks	18101200	23385650	22511377	37748541	48700134
Deposits of other	2481649	7184628	2340555	19494613	1623313
Other liabilities	1187919	625427	32302472	5448036	1809330
Total liabilities	**605245382**	**791085065**	**974251880**	**1128379764**	**1533622873**
Capital and Reserves	5656981	10585814	25636838	1300000	1300000
Total Liabilities, Capital and Reserves	**610902363**	**801670879**	**999888718**	**1129679764**	**1534922873**

Table A2. National Bank of Georgia Statement of Revenue and Expenditures as of December 31, 1995,1996,1997,1998, 1999 (GEL)

	1995	1996	1997	1998	1999
REVENUES					
Foreign currency related revenues	6022954	11755776	11980987	11146077	10219735
Domestic revenue interest	3947563	19288706	43812550	59624297	80681072
Domestic revenues other	581862	1797588	713802	582475	744955
Total Revenues	**10552379**	**32842070**	**56507339**	**71352849**	**91645762**
EXPENSES					
Interest and other	5886227	7614648	8358407	11502697	15153468
Bad and doubtful loan expenses	407478	13934080		8271136	9273459
Cost of notes and coin production		1391951			41359
Other expenses	2333905	4408851	6608187	10422566	16103569
Total operating expenses	**8627610**	**27349530**	**14966594**	**30196399**	**40571855**
Operating profit (in terms of NBG)	**1924769**	**5492540**	**41540745**	**41156450**	**51073907**
Loses caused by foreign exchange rate variability				-110601399	-8816688
Operating profit (in terms of IAS)	**1924769**	**5492540**	**41540745**	**-69444949**	**42257219**
APPROPRIATIONS AND TRANSFERS TO/FROM RESERVES					
Transfer to the general reserve	-570900	-152676	-3654123	5000000	
Transfer to the government	-962777	-4500000	-37886622	-7000000	
Retained loss/(profit)				71444949	-42257219
Transfer to capital	-391092	-839864			
Total appropriations and transfers (to)/from Reserves	**-1924769**	**-5492540**	**-41540745**	**69444949**	**-42257219**

Table A3. Data Used for the Computation of the Total Gross Seigniorage and its Main Components

Year	*P*	C^{CB}	$C^{Co\&BN}$	*G*	*R*	R^G-$i^G A^G$	*IR-IE*	*L*	A^G	ΔM
1	2	3	4	5	6	7	8	9	10	11
1996	100,0	18342931	1391951	13553364	992540	4500000	11674058	1433092	293642786	51614650
1997	107,9	6608187	0	12694789	3654123	37886622	35454143	-1732082	424867564	76955440
1998	111,6	18693702	0	11728552	-76444949	7000000	48121600	-110601399	456332630	7470407
1999	126,4	25377028	41359	10964690	42257219	0	65527604	-8816688	606547706	70393540

Notes:
P – general price level index (1996 = base year)
C^{CB} – costs of maintaining operations (in GEL),
$C^{Co\&Bn}$ – costs of printing banknotes (in GEL),
G – revenue from central bank's operations (in GEL),
R – profit transfer to increase reserves and capital (in GEL)
(R^G-$i^G A^G$) – net profit distributed to the government (in GEL),
(*IR-IE*) – net interest revenues reported (in GEL),
L – book gain (loss) due to exchange rate fluctuation (in GEL),
A^G – government debt to NBG (in GEL),
ΔM – change in the monetary base (in GEL).

Sources

C^{CB} (costs of maintaining operations) computed base on the data presented in the National Bank of Georgia Statement of Revenue and Expenditures (see Table A2, the items: "Bad and doubtful loan expenses" + "Other expenses").

$C^{Co\&BN}$ (cost of printing banknotes and making coins) is presented in the National Bank of Georgia Statement of Revenue and Expenditures (see Table A2, the item: "Cost of notes and coin production").

G (revenue from central bank's operations) presented in the National Bank of Georgia Statement of Revenue and Expenditures (see Table A2, the items: "Foreign currency related revenues" + "Domestic revenues other").

R (profit transfer to increase reserves and capital) reported in the National Bank of Georgia Statement of Revenue and Expenditures (see Table A2, the item: "Transfer to the general reserve" + "Transfer to the capital").

R^G-$i^G A^G$ (net profit distributed from central bank to the government) reported in the National Bank of Georgia Statement of Revenue and Expenditures (see Table A2, the item: "Transfer to the government").

IR-IE (net interest revenues of the National Bank of Georgia) determined as a difference between interest revenues (Table A2, the item "Domestic revenue interest") and interest expenditures (Table A2, the item "Interest and other").

L (book gain/loss) due to exchange rate fluctuation reported in the National Bank of Georgia Statement of Revenue and Expenditures (Table A2, the item "Loses caused by foreign exchange rate variability")

A^G (government debt held by the National Bank of Georgia) is determined as the sum of loans to general government (Table A1, the item "Loans to the Government") minus deposit of general government (Table A1, the item "Deposits of the Government") (in the years 1998 and 1999 minus stock of government debt securities (Table A1, item "Government Debt Securities") that have been borrowed to NBG in 1998 and partially returned in 1999).

ΔM (the change in the monetary base). Monetary base is defined as the sum of currency in circulation and the deposits of commercial banks and others (non governmental) and is determined based on the National Bank of Georgia Balance Sheet (Table A1, the items "Notes and coins in circulation"+"Deposits of Banks"+"Deposits of other").

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