

ON A CONCEPT OF FISCAL REACTION FUNCTION

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ABSTRACT: The paper is a theoretical approach to the general concept of reaction and, as a species of that, of the concept of fiscal reaction. To this end, some formalizations are made to indicate the two targets of the fiscal reaction: an autonomous target and an induced one from the wider economic environment. Further, a typology of the fiscal reaction functions is proposed and examined from the two perspectives: subsistence and sustainability of the fiscal process. In this context, the budget deficit is split into three components, each of them with its own rationale, in order to establish the „true” component obeying the fiscal reaction function phenomenology.

KEYWORDS: reaction function, responsible public debt, fiscal reaction function, fiscal target, public debt multiplier, ratchet effect, sustainability.

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1. THE CONCEPT OF REACTION FUNCTION

A reaction, of any type, is an effect, so it must have a cause.¹ Relating cause to effect means formulating a function.² If we denote such a function by f , the cause by x , and the effect by y , then the reaction function can be written:

$$y = f(x)$$

Let us make the necessary clarifications:

- cause x must be considered, in general, to be represented by the effect induced by the action. We say, in general, because the reaction is not a mechanical (passive) response to the effect of the action, namely:
- the establishment of a reaction mechanism or device pursues a purpose which, although it is designed to consider the effects induced by the actions, has, at the same time, a certain independence in relation to them. In other words, the reaction mechanism will integrate, in its own action, the impact of the external action, but the external action does not

exhaust the content of the reaction device's own action; let us denote by σ the autonomous purpose of the reaction device, which means that the reaction will integrate the impact of the external action, denoted by x , in the design of its own action so that the expected effect is as close as possible to its own purpose (its own target), regardless of the modification that x brings to this design;³ this means that, in fact, the reaction function will have the analytical form:

$$y = f(\sigma, x)$$

- since, as we have shown, the way and extent to which x is considered in the reaction design depends on σ , it follows that we can denote by $\tilde{x}$ the external action considered by the reaction, where $\tilde{x} = h(\sigma)$, so we can write, successively:

$$y = f(\sigma, \tilde{x}) = f(\sigma, h(\sigma))$$

- this means that the x effect will be taken into account, from a dimensional point of view (as intensity) either *per se*, or multiplied or

¹ According to the principle of sufficient reason, formulated by Leibniz.

² In general, functions are of three types: a) causal functions; b) structural functions; c) functional functions. In the case discussed here we have the type of causal function.

³ We have here a well-known example, namely the reaction function of monetary policy. In Romania, the objective of monetary policy is the direct targeting of inflation (although financial stability is, in a progressive manner, introduced, lately, into this objective, by aligning with the monetary policy of the

European Central Bank). Therefore, the reaction function of monetary policy (for example, the Taylor function) will have as its finality this objective. If, however, a shock occurs (predictable or not, internal or external, real or nominal), then the reaction function will consider this shock in order to counteract it, but not in itself, as such, but in accordance with the monetary policy objective. This is the basic idea of these considerations.

divided; for example, to take another example from the nominal economy, let's assume that we have an increase in the average price in the economy (for example, an increase in the GDP deflator), which may affect the achievement of the inflation target but, at the same time, import prices decrease as a result of the increase in external supply addressed to the national economy, given that the internal absorption capacity of the economy does not change (at least, not simultaneously) with the increase in external supply. As the inflationary *pass-through* effect will be reduced, it follows that the central bank's reaction in the direction of reducing the money supply (for example, by increasing the monetary policy interest rate or by increasing the minimum legal reserve rate), will be divided (or de-multiplied) in relation to the action in question, because it is obvious that the money supply in the economy will tend to reduce, to some extent, by itself, so the inflationary pressure will be reduced, to some extent, and independently of the presumed effect of the reaction;

- it follows that, analytically, the reaction function will have to encompass both the action effect and the target of the reaction function in question. Of course, if there is a possibility to use a function of type h , as suggested above, then we can have a single-factor reaction function;⁴
- from a conceptual point of view, we therefore also have the following result: the reaction function acts both in the presence and in the absence of the effect of the action, because it has an objective (finality, purpose) autonomous in relation to any action. However, the effect of the action will be integrated into the response that the reaction function will give to the targeted system.

The general synoptic of operating the reaction function is summarized in Figure 1.

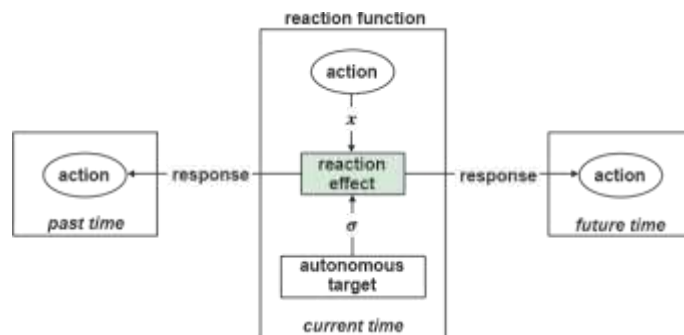


Figure 1. General synoptic of the reaction function operation
Source: author.

2. THE CONCEPT OF FISCAL REACTION FUNCTION

The specification of the reaction function to the fiscal case (i.e., to the case of fiscal-budgetary policy) requires a series of preliminary considerations. We will assume that the notions of fiscal policy (or fiscal-budgetary policy), fiscal policy instruments, and general logical modeling of fiscal policy are known.⁵

2.1 The target of fiscal reaction

In essence, this problem—the choice of the target of the fiscal reaction function—is the fundamental problem (and, perhaps, the only genuine problem) in the matter of modeling a fiscal reaction function. There is a “culture” of the specialized literature in the field of considering this target as the variation of the primary balance of the public budget, in response to the variation of the total gross public debt (usually, as a share of GDP), in order to ensure the sustainability of public finances in the long term—it should be noted that this purpose is not defined nor formally introduced in the quantitative models, but simply the algebraic condition of non-variation of the public debt as a share of GDP is imposed. The criticism of this universalized point of view we made⁶ elsewhere.

We will make some preliminary considerations, before adopting a position and arguing for it:

- first of all, the question arises: what is the fundamental, somewhat permanent target (disregarding conjunctural situations, crises, unpredictable shocks and the like) of fiscal policy (or fiscal-budgetary policy) in a decentralized, capitalist-type economy? In our opinion, the answer to this question solves

⁴ Although the idea of integrating the two targets—the autonomous target and the non-autonomous target, the latter being a reaction of the fiscal-budgetary “device” to the macroeconomic situation—seems very productive, the claims of the present study will ultimately be limited to the so-called autonomous target (a more elaborate fiscal reaction function could be the subject of subsequent related research).

⁵ For example, the IS (investment-saving) function proposed by Hicks for the equilibrium of the real (closed) economy, in his

(successful) attempt to blur the radically new ideas of Keynes in what is called the neoclassical synthesis (see, in this sense, the detailed analysis provided by Minsky (2011)).

⁶ The article writers (who differ, in many fundamental ways, from the researchers) simply imitate each other, through variations on the same theme in this issue (probably, out of 10 studies dedicated to this topic, nine will be similar, and all ten will be analogous).

most of the problems that this paragraph must deal with. This fundamental target must be identified and formulated in such a way that it can withstand, from a logical and institutional-normative point of view, any particularizations or adjustments imposed by the empirical situations that the economic system in question is confronted with, without losing any of its permanent finality;

- secondly, the question arises: what is the general macroeconomic objective (i.e., at the level of the national economic system) to which not only fiscal-budgetary policy, but also the entire set of public policies (especially, among other public policies, monetary policy) must respond. Therefore, the target of fiscal-budgetary policy (to which the fiscal reaction function will be subsumed) must, in turn, be subsumed under the integrated target of public policies associated with the economic system in question;
- thirdly, the question arises: what is the time horizon for which the target of the fiscal reaction function is considered? Of course, this question must also be asked regarding the target of fiscal-budgetary policy, and regarding the target of the macroeconomic adjustment public policy mix in general.

The answers must be given in the reverse order of the order in which the questions above were asked, as follows:

- the answer to the third question is that the time horizon for which the target of the

macroeconomic adjustment public policy mix must be established, must be the long term or the very long term.⁷ The possible objection that predictions are almost impossible⁸ in the long or very long term must be ignored, because the long or very long term has significance precisely because it is associated with a high degree of uncertainty, which means that we must ensure stability or sustainability exactly on these time horizons;

- the answer to the second question is more difficult to formulate. In fact, this answer is a logical inferential consequence of a more general answer, namely: what is the general purpose of the economic process, or of the economic action of society? Depending on the praxiological model adopted, these answers were different: in the stationary model (autarchic economy) the answer is: *subsistence* (survival); in the optimal model (capitalist economy)⁹ the answer is: *profit*; in the sustainable model (social economy, on the way to emergence¹⁰) the answer is (or should be): *sustainability*.¹¹ The goal in the sustainable economic model—sustainability—is so far from our habits of formulating goals for the economic process, that we will develop some additional considerations on it:

- firstly, the concept of sustainability, although it does not directly refer to moral values, must be considered as a desirable effect of the economic process, including from this perspective: sustainability targets

⁷ There is no consensus among economists or policymakers on the calendar “extension” of the different time horizons to be considered. In our opinion, these time horizons should be determined according to economic (or social) processes, not according to clock time (there are situations of this type: for example, from the perspective of economic unit cost, the short term is the one in which there are no changes in fixed capital, and the long term is the one in which these changes occur; from the perspective of labor productivity, the short term is the one in which there are no changes in labor force qualifications, the long term is the one in which these changes occur, etc.). From the perspective of clock time, we believe the following: a) short term—up to two years; b) medium term—up to 4 years; c) long term—up to 10 years; d) very long term—over 10 years.

⁸ Strictly speaking, predictions are impossible in the social domain (and therefore also in the economic domain), therefore for these domains either forecasts (i.e., inductive phenomenological extrapolations) or scenarios (i.e., simulations of logical or quantitative models by deliberately varying some control variables) are used.

⁹ This is the current economic model, regardless of the emphasis placed on the various phases of capitalism (of course, the various

journalistic labels of “waves” or “revolutions” that keep succeeding each other in capitalist society are not relevant here, although they capture some stage characteristics or, as I said, accents). More relevant seem to be the observations that emphasize changes in praxiological philosophy: for example, the transition from company/enterprise to firm (with the difference that the firm becomes, in addition to a productive unit, also a financial one or integrated into the financial system), or the transition from satisfying economic needs to satisfying social needs, etc.

¹⁰ We do not develop here the idea (which we share, however) that the sustainable economic model is a logical consequence of the optimal (capitalist) economic model and that, therefore, it is inevitable.

¹¹ It is worth noting that, while both subsistence and dignity represent means to the end called quality of life, profit is directly constituted as an end—this is inferred from the fact that, of the three answers, the only answer that is of the nature of an economic variable is the one related to the optimal (capitalist) economic model, the other two answers are not of the nature of purely economic variables, but of the nature of biological (subsistence) or social (dignity) variables.

both the economic chain (technological, financial, distributional) and the social chain (equity, merit, reciprocity, etc.) including as a trans-generational meaning;¹²

- secondly, sustainability does not ignore effectiveness and efficiency, but subordinates them to the replication capacity of the economic system, at least at the level of what is called simple reproduction;¹³
- thirdly, sustainability no longer involves the extremization of economic variables (profit maximization, cost minimization, etc.) but involves the construction of economic variables (both microeconomic and macroeconomic) that target their sustainable, replicable level, both horizontally (in space) and vertically (in time);
- fourthly, sustainability abandons the exclusivity of the pure criterion of production and also takes distribution into account.¹⁴
- the answer to the first question, considering the answers given to the other two questions, is the following: the permanent (and autonomous) target of fiscal-budgetary policy is the macroeconomic sustainability of the real economy in the medium and long term. From a methodological point of view, we will adopt the following position: supplementing tax revenues, as a result of the public investment multiplier (therefore, the increase

in the tax base included in GDP growth) to cover (at least) the public debt service at the state budget level. The more delicate issue of considering the ordinary¹⁵ (conventional-accounting) or the primary deficit will not be discussed.

From the definition of the autonomous target of fiscal policy (which is, of course, also the autonomous target of the fiscal reaction function) we extract the following theoretical consequences:

- the autonomous target of the fiscal reaction function is, precisely because of this autonomy, independent of economic circumstances, including the cyclical position of the economy;
- macroeconomic sustainability does not imply, *per se* (i.e., separately and independently) either optimality (aiming at extremization), negative feedback (aiming at stability), or positive feedback (aiming at growth), but a structural mix of all of them, in such a way as to ensure the replication of the economic system in question;
- economic sustainability targets the real economy. This clarification is extremely important, because, for example, financial crises (correctly said: nominal crises) occur when the financing of the real economy occurs in a speculative manner (for example, through Ponzi schemes¹⁶);
- important consequence: fiscal-budgetary policy must be dominant in relation to monetary-exchange rate policy;¹⁷

¹² This paper does not consider the global economic system, although it is obvious that sustainability (economic, in our case) cannot be ensured within an open economic system without considering sustainable elements or processes at the level of the global economy. However, a clarification of a fiscal reaction function at the level of the national economy could be adjusted (extended, modified, etc.) to deal with integrated economic systems (such as, for example, the European Union) or even the global economy.

¹³ The reader will be able to make the connection here with the relatively recent concerns regarding the evolutionary (or even auto-poietic) character of the economic system/process (for example, the work *An Evolutionary Theory of Economic Change*, elaborated by Richard Nelson and Sidney Winter, Belknap Press, Harvard University Press, 1990, or the work of Niklas Luhmann, *Introduction to Systems Theory*, Willey-Blackwell, 2012).

¹⁴ But not in the crude and relatively superficial way (not to mention the weakness of the theoretical basis) in which Thomas Piketty proceeds (see his work *Capital in the 21st Century*, Litera Publishing House, 2015).

¹⁵ The ordinary deficit is simply the difference between budget expenditure and budget revenue. We would like to point out that this study does not consider the Maastricht Treaty's conditionalities regarding the ordinary deficit ceiling, nor the Fiscal Compact's conditionalities regarding the structural deficit, because we are interested in macroeconomic balance and sustainability, not in respecting completely artificial and (proven) unfeasible ceilings, to say the least.

¹⁶ We refer here again to Minsky's analyses on the financing structure of the real economy (see the previously mentioned work).

¹⁷ This dominance is justified not only by the fact that the nominal economy must maintain its support in the real economy (otherwise, the risk of a speculative nominal bubble is inherent), but also by the fact that monetary policy is primarily aimed at the short term, so the monetary-currency reaction function will have different effects on the same medium-term "cycle" of the fiscal reaction function. As a result, the fiscal reaction function must be a wrapper around the monetary reaction function.

- the fiscal reaction function never actually pursues its own target, but a target modified (as we have shown above) by the effects of the action under consideration. It can be said that the effective target of the fiscal reaction function is a discounted target (see, previous: $\tilde{x} = h(\sigma)$).

2.2. The typology of fiscal reaction targets

Of course, to say that the autonomous target of the fiscal reaction function is to ensure macroeconomic sustainability in the real economy means to establish the expected effect by respecting this target rather than to actually establish the macroeconomic variable chosen to constitute the target. In this sense, we will develop some theoretical considerations, which could help to identify the “list” of macroeconomic variables liable to constitute targets on which the fiscal reaction function should be exercised and which, consequently, once reached, should ensure the sustainability of the real economy. The most synthetic macroeconomic variable in the economy is GDP. However, this is the result of all economic activities and sectors, not just activities in the real economy. As a result, GDP cannot constitute, as such, a target for the fiscal reaction function, as it was previously defined. Let us examine this possibility from the perspective of the structural elements of GDP:

- in the GDP structure (according to the usage¹⁸) we have four component elements that target the real economy: final effective consumption (both private and government), gross fixed capital formation (both private and government), change in inventories, and net exports. Let us examine these components:
 - *final effective consumption* is a component of aggregate demand which, based on post-Keynesian theory, constitutes a command variable in the economy. However, fiscal-budgetary policy cannot directly control final effective consumption (except for the final effective consumption of the

government, which is, however, only a small part of the total final effective consumption);

- the same remark can be made about the component related to *gross fixed capital formation*;
- the *change in inventories* is not likely, through its control (which is very weak from a fiscal-budgetary perspective), to transmit significant impulses in the economic market system;
- finally, *net exports* cannot constitute a macroeconomic variable through which fiscal policy can manage macroeconomic sustainability;
- it therefore follows that none of the direct components of the real economy can constitute an autonomous target for the fiscal response function.

As is known, almost all quantitative models of the fiscal reaction function relate the primary deficit¹⁹ of the public budget (in the case of Romania, of the general consolidated budget) to the kinematics of the total gross public debt. The main reason seems to be of an instrumental nature: indeed, fiscal policy has a quasi-complete control over the public budget deficit. Unfortunately, the mathematical condition for obtaining the impulse value with which the fiscal reaction function must be credited is the stationarity of the public debt as a share of GDP.²⁰

Our intention is to still use the primary deficit of the public budget, but to modify the mathematical solution condition, so as to obtain, for the impulse of the fiscal reaction function, an effect that has the significance of sustainability. In this regard, we present the following justification arguments:

- the stationarity of the public debt share (even in its relative expression, as a share of GDP) is not sufficient to achieve macroeconomic sustainability (in fact, the sustainability of the

¹⁸ In national statistics this structure is called the GDP calculation by the expenditure method, but it is obvious that the name expenditure is equivalent to the name final use. From the point of view of the present study, the other two GDP structures (by income, respectively by production) are not relevant.

¹⁹ The justification for considering the primary deficit (i.e., the conventional-accounting deficit from which the interest payment expenses on the public debt are eliminated), and not the conventional-accounting deficit (the difference between all budget expenditures and all budget revenues) consists in the fact that it is desired to separate the total impact of the public debt on the public deficit. As a result, in the equations of the fiscal reaction functions, a distinct term is placed that completes the

primary deficit by bringing it to the level of the conventional-accounting deficit—this distinct term is the interest payment expense on the public debt, through the product of the average interest rate on the public debt and the volume of the public debt with a lag of one year.

²⁰ It should be noted that this does not mean freezing the absolute value of public debt, but only its relative value—thus, an increase in nominal GDP will allow for a higher absolute public debt and conversely, a decrease in nominal GDP will “require” a lower absolute public debt. It is obvious that this condition is simply a... postulate and it has nothing to do with the concept of sustainability, as we specify in this study.

real economy, as we have shown above). Some arguments:

- maintaining the stationarity of the relative public debt refers to a certain moment, namely the moment of analysis. This implies that the value of the relative public debt from the immediately previous moment (if a lag is considered, as is almost universally done) is considered to represent a condition of sustainability. On what basis is this assumption made? It is obvious that there is no theoretical justification for this;²¹
- the lag issue is also debatable. Public debt is contracted not only to finance the budget deficit, but also for other government purposes—for example, for investments in physical infrastructure. It is obvious that the lag of producing the effects of such a debt is greater than one year,²² so the hypothesis of a one-year (or one-step) lag is simply arbitrary (of course, the quantitative model is easier to solve, thus);
- the budget deficit is covered not only by contracting public debt (such a solution appears to be necessary only if budget revenues fail to ensure the benchmark value of the deficit—for example, at a conventional-accounting level, the value of 3% of GDP²³);
- consequently, we will have to relax the condition of stationarity of the relative public debt. In this regard, we make the following preliminary considerations (in the form of questions and answers):
 - what is the cause and what is the effect in the relationship between the budget deficit and the public debt?

discussion: it is obvious that the causal relationship between the two macroeconomic variables is bivalent:

- an increase in the budget deficit will cause an increase in the public debt, because the additional budget deficit must be financed;

- what will happen, however, if the budget deficit decreases? In this case, of course, the public debt will not decrease (in the best case, it will not increase). This asymmetry in the causal relationship budget deficit—public debt is significant from the perspective of the fiscal reaction function: from a methodological point of view, it is not admissible that a cause acts only in one direction (an increase in the deficit leads to an increase in the debt) but not in the opposite direction (a decrease in the budget deficit does not lead to a decrease in the debt). The fact that so many analysts are racing to put the two variables into equations without noticing this causal asymmetry is, of course, a serious argument to question (at least) the approach in question;
- let us now admit that there is an increase in public debt, but for reasons other than financing the budget deficit—for example, by increasing interest rates. What will be the behavior of the budget deficit? The budget deficit will increase because the debt service, which is now higher, must be paid from the budget; we therefore have a symmetric relationship: debt → deficit, just as in the case of the deficit → debt relationship;
- but, still, what will happen to the deficit if the debt decreases? This time, since the decrease in debt entails a decrease in debt service expenses, we have a symmetric relationship: debt decrease → deficit decrease, with the relationship debt increase → deficit increase;
- therefore, in the deficit variation—debt variation relationship, there is only one causal “fault”, namely the asymmetry between the deficit increase—debt increase relationship and the deficit decrease—debt decrease relationship. We propose to call this fault *the ratchet effect of debt on deficit decrease*;

²¹ In addition, here, there is clearly an *ad infinitum regression* which, from a methodological point of view, is counter-productive.

²² Of course, the exact value of the lag must be determined rigorously, possibly through careful econometric (i.e., empirical) equations.

²³ According to the provisions of the Maastricht Treaty or the Fiscal Compact (the latter, although it refers to the euro area, was also signed by Romania).

conclusion: given the aforementioned ratchet effect, we consider that linking the kinematics of the budget deficit with the kinematics of public debt is “suspect” from a methodological point of view, because the cause—effect relationship must act in both directions, regardless of whether that relationship is directly or inversely proportional.

- should the budget deficit be considered with respect to the general consolidated budget or the state budget?

discussion: the answer is easy to give here:

- the general consolidated budget is a quasi-budget, because some of its components are not, strictly speaking, budgetary funds, but special funds;
- the distinction between a budgetary fund and a special fund is the following: budgetary funds must verify all budgetary conditions (principles); but special funds violate one of these principles, namely the principle of non-allocation of revenues, because the destination of budgetary revenues in these special funds is known (and cannot be violated) even before the revenues are collected (e.g., the social security budget, the unemployment insurance budget, the national social health insurance fund);²⁴
- the public debt service²⁵ is paid exclusively from the state budget, and this is not only as a result of legal provisions but, more importantly, because financial logic requires this;

conclusion: the budget deficit, if it is justified, from a theoretical and methodological point of view, to be linked to public debt in the framework of constructing the fiscal reaction function, must be the state budget deficit;

- under what methodological conditions could the link between the kinematics of total public debt and the kinematics of the

budget deficit (as shown above, i.e., referring to the state budget) be preserved?

discussion: we saw, above, that there is a certain question mark in this regard, related to what we called the ratchet effect of debt on the decrease in the deficit:

- first of all, we must consider the ambiguity of the cause—effect relationship in the pair of macroeconomic variables budget deficit—public debt;
- in this context, we will have to decide, from the perspective of the concept of fiscal reaction function, which of the two variables will be considered cause and which effect;
- in our opinion, public debt, once contracted, can no longer constitute a current cause of the budget deficit, because:
 - both the principal (maturity rate) and the interest on the public debt contracted to finance the budget deficit at a given time were established at that time; the two amounts are, as an expense, known for the next budget year (or for the following budget years, depending on the maturity of the debt contracted at that time);
 - the above reasoning refers both to the public debt contracted to cover the budget deficit at that time, and, possibly, to finance other government expenditures, in subsequent budget years;
 - on this basis, we will propose that the public debt be divided into two components: a) a component related to the rolling over of the public debt service previously contracted and matured—we will denote this component by D^r (rolled over public debt); as a share in GDP, we have: $d^r = \frac{D^r}{GDP}$; b) a component related to public investments made in the

²⁴ In fact, only the state budget, the centralized budget of administrative-territorial units and the budget of public institutions financed entirely or partially from their own revenues are actual budgetary funds.

²⁵ That is, the amount related to the due installments to which the related interest and other associated expenses are added (bank fees, commissions, etc., as the case may be).

budget year in question²⁶ (i.e., new public debt)—we will denote this component by D^a (public debt that complies with the golden rule of public finances); as a share in GDP, we have: $d^a = \frac{D^a}{GDP}$; obviously, the total public debt $D = D^r + D^a$, and $d^r + d^a = d$, where $d = \frac{D}{GDP}$;

conclusion: the budget deficit must be considered a cause of public debt, but the logical and quantitative modeling must consider the two components of public debt mentioned above.

Therefore, regarding the typology of autonomous targets of the fiscal reaction function, we can say the following, in a preliminary conclusion:

- (1) the autonomous target of the fiscal reaction function must remain the total public debt, as a share in GDP, but only with that component of it that refers to the financing of public investments (D^a);
 - it is possible, however, that the public debt increases not only as a result of the D^a component, but also as an effect of the other component of budget expenditures—current expenditure (let us denote it by D^c), that is, that expenditure that is made to finance the functioning of public institutions and authorities (salaries, or, more precisely, salary packages, respectively goods and services in the budget system). The D^c component should be considered the structural component of budget expenditures, that is, that component that, in principle, is mandatory/inevitable, that is, necessary—we can call it, with some approximation, the fixed component of budget expenditures. This component should be completely covered by budget revenues (which, if possible, could also cover part of D^a) and only what remains uncovered by revenues should constitute a budget deficit. A

general synoptic scheme of the budget structure (revenues and expenditures) that also highlights the autonomous target of the fiscal reaction function is given in Figure 2.

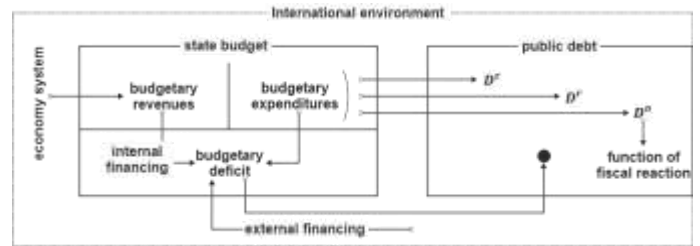


Figure 2. Identifying the genuine target of fiscal reaction function
Source: author.

- (2) the autonomous target of the fiscal reaction function must not be a structural variable, but a functional one. More precisely, it must not refer to a mandatory (necessary) component of budget expenditures (such as, for example, the D^c component), nor to a component that, although originally could have been non-mandatory (i.e., functional), at the time of the analysis became mandatory (such as, for example, the D^r component). The reason is simple: the mandatory components of government expenditures are "intangible", that is, the decision not to carry them out cannot be made or, more generally, a choice cannot be made in relation to them;²⁷
- (3) once the functional nature of the autonomous target of the fiscal reaction function has been established (which represents the qualitative criterion of the problem), the quantitative criterion that could be used here must be established. In connection with this aspect, we will make an analytical development of the issue:
 - (3.1) in the standard models, copied again and again by all kinds of article writers, the mathematical condition set for the target of the fiscal reaction function, i.e., the share of total public debt in GDP, is that its value remains constant (more precisely, not to increase). This is a short-sighted view, in my opinion, because blocking the growth of an economic variable, whatever it may be, has no economic rationale without examining whether its growth is beneficial;²⁸

²⁶ The fact that the entire budget expenditure that creates the budget deficit is not taken into account is explained by the need to respect the so-called golden rule of public finances: the state should only go into debt to finance public investment expenditure (which, of course, also includes the state's contribution to financing investments in the PPP system—public-private partnership or to co-financing funding from the European budget within the framework of the structural and cohesion funds).

²⁷ From a theoretical point of view, such components do not (cannot) be the object of a decision, because a decision exists when the alternatives between which a choice must be made are equidistant (i.e., they are not ranked based on any criterion). It is obvious, however, that mandatory expenses are already ordered at the top of the payment hierarchy (or already have the highest priority order), so they cannot enter into any decision-making process—they are already decided by their very nature.

²⁸ According to such a position, no investment should be made, because it involves an expense (which increases the cost).

(3.2) our proposal is, therefore, that the autonomous target of the fiscal reaction function be not the invariance of the component D^a (or of the variable (d^a) ,²⁹ but some kind of net present value (NPV) of D^a . In other words, if the net present value of D^a is positive, then total public debt is “free” to increase;

(3.3) how much the total public debt can increase, under the conditions of using the NPV condition is a distinct problem. There can be several variants:

- maintaining the share of total public debt in GDP constant; from an algebraic point of view, the condition is $NPV = 0$, which means that the increase in public debt is absorbed by itself, by creating the economic substance (in fact, the tax base) that recovers the expenditure in question;
- increasing the share of total public debt in GDP; this situation would correspond to the case in which the financial leverage of public debt is positive, which means that, simply, it is efficient to borrow more; in this case, a “J” curve of the share of total public debt in GDP will occur, over a time horizon that can, of course, be calculated;³⁰
- decreasing the share of total public debt in GDP; this situation would correspond to both the inverse of the immediately previous case (i.e., the case in which the financial leverage of public debt is negative), and the case of a political decision (for example, the European Union treaties impose on member states a decreasing trend of the share in question, for reasons that may be as obscure as those underlying the current establishment of the maximum ceiling of public debt at 60% of GDP);

(3.4) in order for the reasoning based on NPV (and on the financial leverage effect, which is ultimately reflected in the NPV calculation) to be pertinent, relevant and reliable for economic policy, a multiplier of the budget expenditure that led to the variation of D^a must be established. Since we are talking about investment (we recall that this is how the D^a

component was defined), the most appropriate such multiplier seems to be a GDP multiplication coefficient as a result of D^a . We will call this multiplication coefficient: *the multiplier of responsible public debt* (denoted $m_i^{D^a}$), where the lower index i denotes the year in which the debt in question is contracted). The multiplier of responsible public debt is therefore calculated as follows:

$$m_i^{D^a} = \frac{\Delta GDP_i}{D_{i-1}^a}$$

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Fortunately, in relation to investment, common sense prevailed and the condition was set that that expense be at least recoverable (the well-known method of the net present value of the investment, the famous *NPV*). Why this method is not also used in the case of budgetary expenditure (of course, for the component that we denote here by D^a) remains an unfathomable mystery to the minds of economists.

²⁹ We repeat that, in fact, even in the standard versions regarding the invariance of the share of total public debt in GDP, the

increase of the variable in question was not prohibited, but only its increase in GDP (as a result of the “sacrosanct” provision of the Maastricht Treaty or the Fiscal Compact, which imposes a maximum ceiling of 60% of this share): therefore, if GDP increases, it is acceptable to increase the total public debt by the amount $\Delta D = k \cdot \Delta GDP$, unde $k = \frac{D_0}{GDP_0} = \text{constant}$.

³⁰ A similar “J” curve effect (which manifests itself with respect to the trade balance and the services balance in the balance of external payments) occurs when the currency depreciates.