SEIGNIORAGE: THE CASE OF ROMANIA

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Abstract:
While most economists agree that seigniorage is one way governments finance deficits, there is less agreement about the political, institutional and economic reasons for relying on it. The paper estimates the level of seigniorage in Romania, proving that the political instability and the preference for certain techniques used by various governments to cover the budget deficit are interdependent with the level of this indicator. This paper is structured as follows: *Conceptual aspects concerning the seigniorage* in section 1, section 2 showing the models for calculate the level of seigniorage, section 3 estimates the level of seigniorage in Romania.

Key words: *seigniorage, fiscal policy*

JEL classification: E31, E58, P26

1. Conceptual aspects concerning the seigniorage

The budgetary policy defines the government's conception and actions concerning the the budgetary incomes, the ways and means used for their raising, their usage for certain purposes that should promote economic stability and development. It is substantiated in the government budget that constitutes the main means used for the creation of the public revenues and for the expenditure. The level of the compulsory collections is largely connected to the level of the public expenditure, as they represent the fundamental source of financing. Besides the collections, other means of financing such as indebtedness or money creation are used to cover public deficits.

In order to cover budgetary expenditure, constantly increasing from one year to another, the Government should find methods to increase budgetary incomes and this desideratum can be accomplished by various methods:

1. increasing taxes and duties (their quantity or number);
2. issuing bonds, securities or other government bonds;
3. selling assets (when the Government owns various goods, especially fixed property).

In the modern society, the increase in the number of taxes or in the tax rate (the main source for the formation of budgetary incomes) is an unpopular measure and it is less used due to the fact that, at the next elections, politicians would have fewer sympathizers and would thus loose the elections.

The bond issue for the population (public loans) may generate or increase inflation should be carefully used and by the authorities. It is a well-known fact that by covering the deficit by monetary issue the inflation is increased, but in certain authors' opinion (Sargent, Wallace, 1981), financing a budgetary deficit by public loan leads, on long term, to a higher inflation rate than its financing by monetary issue. The argument of this theory would be the fact that covering the budgetary deficit from public loans drives only inflation. The assumption of this argumentation would be that the government undertakes to pay interests for the borrowed amount, and has two options at the due date: to use monetary issue or to borrow again, thus creating a new payment liability. However, at a certain point in time, the Government will have to stop contracting loans and to start financing by monetary issue. Interests will increase constantly if the Government delays this moment, and the relative amounts put into

circulation in the economy may lead to price increases and implicitly to the increase in inflation.

The third method to increase budgetary incomes is not a long-term solution, because, in a capitalist economy the property is preponderantly private.

Due to the fact that these strategies have obvious disadvantages, a method that was often used in the past to cover budgetary deficit was monetary issue, a process by which the state, through the specialized institutions, increased the economic liquidity. However, the practice proved that, in most cases, the effect of such method is the increase in the inflation rate.

Retrospectively, looking back into the history, we find governments that decided to finance the budgetary deficit by monetary issue because they considered the other options (increasing taxation, decreasing public expenditure or contracting public loans) as being unviable. We can find the financing of the budgetary deficit exclusively based on monetary issue in Germany in the 1920s (Mishkin, 1998); in the period 1921-1923 this country care had to resort to monetary issue to finance public expenditure, because the increase in taxation was deemed an unpopular solution. As a result of the fact that public funds were necessary for the reconstruction of the German economy after World War I and, consequently, the reduction of public expenditure was not recommendable, and loans could not have been contracted because the financing needs exceeded the borrowing capacity of the country.

Against the background of social torments (strikes, the invasion of the Ruhr area by France as a result of the failure to observe the treaties for the reconstruction of Germany, etc.), his method of financing the budgetary deficit led to the increase in inflation that reached the level of 1.000.000 % in 1923. A more recent example in this respect is constituted by the states in South America that had, in their turn, to finance high budgetary deficits by monetary issue. An analysis of the situation of the countries in South-America reflect the fact that, if these countries had issued government bonds in order to finance budgetary deficits, the amount of issued bonds would have been so large that the capital markets would not have been able to manage such an offer of financial instruments (Mishkin, 1998).

In the specialized literature, the difference between the face value of a coin and its cost is referred to as "seigniorage" and can sometime be an important government budget revenue (although BNR – *the National Bank of Romania* – is an independent institution, its profit is taxed by 80%, the conclusion being that the money obtained by the central bang also go to the government budget).

Most economists accept that differences on the way countries conduct their fiscal policies are behind the variability of the seigniorage levels they sustain (Buiter, 2007). Each country apply a different fiscal policy and governments that are able to finance their expenditures through taxes or debt do not need to rely on seigniorage revenues. Several studies have explored the idea that structural features of a particular economy help determine its "taxable capacity" (Buiter, 2007) and the models present in the specialized literature leads to the conclusion that the countries' ability to tax is technologically constrained by their stage of development and by the structure of their economies (e.g. size of the agricultural sector in GDP), and as tax collecting costs are high and tax evasion pervasive, countries might use seigniorage more frequently. But it is possible that governments, independently of their countries' economic structures, find it optimal to finance expenditures using seigniorage rather than levying other taxes.

The Theory of Optimal Taxation rationalizes government behavior in many countries showing that it might be optimal for governments to rely on seigniorage if other taxes are highly distortionary. According to this theory, governments optimally equate the marginal cost of the inflation tax with that of output taxes, therefore minimizing the distortions to the economy when choosing the optimal combination of

taxes to finance their expenditures. Experience fail to find evidence that this theory applies to developing countries. A study (Click, 1998) estimates a model using 90 countries, from 1971–90, and finds that only 40% of the cross-country variation in seigniorage can be explained with the Theory of Optimal Taxation. The empirical failure of this theory to fully explain the cross-country differences in the use of seigniorage revenues motivated the use of theoretical and empirical models focusing on the role played by political and institutional variables. In the specialized literature we can find the assumption/hypothesis according to which political instability and ideological polarization determine the equilibrium efficiency of the tax system and the resulting combination of tax revenues and seigniorage that governments use.

Starting from the idea that economies with weaker institutions might be unable to build efficient tax systems leading them to use more frequently seigniorage as a source of revenue, the authors of a study (Aisen,Veiga, 2005) demonstrate that the causal effect of political instability on seigniorage is stronger in developing and high-inflation countries. In addition, it is also stronger in socially-polarized, less democratic, traditionally unstable, and highly indebted countries. To the extent that a government is able to finance its expenditure through debt, there is less need to rely on seigniorage. Finally, political instability has greater effects on seigniorage in countries that have lower de facto central bank independence, lower economic freedom, lower creditworthiness ratings and lower openness to international trade.

2. Seigniorage calculation models

1. Barro (Barro, 1982) believes that seigniorage is calculated as an opportunity cost of money cost, that is, the money base multiplied by the nominal rate of interest:

$$S = d_n \times B_m \qquad (1)$$

2. Fischer (Fischer, 1982) calculated seigniorage in the 1980s as the change in high-powered money (line 14 in the IMF's International Financial Statistics) in GDP:

$$\% B_m / PIB = \left(e_y \frac{\Delta \gamma}{\gamma} + e_p \frac{\Delta P}{P} \right) \times \frac{C}{\gamma} \qquad (2)$$

where:
e_y = real income elasticity as function of currency demand (assumed to be 1 or 1.5)
e_p = price elasticity (assumed to be 1)

3. A survey (Hochreiter, 1996) performed in three countries (the Czech Republic, Hungary and Romania) fuses the following elements to calculate seigniorage:

$$S = H + H' + EK \qquad (3)$$

where: $H + H'$ = the money base made of currency and the residents' deposits be they remunerated or nor; EK = accumulated reserves of the central bank exceeding 10% of the quantity of money

4. The economists Nina Budina, J. Hanousek and Z. Tuma (Budina, Hanousek, Tuma, 1998) carried out a survey concerning currency demand and seigniorage in 4 countries in Eastern Europe (Romania, Bulgaria, the Czech Republic and Poland) and defined seigniorage as the real the real created base money and calculated it as a percentage of GDP.
5. Fischer, Sahay and Vegh (Fischer, Sahay, Vegh, 2002) calculate seigniorage as the change in the real money stock by comparing the base money variation to GDP (both values are nominal):

$$S = \frac{\Delta B_m}{PIB} \qquad (4)$$

3. Evolution of seigniorage in Romania

The last presented model was used for the calculation of seigniorage in Romania, taking into account that in our country there was no massive issue of bonds. The obtained results show the real gain from monetary issue.

Table no. 1.

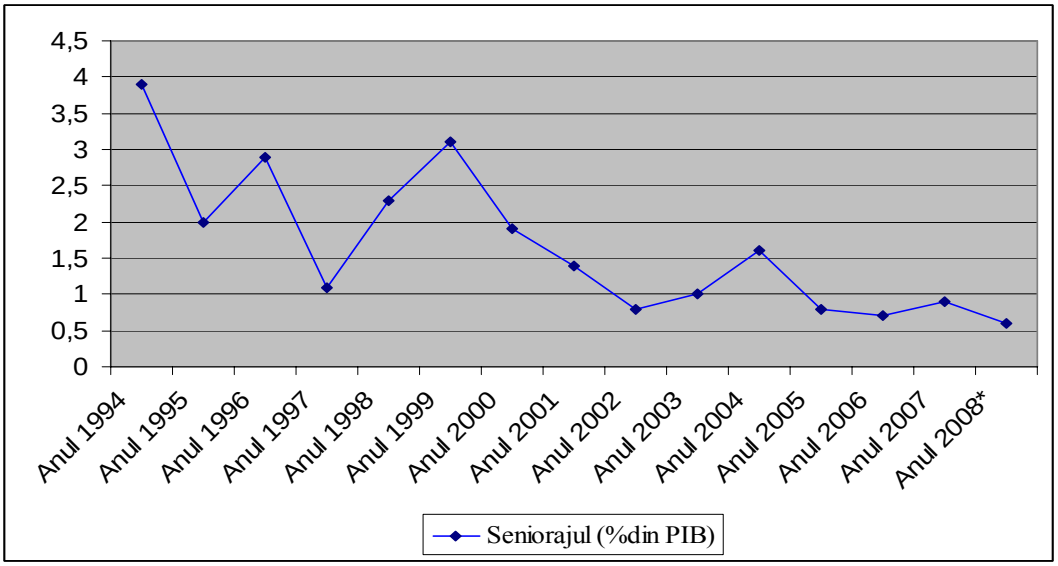
Year	GDP (billion lei)	Increase in the base money (billion lei)	Seigniorage (% of GDP)
Year 1994	49773.2	997.2	3.9
Year 1995	72135.5	1451.4	2
Year 1996	108919.6	2024	2.9
Year 1997	252925.7	3860.1	1.1
Year 1998	373798.2	6769.9	2.3
Year 1999	545730	8187.8	3.1
Year 2000	800308.1	18858.3	1.9
Year 2001	1154126	14185.1	1.4
Year 2002	1512256.6	15830.4	0.8
Year 2003	1903353.9	20225.1	1
Year 2004	2387914.3	30786.2	1.6
Year 2005	287.2	2.18	0.8
Year 2006	342.4	2.54	0.7
Year 2007	404.7	3.63	0.9
Year 2008*	507	2.61	0.6

* estimated

Note: starting with 2005 there was a redenomination of the leu 1 RON = 10000 ROL

Source**:** Own calculations based on data in the BNR reports, INS period 1994-2008

Graph no. 1. Evolution of seigniorage in Romania in the period 1994-2008 (% of GDP)



Source**:** Own calculations based on the data in the BNR reports, INS period 1994-2008

We consider that in the first years (until 2000) the government obtained significant incomes from monetary issue (an average of more than 2.5% of GDP), also due o the fact that the budget deficit was covered by this method. The effect of covering

the budget deficit by monetary issue, in this period, was that the inflation rate was extremely high (an average of 70%). After 2000, the inflation process was reduced (covering the budget deficit by monetary issue was forbidden), and currently, the incomes obtained by the government by this method have started to decrease constantly, reaching maximum 1% of GDP, which indicates a relative normalization, closer to the incomes obtained by the developed countries and with a stable economy.

In the analysed period (1994-2008), in Romania, the average seigniorage was de 1.7% of GDP, which places it closer to the developed countries, suggesting the fact that our country has made progress in this respect due to the fact that it succeeded in decreasing the average value of seigniorage by approximately one percentage point, in the last three years. According to Masson (Masson, Savastano, Sharma, 1988), developing countries resort to this way of financing significantly more often than developed countries (in this case, seigniorage reaches up to 3 percent of GDP, as compared to the value of below 1 percent of GDP in the advanced economies).

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