



DISCRETIONARY POLICY VERSUS NON-DISCRETIONARY POLICY IN THE ECONOMIC ADJUSTMENT PROCESS¹

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Abstract

The study aims to examine the concept of automatic fiscal stabilization in the context of macroeconomic adjustment policies. To this end, first a conceptual distinction between discretionary public adjustment policies and non-discretionary ones is achieved. Second, sufficient and necessary attributes for an automatic fiscal stabilizer are identified and examined, in order to obtain a definition of this instrument. The whole research approach is characterized by a logical and abstract way of thinking, to provide a general and non-contextual result. Finally, a general mechanism of action of automatic fiscal stabilizers is proposed, by introducing the basic concepts of action base and of action rate of such an instrument.

Keywords: sustainability, fiscal policy, automatic fiscal stabilizers, discretionary versus nondiscretionary, principle of the minimal action

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How are emerging the non-discretionary adjustment policies?

By **public policy** (PP) we generally understand a policy which verifies the following sufficient attributes⁵:

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⁵ By sufficient attributes we understand those attributes which, verified by a given entity, in their totality, bestow a certain qualification/classification to that entity.

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- It is instrumented by a public institution/organisation licensed by law (usually through the fundamental legal law – the Constitution);
- It targets a public objective (set of objectives);
- The targeted public objective is relevant⁶ at macroeconomic or macrosocial level;
- It has a permanent and continuous character;
- There is a procedure which starts the above-mentioned computational mechanism;
- It contains a computational mechanism⁷ (algorithmic) which describes the input-output relation (or, more generally, the cause-effect relation) which accompanies its instrumentalisation;
- There is a procedure associated to the computational mechanism which starts this mechanism.

The public policy can be clarified in terms of two fundamental criteria: a) the causal criterion; b) the formal criterion. According to the causal criterion, a PP can be of two types: a1) direct PP; a2) indirect PP. According to the formal criterion, a PP can also be of two types: b1) explicit PP; b2) implicit PP. We will briefly characterise the four types of PP.

The *direct PP* determines the variation of the target variable directly, without the mediation of a command variable. For instance, the administrative setting of the price for a good or service (the reason for such intervention is of no interest here) simply means to modify that price⁸.

The *indirect PP* determines the variation of the target variable indirectly, by mediation of a command variable. Some methodological clarifications are needed here: 1) we presume to have (accept) the theory which determines the causal relation between the variation of the command variable and the variation of the target variable; 2) the channel (mechanism) of transmitting the influence of the command variable to the target variable is known, observable, accessible and controllable (under all required aspects: amplitude of shock transmission, the different lags or leads, etc. - for instance, production of the taxation basis variation, also see the Laffer curve, or of the interest rate variation using the variation of the monetary policy interest rate).

The *explicit PP* produces the variation of the target variable by a formal action (following a decision) of the institution/organisation responsible for the specific PP. For

⁶ The macroeconomic relevance of an objective can be evaluated from at least two points of view: a) as significance – the objective is significant for most of the population; b) as impact – the objective contains emerging principles with the role of drivers at the macroeconomic level. If these conditions are not met, or if they are met without a character of continuity, or are met partially, then the macroeconomic relevance is compromised.

⁷ The computational characteristic of the mechanism means that it can be run on a universal Turing machine. In other words, aspects such as mechanism comprehension or its integration within a certain axiology are not relevant here, although, no doubt, any PPA is generated by a theory which includes aspects of understanding or of values.

⁸ A concrete example could be the determination of the minimal guaranteed wage paid in the national economy.

instance, if the central bank observes an excessive appreciation of the exchange rate, than it can decide to decrease the minimal compulsory level of the bank reserves. Or, if the government notices that the proportion of the informal economy increased, then it can take the decision to decrease the fiscal pressure (or to make a convenient reorganisation of the general taxation). In other words, an explicit PP presumes to take formal decisions (an implement them) into the desired direction.

The *implicit PP* obtains the variation of the target without an action (following a decision) of the institution/organisation responsible for the specific PP. How is this possible? - By implementing, in the causal mechanism, some institutional “devices” that start automatically, when certain conditions, preconceived, are verified and, therefore, produce the variation of the target variable.

Here are some **comments** on what we proposed above.

1. First, we should point out that the mentioned criteria function simultaneously, achieving a double characterisation of any concrete PP. In other words, a certain PP will be clarified both by the first criterion and by the second one. We would thus have, in principle, four distinct categories of PP: a) explicit direct PP; b) direct implicit PP; c) indirect explicit PP; indirect implicit PP. Let us notice, however, that the direct implicit PP is an inconsistency. Indeed, if the PP is direct, this means that the target variable is aimed directly, without the mediation of a command variable. Or, the implicit character implies exactly the existence of such a command variable which acts on the target variable. Therefore, according to the condition of consistency, we will have only three distinct types of PP: 1) *direct explicit PP*: PP-de; 2) *indirect explicit PP*: PP-ie; 3) *indirect implicit PP*: PP-ii;
2. an explicit PP is what we will subsequently call a *discretionary PP*, because, as mentioned above, it requires a “conscious” intervention of the institution/organisation responsible for the specific PP, at a certain moment, with an amplitude and in a way determined when the decision of intervention is taken (usually in a formal way); we therefore have two types of discretionary PP: PP-de, and PP-ie;
3. an implicit PP is what we will subsequently call a *non-discretionary PP*, because, as mentioned above, it does not require a “conscious” intervention of the institution/organisation responsible for the specific PP. According to the identified typology there is just one type of non-discretionary PP: PP-ii;
4. in agreement with the previous statements, both the discretionary PP and the non-discretionary PP imply the pre-existence of a top-down algorithm⁹. It follows that both the deliberate intervention and the automatic intervention on the target variable take place in a computational manner which excludes both the

⁹ By top-down algorithm we understand (in systems theory and particularly in the computational theory) an algorithm which contains the whole protocol followed by a universal Turing machine; the Turing machine itself cannot (although the programmer can, but we remain here within the top-down algorithms) modify this protocol by experience (or learning). On the contrary, an algorithm which allows this learning (thus, the modification of the protocol), by the Turing machine itself, during algorithm running, is a bottom-up algorithm. The logical consistency between the bottom-up algorithms and the emergence phenomena is readily obvious.

requirement for intuition (that is, of comprehension) and the need for an axiological evaluation (both are supposed to have been considered when the top-down algorithm was designed. We will subsequently revert on the characteristics of this algorithm.

By public policy of adjustment¹⁰ (PPA) we understand that PP in which we will not find the direct character of the public intervention. According to what we determined above, it results that there can be two such PPA: PPA-ie, which is of discretionary type, and PPA-ii, which is of non-discretionary type. The best known PPA are those available to the government (fiscal-budgetary policy) or to the central bank (monetary policy), with the role and function of intervention in the market economic mechanisms in order to implement (induct, stimulate, maintain, correct, etc.) those economic, social, etc., processes and phenomena, supposed to facilitate the accomplishment of the fundamental objectives of the government and of the central bank. We will subsequently be interested only in PPA¹¹.

While, as mentioned, semantics plays no role in applying a PPA once the algorithm was designed, irrespective of whether there is a discretionary or non-discretionary algorithm, the *syntax* of PPA interventions is of decisive importance.

Syntactically, we may have very different adjustment discourses.

First, there are simple adjustment discourses, and composed adjustment discourses. A simple adjustment discourse is that PPA intervention that is *mono-typical*: either a "de" intervention ($de_0 - de_1 - de_2 - \dots - de_k$), or an "ie" intervention ($ie_0 - ie_1 - ie_2 - \dots - ie_k$), or an "ii" intervention ($ii_0 - ii_1 - ii_2 - \dots - ii_k$). A composed adjustment discourse is that PPA intervention that is *poly-typical*: a concatenation of different mono-typical interventions¹².

Second, there are *atomic* (or singular, meaning these are adjustment discourses including a single PPA intervention) adjustment discourses and molecular adjustment discourses. The latter can be of two categories: *periodical* (containing groups of PPA interventions that reappear periodically with the same configuration) and *a-periodical* (containing groups of PPA interventions that do not appear twice).

Third, it is important whether the initial intervention is discretionary or non-discretionary. If the initial intervention is discretionary but subsequently involves only non-discretionary interventions, this initial intervention can be called *priming intervention*

¹⁰ Let us mention that a public policy of adjustment can only be a macroeconomic policy (which is a policy with targets that are relevant at the macroeconomic level, even if most times the basic effects occur, or are intended to occur, at the microeconomic level). This is why the macroeconomic policies of adjustment (particularly the monetary policy available to the central bank and the fiscal policy available to the government) must be correlated causally, structurally and functionally within the so-called mix of fiscal-monetary policies, so that the aggregation of the effects at the macroeconomic level may lead to the convergent accomplishment of the set targets.

¹¹ Obviously, according to what we stated: $PPA \subset PP$.

¹² The syntactic rules available to formulate the poly-typical adjustment discourses are, of course, incorporated within the mentioned top-down algorithm and they depend, as shown, on the relevant (accepted) theory in the particular field.

for the non-discretionary processes¹³. If the initial intervention is non-discretionary but subsequently involves only discretionary interventions, this initial intervention can be called *signalling message*. A more meticulous analyst might extract many other classifications which may be conceptually, methodologically and even instrumentally interesting¹⁴ but for the purposes of this paragraph we consider enough what we have already settled.

Fourth, the more elaborate a PPA is (both conceptually, and methodologically or instrumentally), the more predominant the poly-typical adjustment discourses will be and the more complex they will be¹⁵.

Therefore, by PPA structure we understand, in fact, the syntactic structure of that PPA. This is no coincidence if we consider that the mechanism for impulse transmission within the economy is eventually a matter of ...syntax. Therefore, we notice that we have a *logical equivalence* between the mechanism of impulse transmission and PPA syntax. That is why, when we will discuss either of them, we may very well discuss the other one, *mutatis mutandis*. This qualitative result is particularly important methodologically because it allows us to shift the focus of our analysis from one aspect to another, as it serves better or more directly the purpose of the analysis.

In conclusion, we must say that the title of this paragraph is somehow forced because, as we saw from the above developments, we cannot speak of an antinomy or inconsistency between the discretionary and non-discretionary interventions, since they may belong to the same adjustment discourse according to the existing institutional logic.

The special case of the fiscal policy¹⁶

As seen until now, the two categories of PPA – explicit indirect, which is discretionary, and implicit indirect, which is non-discretionary – refer to any public policy of

¹³ This is the typical case for the less developed stages of the public policies of adjustment (we do not consider the situation in which the initial discretionary intervention is followed only by discretionary interventions too). As the public policies of adjustment improve, the initial interventions will be predominantly non-discretionary, followed by non-discretionary interventions too.

¹⁴ For instance, the case of the circularly adjustment discourse, which extends its periodicity to the initial intervention, too.

¹⁵ We propose to determine the complexity of a poly-typical discourse of adjustment according to the number of involved mono-typical discourses.

¹⁶ Some analysts distinguish between the fiscal policy – the set of norms, institutions and procedures which ensure the dynamics of the real economy in terms of fiscal revenue (more generally, of the public revenue) – and the budgetary policy – by which we understand the assembly of norms, institutions and procedures which ensure the dynamics of the real economy in terms of budgetary expenditure (more generally, of the public expenditure). As far as we are concerned, by fiscal policy we understand both the aspects related to the public revenue and the aspects related to the public expenditure. In other words, the expressions “fiscal policy” and “budgetary policy” are considered to be perfectly replaceable.

adjustment, without any specific area of intervention. In this respect, the two categories of PPA may refer both to the monetary and to the fiscal policy¹⁷.

Any PPA has a specific set of instruments with which it carries its interventions in the economy. Some of these instruments are rather administrative, others rather economic. There is, thus, a problem of how much discretionary is a PPA, more precisely, which is the threshold of discretionarity of a PPA over which the particular PPA is characterised as discretionary and below which it is characterised as non-discretionary. The question is justified because it is obvious that, in an empirical PPA (actually applied in the economy), some instruments may increase the level of discretionarity, other may decrease it. On the other hand, the instruments of a PPA can be extremely different in many respects, so that this non-homogeneity (methodological, technological, of mechanism, of measurement) makes it impossible to determine a "mean" or some other such aggregate indicator of discretionarity. Within this context, the introduction of a "measure" of the level of discretionarity of the entire PPA seems impossible. Therefore, the method which we will use is to identify a minimal list of the most important instruments of a given PPA and to examine each such instrument with the view to evaluate whether it acts discretionary or non-discretionary. Of course, this is an objective of classification and it will not be the purpose of this paragraph, or of the overall study. We will rather be interested in determining the institutional and mechanism conditions which ensure that a particular instrument (the more important ones, or even all of them) of a PPA may function in a discretionary or even non-discretionary manner. This approach seems more accessible methodologically, but less relevant theoretically and conceptually.

(a) PPA features - Fiscal policy

By **PPA named fiscal policy** we understand the assembly of norms, institutions and procedures aimed to administer, from the perspective of the public authorities, the macroeconomic equilibrium in the real economy, the control of taxation rates and governmental expenditure. The main characteristics of this public policy of adjustment are:

- It is a governmental prerogative (mainly through the Ministry of Public Finance);
- It is applicable to the market of goods and services (i.e. to the real economy);
- It concerns predominantly the adjustment of internal macroeconomic imbalances¹⁸ ;
- It is quite rigid: its modification is difficult and rigid (the budgetary process is quite complicated and bureaucratic);
- It is quite efficient: it is enforced by law;

¹⁷ We consider only the two PPAs because they are, by far, the most important policies of this kind.

¹⁸ It is difficult to distinguish between the fiscal policy and the trade policy: although customs duties are a category of indirect taxes (which thus belong to the fiscal policy), they are instruments for the protection of the economic borders (belonging thus to the trade policy). However, if we consider the simple Keynesian model (referring to the closed economy), we may say that the fiscal policy regards the internal macroeconomic equilibrium.

- It has an immediate effect (legally, there is no lag between the enforcement of a fiscal norm and the effects of this norm)¹⁹;
- It is strictly and totally legally regulated (there are no persuasive fiscal instruments, just regulatory fiscal instruments).

(b) Relation between the discretionary and non-discretionary character in the fiscal policy

• **Similarities²⁰:**

- Both categories presume a theoretical framework (an explanatory paradigm) to justify them reasonably;
- Both categories presume a procedure;
- Both categories are designed consciously and pragmatically by the responsible public institution;
- Both categories are indirect (see the considerations under para. 2.1.);
- The efficacy of the fiscal policy instruments is not influenced by their discretionary or non-discretionary nature.

• **Dissimilarities:**

- The discretionary instrument of the fiscal policy is activated both following the signalling message (see para. 2.1.) and without it, based on preset goals of the responsible institution²¹, while the non-discretionary instrument of the fiscal policy is activated by the autonomous reaching of set threshold of the controlled economic phenomenon;
- The discretionary instrument of the fiscal policy has an explicit character, while the non-discretionary instrument of the fiscal policy has an implicit character;
- The rigid character of the discretionary fiscal policy is permanent, while the rigid character of the non-discretionary fiscal policy is displayed only during fiscal policy design, not enforcement (functioning);
- In principle, the discretionary fiscal policy does not generate lags between rule enforcement and the production of the normative effects, while the non-discretionary fiscal policy displays a certain lag generated by the necessity of reaching a critical threshold (mass) that activates the non-discretionary fiscal policy.²²;

¹⁹ *Of course, we do not take into consideration the cases of voluntary non-payment of the duties to the budget, although this phenomenon too takes place under the fiscal policy (tax evasion is one of the problems that, at certain intervals, may become the main competence of the fiscal policy).*

²⁰ *These are common characteristics, additional to the ones stated under letter (a) of this paragraph.*

²¹ *In the case of Romania, such activation was the implementation of the single tax rate for the personal and corporate income, starting in 2005.*

²² *We have to accept here, however, the existence of an original persuasive characteristic of the non-discretionary fiscal policy. The sui generis nature of this attribute of persuasiveness*

Discretionary Policy versus Non-Discretionary Policy

- The discretionary fiscal policy creates its own path²³, while the non-discretionary fiscal policy will use the “path” “constructed” when the specific fiscal policy was designed²⁴;
- The non-discretionary fiscal policy requires a finer “square grid” (more taxes or classes of governmental expenditure²⁵) or larger amplitudes (higher taxing rates or higher rates of governmental expenditure allocation) than the discretionary fiscal policy, in terms of fiscal mechanism design; these characteristics don’t aim just to increase the fiscal efficiency, but they may also be necessary solutions to prime a non-discretionary fiscal policy (meaning that below a certain threshold of this “square grid” or amplitude, the non-discretionary fiscal policy is inefficient²⁶);
- **Interconditioning:**
 - The actual fiscal policy will have a syntax which contains both discretionary and non-discretionary components;
 - By the priming intervention, a discretionary act may start one or several non-discretionary acts while, through a signalling message, a non-discretionary act may start one or several discretionary acts²⁷;
 - The „success” of the non-discretionary instrument of fiscal policy (in terms of reaction time, efficacy, cost reduction, etc.) may, in time, increase the level of “non-discretionarity” of the fiscal policy as a whole²⁸; in other words, the

results from the fact that the non-discretionary fiscal policy too is designed as imperative norm (therefore this is not a “hard” persuasiveness as in the case of the monetary policy, for instance).

²³ *It is interesting here the metaphor of the tank: the tank is a machine which creates its own path which it needs (the caterpillar carried by the machine itself builds the road as and how it is required). It would be interesting to develop this idea within the context in which the European construction based on catching-up seems to fail, and a worm hole philosophy is needed (the tank metaphor is such a worm hole).*

²⁴ *The interesting problem of the path dependence appears here. A discretionary fiscal policy has a quite high path autonomy (which it states during the specific intervention), while the non-discretionary fiscal policy doesn’t have this autonomy. In other words, if with the discretionary fiscal policy the initial conditions are not determined causally (they may simply be changed during the intervention), with the non-discretionary fiscal policy, this dependence on the initial conditions is crucial.*

²⁵ *See also the issue of the fiscal capillarity, which may be an extremely efficient “replacer” of the fiscal pressure (amplitude).*

²⁶ *The distinction between efficacy and efficiency is useful within this context.*

²⁷ *A sophisticated syntax of the fiscal policy might, of course, concatenate, logically and chronologically, a non-discretionary act with another non-discretionary act. The most general case is, of course, that in which the discretionary and non-discretionary acts of fiscal policy link according to the accepted economic logic. However, a control is required on the dynamics of the real economy “directed” by non-discretionary acts in order to reach the proposed targets, but this can be ensured by periodical reports of fiscal policy elaborated by the Ministry of Public Finance.*

²⁸ *We can notice here the appearance of auto-poiesis, which is the ingredient which gives the fiscal policy (and any PPA) the characteristics of a vivid logic system, so important in the institutional designing, functioning and evolution, in general.*

syntax of the fiscal policy will include an increasing number of non-discretionary components (“words”) in its discourse;

- the discretionary fiscal policy may create institutional structures and economic behaviours (fiscal, particularly) which may thereafter become the field for implementing a non-discretionary fiscal policy. This relation of causality is, in our opinion, desirable.

What is an automatic fiscal stabilizer (AFS)?

As shown in the previous paragraphs, a non-discretionary PPA (an indirect implicit one) must comprise an institutional device which enters into action without any decision or deliberation of the public structure responsible for the particular PPA. We will subsequently refer only to the fiscal policy as species of public policy of adjustment, and, consequently, to the automatic fiscal stabilizers²⁹, as species of automatic stabilizers.

The institutional device³⁰ mentioned above will be called **automatic fiscal stabilizer**³¹ (AFS). The following comments will serve to clarify the concept of automatic fiscal stabilizer:

- a) AFS has an exclusively *normative character*. This means that an AFS cannot just appear from the logic of the economic market (although certain economic phenomena can inspire the fiscal normative authority to design and implement some AFS³²);
- b) AFS has the **specific finality** to *reduce the volatility* of the macroeconomic output³³. GDP volatility or oscillations may be generated by shocks (usually on the job offer, but any other shocks that influence, one way or another, the result of the

²⁹ *The recommendation of the design and implementation of automatic fiscal stabilizers within the mechanism of the fiscal policy is included in the Pact of Growth and Stability.*

³⁰ *We prefer to use here the expression of “institutional device” instead of instrument of fiscal policy because, for instance, if we accept the taxation rate to be a fiscal instrument, there is no way we can dissociate the progressive taxation rate from the single taxation rate: both are, of course, instruments of fiscal policy and yet their economic impact is completely different. Maybe we can accept the idea that the institutional fiscal device refers to a certain modality of the concerned fiscal instrument.*

³¹ *Obviously, relying on our statements in the previous paragraphs that by fiscal policy we understand what other analysts understand by fiscal-budgetary policy, it results that the automatic fiscal stabilizer will refer both to the purely fiscal side and to the purely budgetary side of the concerned indirect and implicit public policy of adjustment.*

³² *We must say, nevertheless, that such automatic stabilizers may appear and do appear within the economic process as such. Otherwise, if it were not so, the market failure would be total (for instance the communist economic doctrine presumed implicitly that the economic progress itself can not generate and maintain automatic stabilizers). The best known example is the phenomenon of market clearing (coincidence of the demand with the offer for an economic good, the price being generated by the respective balance). We must however notice that when we speak of public policies of adjustment (such as the fiscal policy), the normative nature (origin) of the automatic stabilizers is logically necessary.*

³³ *The macroeconomic output is measured by the current GDP indicator.*

- production function, must be taken into consideration³⁴). This stabilizing capacity, characteristic of an AFS, gives the name of the concerned institutional device³⁵;
- c) A **more general finality** of the AFS is to absorb the *asymmetrical shocks* generated necessarily by the functioning of a common monetary policy (which also is a public policy of adjustment), under the conditions in which the effects of this common policy are displayed in member states with distinct financial structures (channels with different parameters for monetary impulse transmission);
 - d) AFS *does not have a symmetrical action*, when it acts from the perspective of the available income, comparatively with the situation where it acts from the perspective of the expenditure: for instance, its efficacy is certain in the case of the governmental expenditure, but it is uncertain when it acts from the perspective of the income³⁶, because, if the multiplier of the governmental expenditure is produced entirely³⁷, the reduction in income due to the action of the AFS doesn't produce a proportional modification of the consumption, therefore of the aggregate demand³⁸;
 - e) AFS has, by definition, an, *anti-cyclical*³⁹ **impact**. It is important to mention here that AFS has only an anti-cyclical impact, while the discretionary measures of fiscal policy, even if they are anti-cyclical as finality, may also have pro-cyclical consequences (temporarily or concerning some segments of the fiscal matter);
 - f) AFS *increases the efficacy* of the macroeconomic prediction (by reducing the

³⁴ The "hard" expression of GDP volatility refers to the exceeding of the potential GDP by the actual GDP (for increasing) or to GDP decrease below the so-called CDP of constant occupation (for decreasing). The CDP of constant occupation is a concept quite difficult to instrument analytically, but it is suggestive from the perspective of ensuring a "smooth" trajectory of the GDP (also see Barry Eichengreen, University of California, Berkeley, "Saving Europe's Automatic Stabilizers", in National Institute Economic Review, November 1996).

³⁵ Empirical studies have shown, however, that the AFS may also have destabilising effects, for instance, in the case where the grounds of action (see below) of the AFS are not indexed to shocks (for instance, to the inflationist shock).

³⁶ For instance, in OECD countries, both the taxation and governmental expenditure act as automatic fiscal stabilizers.

³⁷ It is estimated that the multiplier of the aggregate demand (the absolute modification of the output to the modification of the one-digit aggregate demand) is diminished by the automatic

stabilizer with the dimension: $\frac{\alpha \cdot \tau}{(1 - \alpha + \beta) \cdot (1 - \alpha + \alpha \cdot \tau + \beta)}$, where:

α : the marginal inclination to reduce the consumption following the income tax

τ : the marginal rate of the income tax

β : a coefficient which overtakes the crowding-out effect generated by the increase in the interest rate and in the prices (see also Cohen, D, Follette, G., "The automatic fiscal stabilizers: Quietly doing their thing", *FRBNY Economic Policy Review*, April 2000).

³⁸ Thus, when AFS acts in the direction of increasing the income, the marginal inclination towards consumption decreases, while when AFS acts in the direction of increasing the income, the Duesenberry effect is produced.

³⁹ Hence the essential feature of the AFS of being a negative feed-back. On the other hand, a discretionary PPA (indirect and explicit) may be anti-cyclical, that is, it may have the nature of a negative feed-back, but in the latter case the due negative feed-back is explicit, deliberate, unlike the AFS in which it is implicit, automatic.

incertitude of the concerned predictions). The mechanism is as follows: an AFS is always designed in terms of the fiscal policy purpose (final cause), which means that once we accept the theoretical paradigm within which such an AFS is conceived, its operationalization leads with great certitude to the variation of the target macroeconomic variable in the expected direction, and most times, amplitude⁴⁰.

- g) AFS is a **structural instrument**, unlike the discretionary decisions of fiscal policy, which are purely functional. This is an aspect of particular importance because the structural aspect gives the concerned instrument a fundamental property, its capacity to “control” with certitude⁴¹ the dynamics of the phenomenon or process to which it is assigned. Although the structural character may also bestow another property – that of permanence – we are reserved in stressing it too much because, in principle, a discretionary decision may abolish any time the concerned AFS and may equally perpetuate or renew any discretionary decision; in other words, AFS may have the same properties of permanence as discretionary decision, therefore, this property doesn’t express a specific difference;
- h) As mentioned before, AFS requires the **design** of an “*institutional path*” on which it runs (unlike the discretionary fiscal policy which creates this paths simultaneously with the discretionary decision of intervention, see the tank metaphor). This means that AFS is “path-dependent”, which entails that condition (usually, preponderantly economic) fulfilment is the efficient cause to start the considered automatic action;
- i) AFS is characterised by a high *efficacy* (the efficacy of an action is, of course, something different than its certitude). By AFS efficacy we understand its property to achieve the purpose for which it was designed and introduced into the institutional mechanism of fiscal policy. AFS efficacy is diminished or even annulled (at the risk of destabilising pro-cyclical effects occurring) if AFSs are designed

⁴⁰ This observation may be of a crucial importance in the paradigmatic rethinking of the economic modelling (prediction). For instance, for us it is obvious that in economy we don’t have actual predictions, but rather...retrodictions from the future towards the present. This statement is likely because, in a so-called economic prediction, we do not extrapolate the past and the present (that is, the movement law of the economic phenomenon, the initial conditions; would we do so, we would expose ourselves, directly, to the Lucasian critique) but we restore the process starting from the set purpose, that is from the future towards the present. In this respect, a economic prediction normative should have an enormous normative load (in fact, the economic prediction must be considered as closed in normative terms), which means it should project the process, chronologically, from the present towards the future leaving, in logic terms, from the future towards the present.

⁴¹ The word „certitude” is essential here because the discretionary decisions of fiscal policy too, can modify (or may attempt to modify) the structure of the particular economic phenomenon or process, but only in the moment or starting with the moment when they are implemented. Therefore, we are not sure whether the responsible public authority will react to the signals from the economy by deciding in a discretionary manner on the changes of structure deemed necessary (the authority may be incompetent or may have a political interest, for example, not to intervene). On the contrary, once AFS is implemented within the fiscal institutional mechanism, it becomes autonomous in relation to the particular public authority and its action is certain, as soon as the economic conditions allow its activation.

using distorted taxation data⁴². Furthermore, AFS efficacy depends, directly proportionally, on the nominal and real rigidity of the economy. The last conclusion is logical, considering that AFS action is to make a physical comparison, like a lever: the rigidity of the lever ensures the presumed effect (which means that we have a potential trade-off between the distortions introduced by the nominal and real rigidities in the economy and AFS efficacy which relies exactly on these rigidities). After all, an AFS determines the private sector to do (in terms of changing its economic behaviour and sometimes even the criterion of economic behaviour) what the government cannot convince it to do. In terms of quality, efficacy is also a logical consequence of the structural nature of the AFS, and so is the certitude. In terms of quantity, efficacy is a function of two parameters: 1) the **rate of action** – the intensity at which AFS updates its programmed action; 2) the **basis of action** – the economic support on which the rate of action is exerted. Let us examine the two components, while making some logical and methodological considerations⁴³:

1. The *rate of action* (k) refers to the “step” which AFS takes once all the “path” conditions are fulfilled, which starts automatically its action. For instance, if we take an AFS that acts on the income , such as progressive taxation of the personal income and/or of the corporate income, the rate of action is described by the amount with which the taxation rate changes from a level of incomes to another⁴⁴;
2. The *basis of action* (B) refers to the interval of the “action cell” that has a certain rate of action;
3. The *quantitative dimension of AFS efficacy* (E) refers to the product between the rate of action and the basis of action: $E = -k \cdot B$ ⁴⁵. One can observe immediately that the rate of action and the basis of action are replaceable⁴⁶. In this case we may define a curve of AFS efficacy indifference, putting the differential condition:

$$dE = 0 \rightarrow dk \cdot B + dB \cdot k = 0 \rightarrow Rms = \frac{dk}{dB} = -\frac{k}{B}$$

⁴² Any public norm having the effect to cut down consumer surplus is regarded as creating distortions.

⁴³ It seems, for instance, that AFS efficacy increases by the size of the state (a larger state implies, necessarily, larger bases of action but, for of budgetary equilibrium reasons, it may also imply higher rates of action) (see also Barrell, R., Pina, A.L., How important are automatic stabilizers in Europe? A stochastic simulation assessment, *European University Institute, WPECO nr. 2/2000*).

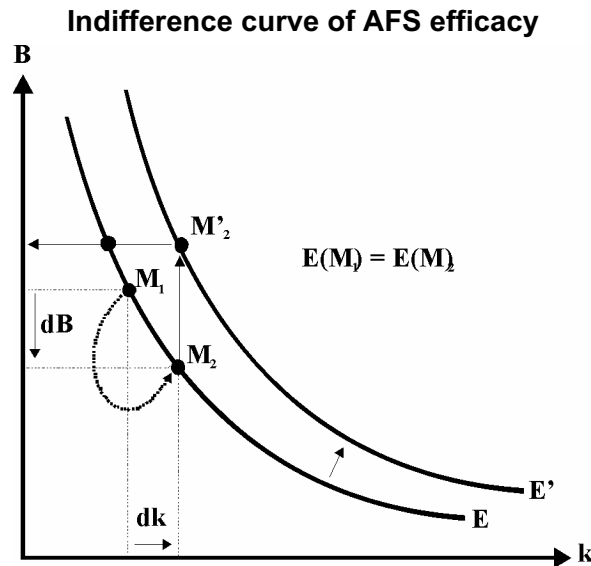
⁴⁴ We observe here the necessarily discrete character of the rate of action. We will also notice, at the same time, another property according to which there is, on the one hand, an administrative constraint (fiscal revenue administration) concerning the number of “action cells” (the income levels in our example above), while on the other hand, there is an economic constraint concerning the actual size of the rate of action (see the Laffer curve).

⁴⁵ The negative algebraic sign shows the reversed direction of AFS action on the controlled economic variable in relation to its autonomous variation.

⁴⁶ According to the case, the minimal and maximal thresholds of this replaceability must be examined by setting economic conditions. In our opinion, these economic conditions must be sustainable.

where: Rms is the marginal rate of substitution between the rate of action and the basis of action;

Figure 1



- j) In relation to AFS we introduce the concept of AFS *granularity* which refers to the finesse of the “square grid” of both the rate of action and basis of action. The finer the two “square grids” are, the smaller AFS granularity is, and vice versa. AFS granularity is important in terms of the sensitiveness of AFS reaction to the change of the economic conditions, which is, as mentioned earlier, its efficient cause. Just as we have replaceability between the rate of action and the basis of action of an AFS, the same way we have replaceability between the granularity of the rate of action and the granularity of the basis of action of an AFS. It is, of course, another problem if AFS efficacy depends more on a granularity or on another factor. A conclusion in this respect might be interesting, but the issue will be resumed in another context of the study⁴⁷;
- k) According to the definition of a non-discretionary PPA and of the institutional device named AFS, this is an indirect and implicit entity. In terms of concrete action, however, AFS may have an impact characterized by an *economic lag*⁴⁸. Developing the idea on the asymmetrical character of AFS action, we may say that, for instance, an AFS which acts on the governmental expenditure (such as the unemployment aid) does this without any economic intermediary on the aggregate demand, because the governmental expenditure is an explicit

⁴⁷ In our opinion, this matter must be dealt with rather empirically than theoretically, meaning it represents a contingent property rather than a necessary one.

⁴⁸ This is not a temporal lag, because any AFS acts “instantly” once the conditions forming its efficient cause are fulfilled, but an economic lag, meaning a lag referring to the mechanism of AFS action transmission onto the command variable which it must modify (the economic lag is generated by the economic theory acknowledged to govern the specific economic process).

component of the aggregate demand. On the other hand, an AFS acting on the private consumption (another part of the aggregate demand) will first modify the available income which, in turn, will modify (for instance through the intermediation of the marginal inclination towards consumption) the private consumption. We deal here with an economic lag. We should therefore probably speak of **non-mediated** AFS (AFS target being a component of the aggregate demand or of the aggregate offer), and of **mediated** AFS (AFS target being an economic variable characterized by a certain economic lag behind the final component of the aggregate demand or of the aggregate offer, according to the case);

- l) The substitution effects mentioned above (both between the rate of action and the basis of action) and between the granularities of the two) may act as a *sui-generis* AFS (we will resume this issue).

The 12 characteristics of the institutional device named AFS will help us to identify the necessary and sufficient attributes of such a device.

Based on the above, we may say that an AFS is a device of institutional **type**, or normative **origin**, with structural **character**, with macroeconomic **sphere**, with anti-cyclical **action** and with implicit (automatic) **start**, whose **purpose** is to reduce the volatility of the macroeconomic output (GDP).

The logical structure of an AFS

We tried previously to define and characterize an AFS. Based on those considerations we try further to identify the list of the necessary and sufficient attributes of an AFS, and using this logical basis, to describe the mechanism (or classes of mechanisms, according to the case) by which the AFS sends its stabilizing impulse to the component (final target) of the aggregate demand (or offer, according to the case). Logically, we are *first* interested to determine the attributes (or predicates) sufficient for a certain abstract construct to be considered AFS. *Second*, we have to examine if the multitude of the sufficient predicates of an AFS is equal (meaning that it contains the same predicates) with the multitude of the necessary predicates⁴⁹. *Third*, we have to describe the mechanism (or classes of mechanisms) involved in the process of automatic fiscal stabilization. Let us denote by Γ the abstract construct "candidate" to the qualification of AFS.

(a) The sufficient attributes of a generic AFS

We consider that there are 5 sufficient predicates for an AFS, as follows:

- 1) Γ is an *institutional* construct, meaning it is **generated in a normative manner**. This is an obvious attribute, sufficient by nature, because if it is not met, we may have self-stabilizing mechanisms (also based on the principle of the negative

⁴⁹ It is possible, but not compulsory, that the multitude of the necessary predicates is more comprehensive than the multitude of the sufficient predicates, with the first multitude including the second one (see also the study Sustainable sources of financing, worked out by CFMR in 2007, in which a sustainable source of financing generates new necessary predicates compared to the sufficient predicates), but it is at least equal to it. This excludes thus the situation in which the intersection of the two multitudes is not equal with the multitude of the sufficient predicates.

feed-back) but generated by the economic process itself. As shown previously, this is in contradiction with the fact that the AFSs are discussed within a PPA; we denote this sufficient attribute (predicate) by S_I ;

- 2) Γ is a *structural* construct– a construct with a **permanent character** and with **continuous action**⁵⁰. The argument for the sufficient nature of this predicate is the following: being a construct that must behave in a non-deliberative (automatic) manner, this trait can only be accomplished if Γ is a component part of the targeted economic process, being structurally endogenous⁵¹. If it were not so, then its activation would require the evaluation of the efficient cause fulfilment and, subsequent to this evaluation, it would require a deliberative decision of activating its specific action (which is exactly the way a fiscal policy discretionary measure is activated); we denote this sufficient predicate by S_S ;
- 3) Γ is a *macroeconomic* construct, meaning its action is **relevant** to the dynamics of the macroeconomic variables. Although the Lucasian critique⁵² on macroeconomic modelling directed the economists (particularly the econometricians) towards researching the microeconomic basis of the macro economy, and although Γ acts effectively at the microeconomic level, the relevance of this action is always macroeconomic (reducing the volatility of the macroeconomic output – GDP). This predicate has the nature of a sufficient predicate because Γ construct does not verifies the specific predicate, the purpose of the construct – to reduce the volatility of the macroeconomic output – does not become actual⁵³; we denote this sufficient predicate by S_M ;
- 4) Γ is *anti-cyclical*⁵⁴, meaning that it acts in the **reverse direction** of the controlled variable variation. This predicate too, is clearly sufficient in nature, because if we

⁵⁰ Here, the term “continuous” does not have the connotation of the continuous character as opposed to the discrete character; it has rather the connotation of ensuring the action each time the efficient cause is fulfilled, avoiding thus “void actions”, failing to fulfil the efficient cause.

⁵¹ We want the reader to know that by this we do not mean at all that Γ is an endogenous (resulting) variable of the respective economic process logic model. We should rather consider that Γ is a control parameter (it cannot be a variable because the predicate set it from the very beginning as institutional, that is normative) or, better said, a gap analyzer (see Appendix 1 of the study).

⁵² We do not accept the Lucasian critique on the grounds that the phenomenon of emergence which takes place at the macroeconomic level makes the microeconomic analysis irrelevant (maybe not so much in contingent-pragmatic terms, as in terms of the logical necessity).

⁵³ For instance, we may have institutional constructs with stabilizing effect at the company or microeconomic market level, but their final impact will not reduce GDP volatility. Although the theory of the microeconomic substantiation of the macroeconomy may argue that, in fact, by aggregation, such constructs may have the expected effect on the GDP, we reject these arguments on the ground of the composition fallacy and we claim that such a construct must aim from the very beginning, from its design, a macroeconomic impact.

⁵⁴ Let us observe that the anti-cyclical predicate is “stronger” than a possible predicate that would only hold the feed-back behaviour. As it is known, the feed-back may also act in a pro-cyclic manner, in the case when the analysis of a black box output shows that accomplishing

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would not impose this, any such institutional device will have an impact of increasing the variability of the structurally controlled variable (it would thus be pro-cyclical), undermining the very concept of AFS; we denote this sufficient predicate by S_A ;

the action of Γ is *supra-proportional* in relation to the variation of the controlled variable. This predicate obviously is sufficient in nature because if the action were proportional (or even worse, under-proportional), then the dynamics of the process would not be influenced, rather maintained, preserved⁵⁵ or even augmented in the pro-cyclical direction. The verification of the supra-proportionality predicate does not depend on the direction of variation of the controlled variable: if it increases, Γ will reduce it more than it increases, and if it decreases, Γ will increase it more than it decreases. In other words, we are speaking here of a higher than the unit value of **marginal variation** of Γ . If we denote by dV the variation of the controlled variable generated by the evolution of the particular economic process, by dV_Γ the variation of the controlled variable generated by the action of Γ construct and by Γ_m the marginal effect of Γ , then we must have the algebraic condition: $\Gamma_m = -\frac{dV_\Gamma}{dV} < -1$

verified. This is, in fact, what might be called the *AFS multiplier* (Appendix 2 includes a diagram of the AFS multiplier). The measure by which AFS multiplier is higher than the unit is the measure of its efficacy⁵⁶; we denote this sufficient predicate by S_P ;

Let us observe that the mentioned predicates meet, taken two by two, the conditions of *independence* (none is the logical result of another), of *consistency* (none is contradictory to another) and of *completeness* (the simultaneous verification of the five predicates generates a Γ construct, which will function as an AFS, according to the statements previously made concerning the concept of AFS).

Denoting by P_S the multitude of the sufficient predicates, we may then write $P_S = \{S_I, S_S, S_M, S_A, S_P\}$.

the purpose of that black box requires a pro-cyclic variation of the input. By specifying an anti-cyclical predicate we make sure that Γ always acts in the reverse direction of the controlled variable variation, towards smoothing the volatility, which is the very reason of an AFS.

⁵⁵ For instance, the single taxation rate for the personal and corporate income, introduced in Romania starting on January 1st, 2005, doesn't "reverse" the trend of GDP gap showing the tendency to become positive, because the variation of the amounts collected from incomes are proportional to the variation of the income, maintaining thus this inflationary trend.

⁵⁶ The extent to which the AFS multiplier is higher than the unit depends, obviously, on the granularity of the rate of action and on the granularity of the basis of action, as well as on the allowed level of replaceability between the two sizes and granularities. The logic and methodological relation between the concept of granularity and the concept of capillarity, mentioned in the previous paragraphs, is readily observable (the common element might be the concept of institutional square pattern).

(b) The necessary attributes of a generic AFS

Let us examine now, the possibility that a Γ construct, which verified the five sufficient predicates and thus, conceptually became an AFS, might further generate other predicates that characterise it, predicates that are necessary, but not sufficient. We will consider each of these sufficient predicates and see whether, logically, they (each of them or combinations of them) generate necessarily other predicates.

- *Necessary predicates generated by individual sufficient predicates:*

Of the five individual sufficient predicates, the predicate of **structurality** generates (according to the precepts of systems theory) a necessary predicate which we will call *functionality*⁵⁷. This means that Γ is “**sensitive**” (according to its granularity, of course, either at the level of the rate of action, or at the level of the basis of action) to the variation of the variable it controls, so that when this variation exceeds a preset level, Γ activates spontaneously and produces the programmed change through its transmission mechanism. Why should this attribute have the nature of necessity? Because, once the Γ construct is included structurally in the process, it will be necessarily integrated in the functionality of the specific economic process, making thus the connection between the fulfilment of the efficient cause (the controlled variable exceeded the preset level) and the spontaneous, non-deliberative, activation of Γ . If we would not accept this impact of the sufficient predicate S_S , we would accept the fact that the dynamics of the economic process bears no influence on the Γ construct, which would make this construct **to fail its impact presumed** by the very reason of being of an AFS; we denote this necessary predicate by N_F . The logical formulation of the generation of this predicate is: $S_S \rightarrow N_F$;

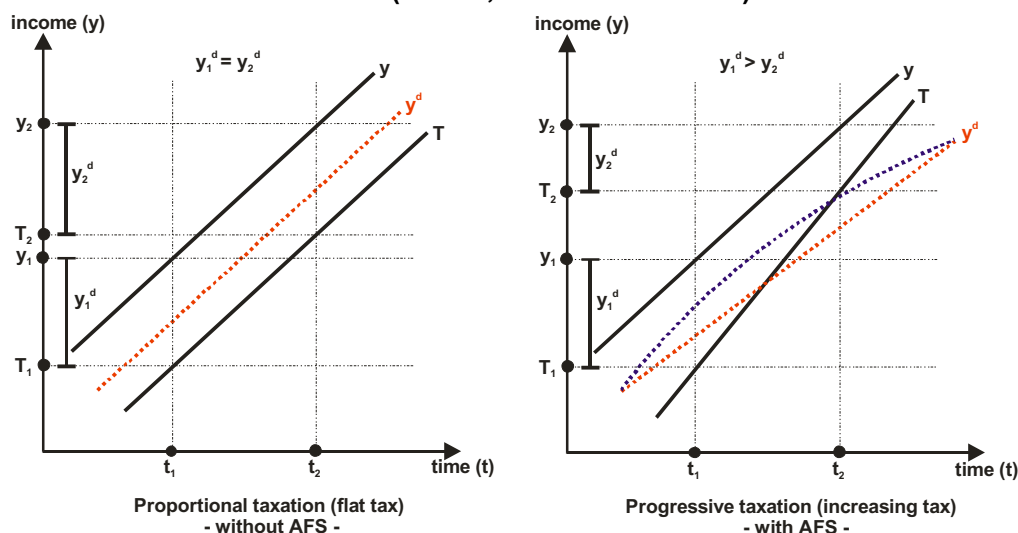
- *Necessary predicates generated by combined sufficient predicates:*

The sufficient predicates, **anti-cyclical** - S_A , and **supra-proportional** - S_p , will generate together a second necessary predicate of AFS, the *inflexional* predicate. By inflexionality we understand the property of AFS to reduce the variation speed of the controlled economic variable, creating, in mathematical terms, a point of inflexion in the trajectory of the controlled economic variable. The reduction of the variation speed of the controlled economic variable refers both to the situation in which this variation is positive (the variable increases) – in this case, AFS reduces the speed of increase – and to the situation in which the variation is negative (the variable decreases) – in this case, AFS reduces the speed of decrease. We denote this necessary predicate by N_I . The logical formulation for the generation of this predicate is: $(S_A \wedge S_p) \rightarrow N_I$. Figure 2 shows the way this necessary predicate is verified (using the example of the taxation regimes):

⁵⁷ The term functionality has here its mathematical acceptance (functional dependence) and not its “civil” acceptance of functionality.

Figure 2

Impact of the necessary predicate of inflexibility on the available income (that is, effective demand)



where: T is the income tax, y^d is the available income ($y^d = y - T$).

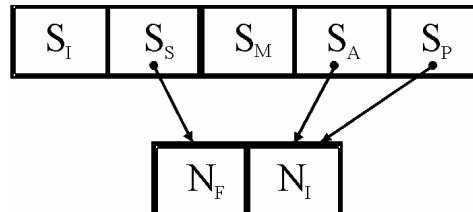
It is important to note that any sufficient predicate is also a necessary predicate⁵⁸. Indeed, if a sufficient predicate is not found among the necessary predicates, it means that, in fact, it was either redundant, or contradictory to the other sufficient predicates. But, since we showed above that none of these cases occurs, it results that AFS actually has 7 necessary predicates, five of them coinciding with the sufficient predicates and two new ones, generated by the sufficient predicates, once they were joined within the construct Γ . In other words, if we denote by P_N the multitude of necessary predicates and by P_N^N the multitude of new necessary predicates, then we can write successively: $P_N^N = \{N_F, N_I\}$, $P_N = \{S_I, S_S, S_M, S_A, S_P, N_F, N_I\}$, $P_N = P_S \cup P_N^N$, $P_S \cap P_N = P_S$, $P_S \cap P_N^N = \phi$, $P_N \cap P_N^N = P_N^N$.

Figure 3 shows the logical diagram of the new necessary predicates:

⁵⁸ The reciprocal – any necessary predicate also is a sufficient predicate – is not, obviously, true.

Figure 3

Logical diagram of the new AFS necessary predicates generation



(c) The transmission mechanism of the stabilization impulse of a generic AFS

We have introduced above the concept of efficient cause for AFS activation and we have also discussed about fulfilling the economic conditions that form this efficient cause. The description of the transmission mechanism of the stabilization impulse of an AFS means describing the way in which the conditions forming the specific efficient cause are fulfilled.

Since AFS is a structural institutional construct (see the sufficient predicate S_S), it is sensitive to the modifications of structure produced within the controlled economic process (in fact, to the structural modifications occurring in the controlled economic variable). Therefore, we have to be sure that the controlled economic variable produces, together with its variation, such structural modifications. To do this we need an institutional framework of variation of the controlled economic variable, able to include thresholds, i.e., a certain institutional square grid. We will subsequently describe the abstract mechanism of AFS activation.

Be it an economic variable V^j "fitted" with the institutional square grid "j"⁵⁹. We denote by t_i^j a threshold "i" from the square grid set "j". Suppose we have an AFS "q", assigned functionally (see the new necessary predicate N_F) to the economic variable V^j , which we denote by SFA_q^j . Then, the new necessary predicate N_F ensures the existence of an institutionalised procedure, $\Omega(V^j, AFS_q^j)$, which functions automatically (there is no need for a deliberative decision exogenous to the particular economic process) and which, upon reaching threshold t_i^j by the economic variable V^j , activates AFS_q^j . Therefore, we may say that upon reaching threshold t_i^j , we will

⁵⁹ We also consider the set of institutional square grids because it is possible that in more sophisticated systems, the same economic variable (more precisely, macroeconomic) may be assigned to several such square grids (which can be in functional dependence on one another), so that an AFS can be activated by the fulfilment of the efficient cause by more than one square grid. For the time being, however, we limit ourselves to a simplified analysis in which we suppose we have just one institutional square grid.

have modifications either in the rate of action of AFS_q^j , or in its basis of action⁶⁰, or both in the rate of action and basis of action of AFS, so as to ensure the higher than unit value of the marginal AFS_q^j (of AFS multiplier). Let us admit that reaching threshold t_i^j signifies a variation of the rate of action k_i^{qj} of AFS_q^j , which leads to a variation of V^j of the amount $d_i V^j$. Then, the “amount of action” generated by AFS_q^j will be $E = d_i V^j = -(k_0^{qj} + dk_i^{qj}) \cdot d_i V^j$ ⁶¹, on condition (imposed by the verification of the sufficient predicate S_A): $dk_i^{qj} > 0$.

As shown in the previous paragraph, we may have mediated and non-mediated AFS. The abstract mechanism above referred to non-mediated AFS. The following mechanism changes occur in the case of the mediated AFS: we denote by V_{int}^{jd} an intermediary economic variable between AFS and the final economic variable V^j , located at the “institutional distance” “d” from the final economic variable (component of the aggregate demand or offer, according to the case). The problem with the mediated AFS is that the whole mechanism described above is applied in relation to V_{int}^{jd} , which, from AFS perspective, represents the final economic variable⁶². Subsequently, however, the new value of V_{int}^{jd} will act, according to the accepted theoretical models, on $V_{int}^{j(d-1)}$ and so on, until the final economic variable $V_{int}^{j0} = V^j$ is influenced. In agreement with the accepted theoretical models, we denote by α_{int}^{jd} a coefficient of modification of V_{int}^{jd} variable. Then, we can describe the transmission mechanism of the stabilizing impulse of SFA_q^j mediated as follows:

⁶⁰ It is important to highlight here that inside an “action cell”, for instance, within a level of incomes levied for personal taxation, we have a variation of the basis of action (of the taxation basis) but this variation doesn’t reach the critical threshold which generates the variation of the rate of action; therefore, within this “action cell”, AFS acts proportionally to control the particular economic variable, thus behaving atypically for an AFS (it doesn’t verifies the sufficient predicate S_p , therefore it is not a genuine AFS).

⁶¹ We denoted by k_0^{qj} the rate of action of AFS_q^j at the moment immediately prior to reaching threshold t_i^j , and by dk_i^{qj} we denoted the variation of the rate of action of AFS_q^j generated by reaching the particular threshold. The negative algebraic sign in the formula is required by the verification of the sufficient predicate S_A .

⁶² Since AFS has no intrinsic procedure to “recognise” the quality of the economic variable on which it acts, any AFS will “consider” that the variable on which it acts is the final economic variable. It results that the AFS classification into mediated and non-mediated is not an operational methodological classification, but rather a classification of interest just for the analyst.

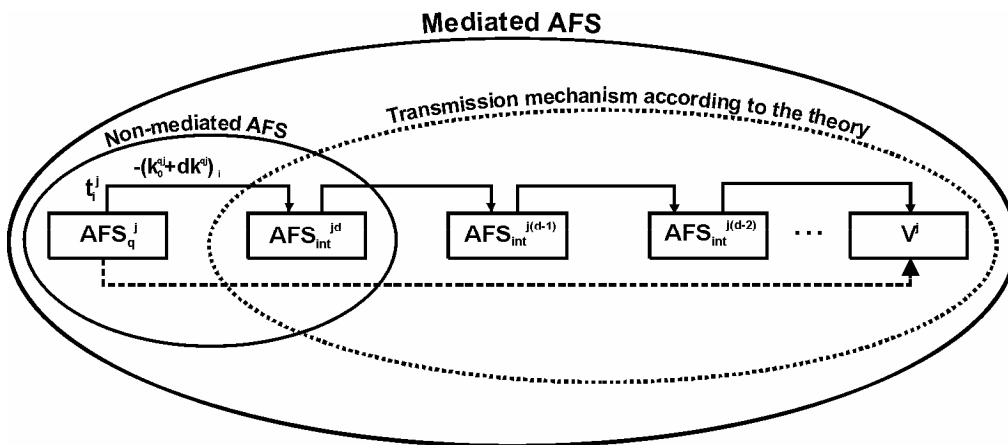
$$d_i V^j = \alpha_{int}^{jd} \cdot V_{int}^{jd} = \alpha_{int}^{j(d-1)} \cdot \alpha_{int}^{jd} \cdot V_{int}^{j(d-1)} = \dots = \prod_{s=0}^d \alpha_{int}^{j(d-s)} \cdot d_i V_{int}^j =$$

$$= -\left(k_0^{qi} + dk_i^{qi}\right) \cdot d_i V^j \cdot \prod_{s=0}^d \alpha_{int}^{j(d-s)}$$

Figure 4 shows the graphic representation of the mediated transmission mechanism of AFS stabilization impulse.

Figure 4

General (i.e. mediated) transmission mechanism of AFS stabilising impulse



Final remarks

The need to minimize and enhance the government intervention into the economy and society (ethics means autonomy, as it is well known) and the need to ensure sustainability of economic processes imply that the public policies of adjustment become more non-discretionary, which requires reducing the weight of discretionary macroeconomic adjustment and introduction of automatic stabilizers into the economy. Automatic fiscal stabilizers provide non-discretionary government intervention in the real economy, delivering feedback regulation, with the lowest public cost and highest efficiency in terms of speed and settlement assistance. Sufficient and necessary attributes of automatic fiscal stabilizers identified in the study could help design comprehensive, coherent and consistent automatic fiscal stabilizers to be taken for the institutional structure of national tax policies at national as well as at European level.

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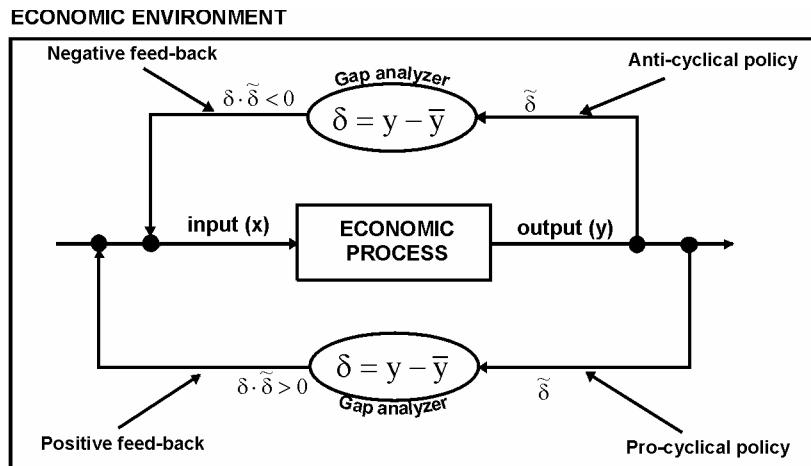
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Appendix 1

Pro-cyclical policies vs. anti-cyclical policies

The pro-cyclical policy acts as a positive feed-back, while the anti-cyclical policy acts as a negative feed-back . We will make the following notations: y : effective output; \bar{y} : expected output (normed, usually the potential GDP); δ : output gap; $\delta = y - \bar{y}$; $\tilde{\delta}$: direction of influence, through the public policy of adjustment, of the output gap ($\tilde{\delta} > 0$ if we want to increase the output gap, and $\tilde{\delta} < 0$ if we want to decrease the output gap). We may then say that we have a anti-cyclical policy if $\delta \cdot \tilde{\delta} < 0$ and we have a pro-cyclical policy if $\delta \cdot \tilde{\delta} > 0$:



Effect of the automatic fiscal analyzers

