ANALYSIS OF INTERNATIONAL THEORIES AND PRACTICES IMPACT OF ECONOMIC POLICY ON PUBLIC DEBT

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Abstract: *The aim of the working paper is to analyze and generalize the theories on public debt, to establish the circumstances of the occurrence of this phenomenon, the effects of economic policies influence on her and vice versa. In this regard, we have proposed theoretical and methodological arguments of public debt, as well as the determining of the real value of debt. The practical value of the work is to expand scientific approach of high practical importance on the interaction of economic policies promoted by state with public debt.*

Key words*: economic policy, public debt, theoretical arguments, methodological arguments*

DETERMINING THE REAL AMOUNT OF PUBLIC DEBT

Depending on the economic situation of the country, by the impact of exogenous factors, of endogenous factors, of social problems, the government may resort to the transfer of some current financial resources for the following periods of time; can "borrow" financial resources from future generations. State debt is treated differently in the economic literature, but opinions can be divided: some of researchers (Eisner R. (1989), Pieper PJ (1984)) treats the state debt as a economic mechanism, as a regulator, through which, in short periods of time, th economy of country can be stabilized, socio-economic problems of the following periods beeing considered seconds.

State debt, according to the J. M. Buchanan (1985), (1985), Wagner, R.E. (1977), Bernheim B. D. (1989), have to be distributed homogeneously for a long period of time. Inadequate funding, they say, contributes to unproductive consumption, reduce the savings adds, contributes at increasing of bank rate, reduced investment, and therefore reduced income in future periods.

State debt, the authors conclude, must be covered by additional taxation and not by the state budget deficit. In the treatment of Barro R. (1974) (1989) inadequate funding and additional taxes have equivalent impact on the economic development of the country for the periods of repayment of state debt. In some countries can be found several ways of financing public debt: additional taxes from individuals, companies, institutions; HV issue; emission of money. HV shall be issued in the amount of (C - V), where C - budgetary expenditure, V - budgeted income. Thus monetize their state debts.

State debt hasn't an well established impact on the country economy the because influence take more than conjecture. If the economy grows stable and state debt ratio does not exceed the growth rate of GDP, than the taxes, the percentages and budget deficit do not generate inflation; if state debt growth rate exceeds the rate of economic growth, the government debt becomes problematic. In the working paper intitled "Consequences of Government Budget Deficits" (1986) Bruce N.and Purvis D.D. propose methods for determining the maximum value of public debt ratio.

MATERIALS AND METHODS

Research is central to the problem of determining the real value of debt. We denote by: Δ (t) - state budget deficit; G - government spending; r - the percentage rate; T - budgeted revenues; δ - state debt expressed in HV. The budget deficit is made up of government spenditures, by the percentages given HV, less the amount of budget revenues, namely:

$$\Delta(t) = G(t) + r \cdot \delta (t) - T(t) \tag{1.1.}$$

Budgetary revenues are directly depends on the income taxpayers:

$$T(t) = \alpha \cdot (Y(t) + r \cdot \delta (t)) \tag{1.2.}$$

Substituting the relation (2.2) in the following relation (1.1):

$$\Delta(t) = G(t) + r \cdot \delta (t) - \alpha \cdot Y(t) - \alpha \cdot r \cdot \delta (t) = G(t) + r \cdot \delta (t) \cdot (1-\alpha) - \alpha \cdot Y(t) \tag{1.3.}$$

Where $r \cdot (1-\alpha)$ –percentage fee after paying tax.

The budget deficit is made up of:

$$\Delta(t) = \frac{\partial \cdot \delta(t)}{\partial \cdot t} + \frac{\partial \cdot M(t)}{\partial \cdot t} \tag{1.4.}$$

where M(t) – money supply at the moment „t".

Buy the relations (1.3) and (1.4), devided by la GDP, $Y \neq 0$, we obtined:

$$\frac{\Delta(t)}{Y(t)} = \frac{G(t)}{Y(t)} + \frac{\delta(t)}{Y(t)} \cdot r \cdot (1 - \alpha) - \alpha \tag{1.5.}$$

$$\frac{\Delta(t)}{Y(t)} = \frac{\dfrac{\partial \cdot \delta(t)}{\partial \cdot t} + \dfrac{\partial \cdot M(t)}{\partial \cdot t}}{Y(t)} \tag{1.6.}$$

Where $\dfrac{\Delta(t)}{Y(t)}, \dfrac{G(t)}{Y(t)}, \dfrac{\delta(t)}{Y(t)}$ – respectively, public debts, government expenditures debts as HV at a unit of GDP.

Public debts (without the updating coefficient) at a unit of GDP determine:

$$\frac{M(t) + \delta(t)}{Y(t)}$$

Increasing of debts:

$$\left(\frac{M(t) + \delta(t)}{Y(t)} \right)' = \frac{M'(t) + \delta'(t)}{Y(t)} - \frac{M(t) + \delta(t)}{Y(t)} \cdot \frac{Y'(t)}{Y(t)} \tag{1.7.}$$

By the relation (2.7) we determine the increase of public debts at a unit of GDP:

$$\frac{M'(t) + \delta'(t)}{Y(t)} = \left(\frac{M(t)}{Y(t)} \right)' + \left(\frac{\delta(t)}{Y(t)} \right)' + \left(\frac{M(t) + \delta(t)}{Y(t)} \right) \cdot \frac{Y'(t)}{Y(t)} . \tag{1.8.}$$

The multiplier

$$\frac{Y'(t)}{Y(t)}$$

represents th nominal ratio of increasing GDP (fig. 1.1), constituită din:

- Real rate of increasing GDP ($r^{(r)}$) and
- Rate of increasing inflation ($r^{(i)}$),

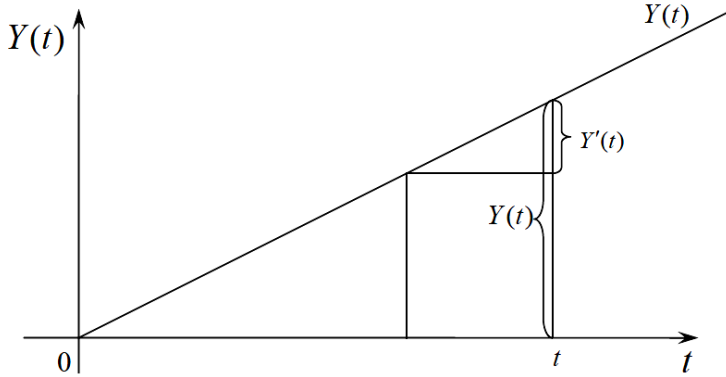$$\frac{Y'(t)}{Y(t)} = r^{(n)} = r^{(r)} + r^{(i)}$$

adică (1.9.)

Fig. 1.1. *Rate of increasing GDP*

In basis of the relations (1.8), (1.9), we obtain:

$$\frac{M'(t)}{Y(t)} + \frac{\delta'(t)}{Y(t)} = \left(\frac{M(t)}{Y(t)}\right) + \left(\frac{\delta(t)}{Y(t)}\right) + \left(\frac{M(t)}{Y(t)} + \frac{\delta(t)}{Y(t)}\right) \cdot \left(r^{(r)} + r^{(i)}\right)$$

(1.10.)

By th relations (1.5) and (1.6) we obtained:

$$\frac{G(t)}{Y(t)} + \frac{\delta(t)}{Y(t)} \cdot r \cdot (1-\alpha) - \alpha = \frac{\dfrac{\partial \cdot \delta(t)}{\partial \cdot t} + \dfrac{\partial \cdot M(t)}{\partial \cdot t}}{Y(t)}$$

(1.11.)

The public debts - right side of the expression (2.11) are substituted in the left side of relation (1.10):

$$\frac{G(t)}{Y(t)} + \frac{\delta(t)}{Y(t)} \cdot r \cdot (1-\alpha) - \alpha = \left(\frac{M(t)}{Y(t)}\right) + \left(\frac{\delta(t)}{Y(t)}\right) + \left(\frac{M(t)}{Y(t)} + \frac{\delta(t)}{Y(t)}\right) \cdot \left(r^{(r)} + r^{(i)}\right)$$

Increasing public debt constitute::

$$\left(\frac{M(t)}{Y(t)}\right)' + \left(\frac{\delta(t)}{Y(t)}\right)' = \frac{G(t)}{Y(t)} + \frac{\delta(t)}{Y(t)} \cdot r \cdot (1-\alpha) - \alpha - \left(\frac{M(t)}{Y(t)} + \frac{\delta(t)}{Y(t)}\right) \cdot \left(r^{(r)} + r^{(i)}\right) =$$

$$= \frac{G(t)}{Y(t)} - \alpha + \left(r \cdot (1-\alpha) - r^{(r)} - r^{(i)}\right) \cdot \frac{\delta(t)}{Y(t)} - \left(r^{(r)} + r^{(i)}\right) \cdot \frac{M(t)}{Y(t)}$$

(1.12.)

RESEARCH RESULTS

Knowing the fiscal-monetary policy parameters, using equation (1.12) can be

determined the optimal strategy for the refund of public debt. If money supply per unit of GDP is established and the amount of cash increase in the same rithm as GDP growth rate, then equation (2.12) may be given:

$$\left(\frac{\delta(t)}{Y(t)}\right)' = \frac{G(t)}{Y(t)} + r \cdot (1-\alpha) \cdot \frac{\delta(t)}{Y(t)} - \alpha - \left(r^{(r)} + r^{(i)}\right) \cdot \left(\frac{\delta(t)}{Y(t)} + \frac{M(t)}{Y(t)}\right)$$

(1.13.)

From the relation (2.13) follows: if the budget deficit is maintained at $\left(r^{(r)} + r^{(i)}\right) \cdot \left(\frac{\delta(t)}{Y(t)} + \frac{M(t)}{Y(t)}\right)$ then the ratio of government debt to GDP remains constant; if the budget deficit compared to GDP exceeds $\left(r^{(r)} + r^{(i)}\right) \cdot \left(\frac{\delta(t)}{Y(t)} + \frac{M(t)}{Y(t)}\right)$

In principle the deficit of state budget should reflect the amount of state debt. The statement is obvious, but its realization is problematic. In time, the state debt is "deformed" by inflation, by the governmental current, by the obligations of the state. According to N. Gregory Mankiw [96, p. 243], the quantity theory of money equation has the following form:

$$MV = PY$$

(1.14.)

where M – quantity of banilor, V – velocity of money circulation, P – price, Y – income.

$$M = \frac{PY}{V}$$

By (2.14) we determine: , that the quantity of money dipend by prices, income and velocity. Under the impact of changes, of P, Y, V evolution, the M converts .

$$\Delta M = \frac{\partial M}{\partial P} \cdot \Delta P + \frac{\partial M}{\partial Y} \cdot \Delta Y + \frac{\partial M}{\partial V} \cdot \Delta V \quad \text{or} \quad \Delta M = \frac{Y}{V} \cdot \Delta P + \frac{P}{V} \cdot \Delta Y - \frac{PY}{V^2} \cdot \Delta V$$

(1.15.)

Divide both sides of the relationship (1.15) at $M = \frac{PY}{V}$ and we obtain:

$$\frac{\Delta M}{M} = \frac{Y}{V} \cdot \Delta P : \frac{PY}{V} + \frac{P}{V} \cdot \Delta Y : \frac{PY}{V} - \frac{PY}{V^2} \cdot \Delta V : \frac{PY}{V}$$

$$\frac{\Delta M}{M} = \frac{\Delta P}{P} + \frac{\Delta Y}{Y} - \frac{\Delta V}{V}$$

Increasing the amount of money depends directly of price growth, income growth; reverse depending on the movement speed of money. Determining the exact values of these three factors is problematic.

Inflation is directly depends on money growth, on speed of the movement of goods; is reverse depending on revenue growth. The real banking percentage $\left(r^{(r)}\right)$ as the coefficient of updating, discounting of debt, according to Mankiw N. Gregory [96, p.254]

is the difference between nominal rate bank $\left(r^{\cdot(n)}\right)$ and inflation rate (i), namely :

$$r^{\cdot(r)} = r^{\cdot(n)} - i$$

Even this method for determining the real banking proportion contains a certain error. The real banking percentage must be calculated using the formula:

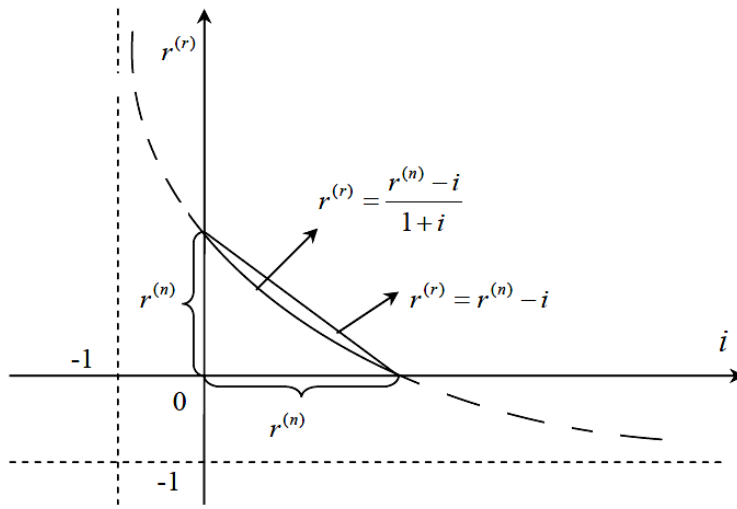$$r^{\cdot(r)} = \frac{r^{\cdot(n)} - i}{1+i} = -1 + \frac{r^{\cdot(n)} - i}{1+i}$$
.

Figure 1.2. Dependence between inflation and real bank percentage

The relative error represent: $\left(\left(r^{\cdot(n)} - 1\right) - \frac{r^{\cdot(n)} - i}{1+i}\right) : \frac{r^{\cdot(n)} - i}{1+i} = i$

The problem of state debt worsens if the amount of the state budget deficit is not updated (or discounted). For example, if the state budget deficit represent Δ, the state debt will multiply, and will be:

$$\Delta\left(1 + \frac{r^{\cdot(n)} - i}{1+i}\right) = \Delta \cdot \frac{1 + r^{\cdot(n)}}{1+i}$$

The relative error will be: $\left(\Delta \cdot \frac{1 + r^{\cdot(n)}}{1+i} - \Delta\right) : \Delta = \frac{r^{\cdot(n)} - i}{1+i}$

State debt, composed of the algebraic sum of the state budget deficit, the government's assets and liabilities can be quantified in the division each year by discounting coefficient, update. Assets may consist of fixed capital, financial resources in the form of dividends from loans, lease buildings, earth. The algebraic sum of capital assets and liabilities is zero, so capital assets not reduce nor increase state debt.

Determination of the amount of capital assets is a particular problem with its specificity and can be solved by developing separate capital assets-liabilities. Quantitative estimation method must be unique for both assets and liabilities capital; calculations must be performed annually, those amounts should be updated, discounted. These activities not only allow the quantification of state assets, but also to improve records as capital assets,

liabilities at ordering problems by level of importance.

Components of debt and obligations of the state are on social security, pensions, deferring certain members of society, the state credit insurance business entities. Determination of the time of these liabilities is a complex issue.

Quantification of assets, liabilities capital is a specific problem. The state has, for example, a building at the price K, built at the expense of loans. Annual State must pay a percentage α% $\left(\dfrac{\alpha \cdot K}{100}\right)$. Annual real estate price increases β percent, namely with $\dfrac{\beta \cdot K}{100}$ the lifetime of the building is T, then depreciation will be $\dfrac{K}{T}$.

Undiscounted annual expenditure will be $\dfrac{K \cdot \alpha}{100} + \dfrac{K}{T} - \dfrac{\beta \cdot K}{100}$.

Similarly can be calculated and liabilities.

Depending on economic policies, taxes, namly income in the state budget, based on government procurement, reducing or increasing debt, have an impact on investment.

Taxes can be directed to increase productive accumulation or to reduce them. State debt depends directly on the amount of taxes. Taxes, in turn, can only be regarded exclusively as a means of securing government contracts, they also serve as regulators in stimulating the accumulation of productive processes.

We distinguish profit tax, that income is taxed balance expenses. And depreciation expense included in fixed assets, equipment. Quantifying these conditions lead to a situation when inflation exceeds nominal depreciation reality does not reflect the real situation; real estate prices are much lower. Taxes on income, in this case, do not meet regulatory functions.

Another form is through tax credit, namely the means of production purchased to invest temporarily not taxable. In this case the taxes have an impact on investment, for example research RE Hall, DW Jorgenson Tax Policy and Investment Behavior (1988).

So kind of economic policy uses Sweden. As the midst taxes stationary investment amount increases or decreases depending on the need. And this treatment in JB Taylor's vision (1982) is not without certain drawbacks; in particular, economic subjects, maximizing its profits over a period of time, can reduce the volume of investment. State debt, with a variety of social and economic impacts on many economic subjects can not be treated without being accompanied by a feasibility study respectively.

CONCLUSIONS

The analysis and investigations were highlighted, embodied and grounded basic concepts and traditional macroeconomic theories of public debt, the indicators measuring a country's indebtedness and those indicators that characterize the annual financial burden of public debt complained applicable in the domestic public debt management.

In order to ensure a coherent research of public debt issue and improving its management procedure, we consider expedient to address the problems identified only by complex approach.

Since debt problem is directly tangent to a set of problems of monetary circuit, fiscal policy, macroeconomic policy efficiency of influence on entrepreneurial activity and processes in the social sphere, we highlight interdependent with the internal of external

debt. Country's foreign economic relations can not be regarded as independent of the internal state of the national economy.

Report "reserves (growth potential) - state debt" expresses the link between internal and external debt. If the country is in trouble on potential growth in domestic accumulation, it will accumulate internal debt (budgetary deficit). Appealing to loans from abroad and using them to cover this deficit, the country will accumulate foreign debt without chance of ensuring economic growth desired. World practice has shown that out of this vicious circle is to promote a flexible economic policy. Inside - a maneuver between possible minimum protection measures vulnerable groups explaining the need for sacrifices to gain support from people while.

Consequently, investigations conducted allowed us to conclude that public debt is, in a narrow sense, the amount of state borrowing to finance deficits in the past and in a broader sense, it represents all the financial obligations it has the state at a time to internal and external creditors resulting from loans in domestic currency and foreign currency short, medium and long term, the state contracted directly or guaranteed by it, including obligations to its own treasury for amounts advanced temporarily to cover state budget deficits.

Public debt is the expression of factors influence internal and / or external, political and strategic decision taken by senior management public over a relatively long period of time. The public debt, especially in terms of debt conditions, can mortgage / financial and social constrain not only the present generation but also future generations; is why social dialogue and transparency / public debate in the signing of new contracts, agreements can lead to a better use of public funds in general. Public debt can affect the independence and national sovereignty or national central banks' monetary emission.

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