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The Central Banker as "Regulator of Conflict"

A "reversed" reading of the Solow and New Consensus models

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Abstract

We make explicit the logical connection between two well-known models of mainstream neoclassical thought, namely the Solow growth model (1956) and the more recent macroeconomic model of the "New Consensus" (here we examine the version elaborated by Taylor 2000). Taking the mathematical structure of this original "Solow-New Consensus" model as our starting point, we shall show how switching the positions of the exogenous and endogenous variables leads to very different results as regards both interpretation of the facts and political implications. In particular, we shall see that in the neoclassical version of the "Solow-New Consensus" model, the distribution is endogenous and the role of the central bank is simply to ensure that the economic system converges on its "natural" equilibrium, where full employment and a specific "inflation target" are achieved. These results will then be turned completely upside-down through a simple operation based on a different choice of exogenous and endogenous variables. As we shall see, the role of the monetary authority is totally different in this alternative view, based on exogenous determination of the distribution of income. In this framework, the central bank becomes a crucial "regulator" of distributive conflict between the social classes and the full-employment equilibrium no longer constitutes an inescapable point of reference. Within this alternative scheme, and assuming an open economy, we shall also see that it is possible to interpret the behaviour of central banker in an original way on the basis of "uncovered interest parity".

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1. A teaching method based on the choice of exogenous variables

Macroeconomics has undergone numerous changes over the last thirty years as regards both research and teaching. With respect to the trends prevailing up to the 1970s, the field of theoretical and applied studies has seen enormous growth in the influence of the neoclassical school as against very limited dissemination of alternative approaches. In the sphere of teaching, the consolidation of a neoclassical mainstream has led to significant standardisation of study programmes. Unlike the situation in the past, these appear to be increasingly based on the adoption of American manuals, which are characterised by clarity of exposition and abundance of information but also by systematic acceptance of the dominant neoclassical paradigm. One of the reasons prompting numerous "non-orthodox" teachers to use this type of course book is the conviction that students must in any case receive a preliminary grounding in the mainstream and should be introduced to heterodox approaches only at a later stage. While this view is understandable and indeed acceptable to a large degree, there is some risk of stunting the growth of a critical spirit. The major American manuals prove in fact to be characterised by a typically "progressive" approach to the discipline based on the simplistic idea of macroeconomics undergoing practically linear development toward an increasingly precise and unanimous understanding of reality.[1]

The need to offer students in their first year of economics a preliminary grounding of the mainstream type thus evidently clashes with the need to sharpen rather than blunt their critical spirit. This is a considerable problem because it is no easy matter to sum up the basic differences between the schools of heterodox thought and neoclassical theory in a handful of remarks. There is in fact a deep rift between the dominant approach and its critics. For example, while neoclassical economists always tend to identify the roots of their analyses in the paradigms of methodological individualism and of scarcity and utility, the critical schools – be they classical, Marxist, Kaleckian or post-Keynesian – reject methodological individualism, the principle of consumer's sovereignity, the paradigma of scarcity and utility and prefer an aggregate and class-based reading of economic phenomena.

Fortunately, there exists one way out of the contradiction between teaching constraints and the primary goal of "opening up the minds" of budding scholars. A particular method allows to compare orthodox and heterodox approaches in a very simple way. This is based on the possibility of obtaining completely different results from the same mathematical structure depending on the choice of exogenous and endogenous variables. The analytical and political implications of a model can in fact be turned completely upside-down by reversing the positions of the variables to be determined inside and outside it. This teaching method obviously presents some

[1] The American textbooks of Blanchard (2005), Mankiw (2007) or Stiglitz (1997), for example, make almost exclusive reference to the debate developed within the so-called "neoclassical synthesis". Marxists, Classical economists or Post-Keynesians are rarely quoted.

limitations. Many of the radical differences in approach between the various schools of thought are inevitably overlooked. However, this procedure has its advantages and has already been adopted by various scholars.[2] The basic reason is that it allows students to see from the outset in their contact with the discipline that economics is not a "linearly progressive" field of research but on the contrary, by its very nature, a conceptual terrain of perennial dispute in both theoretical and political terms.

The teaching method of switching exogenous and endogenous variables will be adopted in this short article for the purpose of examining the factors determining the distribution of income between wages and profits. As we shall see, income distribution is regarded as endogenous by neoclassical economists, always depending in the final analysis on the scarcity of the goods and factors of production available in relation to the preferences of the economic agents (given the technology available). This is a typical result of the paradigm of scarcity and utility, which characterises both the traditional and the modern versions of the neoclassical approach.[3] For contemporary exponents of the critical approaches, including those continuing the classical and Marxist traditions (but also some Kaleckians and post-Keynesians), the distribution between wages and profits should instead be regarded as an exogenous variable to be determined outside the mathematical cores of the models.[4] The basic idea underpinning this view is that the distribution of income depends on complex political and institutional factors, and ultimately on the outcome of conflict between social classes. Therefore it should not be enclosed within an overly rigid structure of formal logic.

Our analysis will take as its starting point two well-known models of mainstream neoclassical thought, namely the Solow growth model (1956) and the more recent macroeconomic model of the New Consensus, which exists in various versions (here we consider Taylor 2000).[5] Though sometimes alluded to,[6] the connection between the two models has never been formally stated in the literature. However, it is evident from a neoclassical viewpoint. The Solow model makes it possible to determine the full-employment equilibrium and its long-term path of development, and it is around this equilibrium that the short-run fluctuations examined by short-period macroeconomic models develop. The New Consensus model constitutes a particular variant of the latter taking expressly into account the

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[2] Marglin (1984), Dutt (1990), Kurz and Salvadori (1995, pp. 46-48) among the others. See also Brancaccio (2008).

[3] Samuelson (1970), Koopmans (1975). For a criticism of the neoclassical paradigm of scarcity and utility, see Pasinetti (1993).

[4] Sraffa (1960), Garegnani (1990). The assumpion of an exogenous distributive variable is not an exclusive prerogative of the Sraffian Surplus approach. For example, it is possible to show that this hypotesis is compatible with the so-called Circuit approach (Graziani 2003). For a demonstration of this compatibility, see Brancaccio (2005).

[5] See also Clarida et al. (1999), Taylor (1997, 1999), Woodford (2001, 2003), Carlin and Soskice (2006). For a critical wiev of New Consensus, see among others Arestis and Sawyer (2004), Setterfield (2004, 2006), Fontana and Palacio-Vera (2007), Fontana (2006), Kriesler and Lavoie (2007).

[6] Taylor (2000, p. 91), quoted also in Kriesler and Lavoie (2007).

way in which the central bank sets the interest rate. We can therefore state that the equilibrium of the Solow model is the pivotal point of reference for the New Consensus model. Which is why we will make reference here to a combined "Solow-New Consensus" model. Taking the mathematical structures of the two models as our starting point, we shall show how switching the positions of the exogenous and endogenous variables leads to very different results as regards both interpretation of the facts and political implications. In particular, we shall see that in the traditional versions of the Solow and New Consensus models, the distribution is endogenous and the role of the central bank is simply to ensure that the economic system converges on its long-term equilibrium, where full employment and a specific inflation target are achieved. These results will then be turned completely upside-down through an operation confined almost exclusively to the choice of exogenous and endogenous variables. As we shall in fact see, the role of the monetary authority is totally different in the alternative version of the two models based on exogenous determination of the distribution of income, where the central bank becomes a crucial "regulator" of distributive conflict between the social classes and the full-employment equilibrium no longer constitutes an inescapable point of reference. The article will end with some arguments in support of this alternative version of the models rather than the traditional neoclassical framework.

The technical difficulties of the article are within the grasp of students who have mastered the basic characteristics of the neoclassical model of growth and the use of the mathematics is limited to the bare essentials.

2. The "Solow-New Consensus" Neoclassical model

In this paragraph we make explicit the logical connection between two well-known models of mainstream neoclassical thought, namely the Solow growth model (1956) and the more recent macroeconomic model of the "New Consensus" (here we examine the version elaborated by Taylor 2000). In this way we shall build an original "Solow-New Consensus" model. We start with a description of the technology of the system put forward by Solow. We examine a capitalist system in which a single good is produced by means of labour and itself. Let K be the quantity of the good available as capital and therefore used as productive input, L the quantity of homogeneous labour employed, and X the quantity of the good produced. We thus obtain the following production function:

$$X = F(K, L)$$

Let us assume that the capital tends to be exhausted within the space of a single cycle of production and must therefore be replenished every time continuously (this means that the rate of depreciation of the capital is equal to one). We shall further assume that the function has constant return of scale, and therefore that:

$$\alpha F(K, L) = F(\alpha K, \alpha L)$$

for every $a>0$. By defining $k=K/L$ and positing $a=1/L$, we can therefore express the function of production in per capita terms. In other words, we can identify the quantities of goods produced for every given input of labour:

$$x = f(k)$$

where $x=f(k)=X/L$. Let us finally assume that this function is continuous and differentiable, and that it satisfies the following customary conditions:

$$f(0) = 0, \quad f'(k) > 0, \quad f''(k) < 0$$

We shall now go on to the distribution of the income produced among the agents of production. We assume that the whole of production will be divided between wages and interests (which are supposed to be equal to profits). Letting w be the real wage and r the real rate of interest, we can therefore write:

$$X = wL + (1 + r)K$$

In order to express this equation too in per capita terms, we then divide the whole by L and obtain:

$$(1) \quad f(k) = w + (1 + r)k$$

Let us now introduce the hypothesis of perfect competition, from which Solow and the neoclassical school draw the inference that labour and capital are remunerated in relation to their respective marginal productivity. In per capita terms, this can be expressed as follows:

$$(2) \quad f'(k) = 1 + r$$

Finally, we shall introduce another typical neoclassical hypothesis, namely that the income produced and saved is entirely transformed into investment (i.e. the

replenishment and growth of the capital) and into expenditure that does not generate productive capacity (e.g. public spending). Letting *s* be the population's propensity to save, *g* the rate of accumulation of capital, and *Z* the real autonomous expenditure that does not generate productive capacity, we have:

$$sX = (1+g)K + Z$$

In order to express this in per capita terms, we once again divide the whole by *L*. By defining *z=Z/X*, we obtain:

$$(3)\quad sf(k) = (1+g)k + z$$

The Solow model is completely encapsulated in the system of equations (1), (2), (3). It enables us to understand how the model determines the growth and distribution of the product endogenously on the basis of scarce factorial endowments and the preferences of the economic agents. The solution procedure of the model is in fact as follows. It starts from the exogenous endowments of capital *K* and labour *L*. Once the endowments are known, competition ensures that the equilibrium levels of wages and interest determined are those corresponding exactly to the marginal productivity of the factors and therefore guaranteeing that firms make full use of the same. Given *K* and *L*, the ratio *k=K/L* at which they will be employed by firms is also given. Moreover, the autonomous expenditure that does not generate additional productive capacity *z* is also regarded as exogenous as well as the propensity to save *s*, which expresses the preferences of the population with respect to consumption choices. Given *k*, *z* and *s*, only three endogenous variables are left, namely *r*, *w* and *g*, for three equations. The system is therefore determined, in that *r* is obtained from equation (2), *w* from (1), and *g* from (3). At the same time, from the ratio *k* it is also possible to determine *f(k)* and to obtain the degree of utilisation *u* of productive capacity in conditions of full employment. This degree of capacity utilization represents the optimal level of output per capita *y* which can be obtained from a given level of capital per capita *k*. It is then given by:

$$u = \frac{f(k)}{k}$$

In line with the neoclassical paradigm of scarcity and utility, the model therefore starts from endowments and preferences and endogenously determines the optimal degree of their utilisation, the rate of accumulation and the distribution of the income produced.

The above situation is described in the jargon of development theory as an equilibrium of non-proportional growth, in that there is no guarantee of labour and capital growing at the same rate. Solow demonstrates, however, that the system does

converge on an equilibrium of proportional growth under certain assumptions.[7] In any case, what matters here is the fact that both equilibria assume endowments and preferences as exogenous variables and that both generate endogenously the one distribution of wages and profits that ensures the full utilisation of capital and labour, which means in this model the optimal degree of utilisation of productive capacity and the absence of involuntary unemployment. Given that some authors speak in this connection of a *natural* equilibrium, a subscript will be added from now on to the equilibrium levels of the real rate of interest and the degree of utilisation deriving from the Solow model (r_n and u_n).

We shall now go on to consider the New Consensus model, which will make it possible to examine the fluctuations around the full-employment equilibrium. This model is distinguished from the traditional short-period macroeconomic models for the following reason. The models of the *neoclassical synthesis* traditionally assumed that the central bank decided autonomously on the amount of money to be put into circulation and then left the rate of interest to be determined by the market.[8] On the contrary, the New Consensus model assumes that the interest rate is set directly by the central bank. This model is particularly favoured today because it appears to reflect more closely the way in which markets and monetary institutions really function. Ignoring to the old question of whether the economic system is capable of converging spontaneously on the full-employment equilibrium, it regards it as the task of the central bank to act so as to make the system converge on an equilibrium in which a specific "inflation target" is achieved and full utilisation of resources is ensured at the same time.

There are already a great many versions of the New Consensus model. The one adopted here is based primarily on the contributions of Taylor (2000) with some elements drawn from Kriesler and Lavoie (2007). The equations of this model are as follows:

(4) $r = r_n + \delta(\pi - \pi^T)$

(5) $u = u_0 - \beta r$

(6) $\Delta\pi = \gamma(u - u_n)$

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[7] Let l be the growth rate of the working population. On the assumption that l is exogenous, the equilibrium of proportional growth will be determined when the ratio k arrives at such a level as to comply with the following condition (3'): $sf(k)=(1+l)k+z$, i.e. when the rate of saving (or capital accumulation) coincides exactly with the exogenous rate of growth of labour and thus generates development leaving the ratio k between the endowments of capital and labour unchanged. In this case, the model proves to consist of equations (1), (2) and (3'). The exogenous variables of the model are therefore l, z and s. While (3') determines k, (2) and (1) determine r and w respectively. The absolute scale of activity will depend in every period on the endowment of labour L, which remains exogenous also in this case.

[8] Modigliani (1944), Patinkin (1965). For a current textbook which can be associated to the tradition of "neoclassical synthesis", see Blanchard (2005).

First of all, it has to be noted that these equations can only be determined if the levels of r_n and u_n are already known, which highlights the close logical relationship of dependency between this and the Solow model. We shall now go on to examine the meaning of the individual equations. Relation (4) is a simple version of the so-called "Taylor rule" and constitutes a hypothesis about the behaviour of the central bank. It is in fact assumed that the monetary authority sets a real interest rate r that is higher than the rate r_n corresponding to the full-employment equilibrium to the same degree as the current rate of inflation π is higher than a target rate of inflation π^T (set by the central bank or the political institutions of the country). In other words, the central bank believes that it can influence economic activity and hence also price dynamics through action on the interest rate r. This conjecture is borne out by the other two equations of the model. Equation (5) is a simple expression of the traditional IS curve. It tells us that the interest rate has a negative influence on aggregate demand and hence also on the degree of effective utilisation u of productive capacity. The effective degree u indicates the deviations from the rate u_n deriving from more or less intensive utilisation of capital and thus implying variations in the per capita output y with respect to the per capita capital k. In examining this equation, it should also be borne in mind that only the rate r_n is capable of generating demand and a degree of utilisation u corresponding to a level u_n of full-employment equilibrium. Finally, (6) is a simple derivation of the Phillips curve indicating that upward or downward variation in inflation depends on the difference between the degree u of effective utilisation and the degree u_n of utilisation corresponding to the full-employment equilibrium.

The system therefore comprises three equations and three unknowns, r, u, and $\Delta\pi$. The rate of interest r_n and the full-employment degree of utilisation u_n are given by Solow's equations and all the other variables are regarded as exogenous (it should be borne in mind that the effective rate of inflation π is also considered exogenous). The system is therefore fully determined. For example, let us assume an initial situation in which the effective rate of inflation is higher that the rate set as a target. In this case, the central bank will be able to set a particularly high interest rate, thus giving rise to a degree of effective utilisation below the equilibrium level and hence to a negative variation in inflation. In this way, the effective inflation rate will tend toward the target rate. It can also be assumed that the central bank will take the opposite course of action way in cases where the effective inflation is below the desired level. On this view, the monetary authority acts on the system constantly with a view to attaining a situation of $\pi = \pi^T$, which unsurprisingly corresponds precisely to the Solow full-employment equilibrium. If the effective and target rates of inflation coincide, the model's equations tell us in fact that the interest rate and the degree of utilisation of productive capacity will prove equal to their respect levels of full employment.

The following conclusions can thus be drawn from the complete "Solow-New Consensus" neoclassical model. The equilibrium levels of wages and interest are the

only ones guaranteeing full employment of the factors of production, and especially the labour L available. Any action aimed at adjusting the distributive variables will necessarily involve deviation from the full-employment equilibrium. Moreover, spontaneous convergence on the equilibrium does not appear to be guaranteed. That is why the central bank will be called upon to guide the system toward an equilibrium that ensures full employment and the attainment of a target rate of inflation at the same time.

3. A "reversed" reading of the two models

Let us now abandon the neoclassical paradigm of scarcity and utility and introduce some hypotheses typical of the heterodox literature. We shall assume that the labour L available is always surplus with respect to the productive requirements of the system and that the utilisation of capital can vary to a large degree without necessarily generating tension as regards prices. This means that scarce endowments no longer play a crucial role in determining the system's endogenous variables and thus involves a shift in perspective with two consequences at the formal level. First, it is established that the rate g of capital accumulation is no longer determined by saving but set exogenously in relation to the autonomous investment decisions of firms. Second, it is assumed that the interest rate r_n is also exogenous and depends essentially on the outcome of the conflict between social classes. These hypotesis obviously imply that the subscript attached to the interest rate and the capacity utilization rate can no longer indicate the *natural* full-employment equilibrium; at most, one can speak of a *normal* position, which can correspond to a situation of high unemployment of labour and has to be understood as the one ultimately established in a given historical phase. As a result of this change in exogenous variables, the Solow-New Consensus model will undergo a logical "reversal" and lead to conclusions very different from those described above. In order to show the basic consequences of this reversed reading, let us re-state equations from (1) to (6), for ease of reference:

(1) $f(k) = w + (1 + r_n)k$

(2) $f'(k) = 1 + r_n$

(3) $sf(k) = (1 + g)k$

(4) $r = r_n + \delta(\pi - \pi^T)$

(5) $u = u_0 - \beta r$

(6) $\Delta\pi = \gamma(u - u_n)$

Furthermore, remember that $u_n = f(k)/k$. We shall start by examining equations (1), (2) and (3). On the assumption that r_n and g are exogenous, it will be necessary to identify three new endogenous variables if the model is to be determined. These will be k, w and z. The solution procedure of the model is therefore altered as follows. Equation (2) represents in any case the condition that firms must respect if they are to choose the method of production that minimises costs. In other words, it determines the ratio k in terms of which the firms will combine the means of production with labour. Once r_n and k are known, the per capita output $f(k)$ is also determined as well as u_n. Once r_n, k and $f(k)$ are given, it is possible to obtain the real wage w residually through (1). In other words, the quota of production that goes to labour is determined by the difference with respect to the quota already assigned exogenously to the recipients of interest. Finally, given the accumulation rate g, it can be assumed that (3) is respected on the basis of the change in the ratio z between autonomous expenditure that does not generate additional capacity and income produced.[9] The final result is therefore radically altered with respect to the original Solow model. Factorial endowments can in fact be seen to have lost their primary role. Labour in particular is now assumed to be abundant rather than scarce, which means that for every given level of demand, firms will employ only the number of workers needed to satisfy it. Others will, however, remain unemployed. The distributive variables therefore no longer perform the task of ensuring the absorption of scarce endowments by firms. Distribution only determines the technical composition of labour and means of production wich will be chosen by firms in order to maximize profits. But in this framework it is exogenous and does not change in presence of unemployed labour. This does not mean, however, that distribution is left hanging in midair. On the contrary, it is regarded as the result of the relations of strength between the social classes and the outcome of the conflict inevitably arising between them.[10]

What function will the central bank perform in this new scenario? In order to answer this question, it is necessary to examine equations (4), (5) and (6) of the New Consensus model. It should be noted from a strictly formal viewpoint that the

[9] The macroeconomic implications of autonomous expenditure that does not generate additional capacity are examined in Serrano (1995).

[10] For a thorough analysis, see Garegnani (1990). See also Kurz and Salvadori (1995, pp. 26-27).

solution of the system does not change. The endogenous variables are in fact still r, u and $\Delta\pi$, determined on the basis of the same original procedure and as a function of the same exogenous variables and the levels of r_n and u_n already determined by equations (1), (2) and (3). There is, however, a substantial difference with regard to the two last-mentioned variables, which no longer correspond to a full-employment equilibrium but simply reflect the balance of power between the social classes. The fact that the central bank seeks to guide the system toward r_n and u_n therefore necessarily takes on a completely new meaning.

Two different hypotheses can be put forward as regards the behaviour of the central bank. In the first case, it could be argued that the presence of a given exogenous level of r_n in the equation of behaviour (4) of the monetary authority indicates the latter's acceptance and defence of a certain distribution of income between the social classes. It should in fact be remembered that, as indicated by equations (5) and (6), the central bank can act indirectly through the interest rate r on the effective degree of utilisation of capacity u and hence also on variations in inflation $\Delta\pi$. Its policy could therefore be aimed at making the exogenous distribution r_n compatible with the desired rate of inflation π^T. For example, if the workers do not accept this distribution of income, they will put pressure on wages, which will obviously give rise to an increase in inflation. The central bank could in this case make the folloing attempt: putting into effect a restrictive policy to weaken the workers and cause them to moderate their demands by reducing the degree of utilisation of productive capacity and thus generating unemployment.

This alternative interpretation of the model thus emphasises the role of the central bank as a "regulator of distributive conflict". It is, however, a reading based on two equations, namely (5) and (6), about which the heterodox literature has always harboured great misgivings. In particular, the economists adopting a critical stance toward the neoclassical mainstream have always raised doubts as to the existence of a strong and stable relationship between the interest rate and the degree of utilisation of productive capacity. Moreover, they have always opposed the idea of an analogous relationship existing between degree of utilisation and variation in inflation.[11] This is why various heterodox economists would claim that in reality the parameters β and γ of the model could be equal to zero, thus making equations (5) and (6) wholly superfluous. The logical conditions are therefore created for a second alternative interpretation of the model.

[11] Kriesler and Lavoie (2007), among others.

4. Another alternative interpretation: the central banker and the drain of capital

If we eliminate equations (5) and (6), what meaning could equation (4) on the behaviour of the central bank have? Well, if we assume an open economy it is possible to give an original answer to this question: equation (4) could reflect the desire of the monetary authority to ensure that the national rate of interest does not diverge from the one prevailing in other countries so as to avoid any drain of capital. In other words, (4) could reflect the well-known condition of *uncovered interest rate parity*.[12] In order to demonstrate this, let us start by re-stating equation (4):

$$(4)\quad r = r_n + \delta(\pi - \pi^T)$$

We shall assume for the sake of simplicity that $\delta=1$. We shall also start from the hypotesis that the current rates of inflation π^T and π^F are equal respectively to the national and foreign target rates of inflation. Let i and i^F be the domestic and foreign nominal rates of interest and π the expected effective rate of internal inflation, which can differ from the respective target rate π^T. Now, it is known that the real interest rate is generally given by the difference between the nominal interest rate and the rate of inflation. However, it may happen that the expected effective rate of inflation differs from the target rate. In this case the real interest rate will be given by:

$$r = i - \pi^T - (\pi - \pi^T)$$

that is $r = i - \pi$. Furthermore, the real foreign rate of interest will be given by $r^F = i^F - \pi^F$. Once the relevant substitutions are made, (4) thus becomes:

$$(4')\quad i = i^F + (\pi - \pi^F)$$

Let $\Delta E/E$ be the expected variation in the nominal exchange rate.[13] If the *purchasing power parity* condition[14] is assumed to hold, so that exchange rates reflect in some way the trends in rates of inflation, then $\Delta E/E = (\pi - \pi^F)$. Equation (4') therefore corresponds exactly to the uncovered parity of interest rates. If this condition is respected, there should be no drain of capital.

On the basis of this interpretation, the behaviour of the central bank is therefore designed to keep the flows of capital under control by ensuring that the internal interest rates are in line with those prevailing in other countries. It should be borne in mind that the central bank can be seen here too as a "regulator" of

[12] Gandolfo (2001).
[13] The nominal exchange rate E is defined here as the domestic price of foreign currency, so that $\Delta E/E > 0$ denotes a depreciation of domestic currency.
[14] Gandolfo (2001).

distributive conflict. In this case, internal distribution will be determined by the situation prevailing at the international level, and the central bank no longer seeks to alter the rate of inflation but confines itself to reacting to it (it could be said that the internal distributive conflict is dominated by "globalisation"). But this complication does not change the basic role of central banker, which is wholly concerned with the regulation of distributive conflict and has nothing to do with any consideration regarding a hypothetical full-employment equilibrium.

5. How to choose between neoclassical and alternative formulations

As compared above, the "Solow-New Consensus" neoclassical model and its reversed, heterodox version reveal some interesting analogies with *stereograms*, images that undergo a radical change in meaning in relation to the viewpoint from which they are observed. In our example, depending on the choice of exogenous variables, the central bank will be regarded in two very different ways: either as a "driver" who brings the economy toward the full-employment equilibrium or as a sort of "gendarme" of distributive conflict. Therefore, the choice of the exogenous variables can be seen in the same way as the crucial moment at which model builders define their point of view and bring one or the other type of representation of the economic system into focus. The conceptual universe in which an economic model is embedded can of course never emerge simply from the system of equations and the choice of exogenous variables characterising it, but must instead be tracked down in the "meaning" attributed to those equations and variables. The problem of the choice of exogenous variables is, however, a crucial stage for the purposes of determining the "sense" of a theory. This holds not only for teaching but also for the broader sphere of research, and not only in economics but also in all the other fields of application of the deductive approach.

The crucial question now is the following: what criteria should be adopted in the choice of exogenous variables? It is clear that if there is no scientific criterion for the selection of exogenous variables, we run the risk of falling into the solipsistic view that "anything goes" in the choice of premises provided that the propositions derived in the subsequent stage of research are logically consistent with respect to the initial decisions (Feyerabend 1975). However, the drift toward solipsism is not unavoidable. It should be remembered that the neoclassical theory has been subjected to many criticisms, which can be also extendend to the neoclassical "Solow-New Consensus" model. One of them is that this scheme seems logically consistent only in an unrealistic world with just one good. While this problem, long identified by Sraffa (1960) and his successors, now appears to have been somewhat forgotten in the literature, the neoclassical theorists do not seem to have fully succeeded in solving

it.[15] Then the "reversed" and heterodox version of the two models described here seems to conform better to the observable reality of a multi-good world. There is thus some logical reason for the curiosity of young scholars to be aroused by it.

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[15] According to Garegnani (2003), it is possible to address the sraffian criticism not only to the old long period wicksellian models but also to the short period neo-walrasian versions of neoclassical capital theory.

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