Full Employment as a Possible Objective for EU Policy
I. A Perspective From the Point of View of The Monetary Circuit

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Summary: In two recent contributions Alain Parguez and Jean-Gabriel Bliek argued in favour of assigning a full employment objective to European economic policies and their coordination (Bliek and Parguez (2007) and Parguez (2007b)). Their argument is based on the approach of the *monetary circuit*, whose treatment of full employment is the object of this article. The approach is presented here as emblematic of "out of equilibrium" models, i.e. models where the equilibrium conditions of pure competition are not fulfilled. A forthcoming contribution will show how the description of economic reality suggested by the circuit can help interpreting recent macroeconomic developments in the US, Canada, Japan and the EU and will discuss some empirical studies confirming its relevance for policy analysis.

Key words: Unemployment, Capacity Utilisation, Circuit, Disequilibrium, Investment, Savings, Price Equation

JEL: D5, E12, H5, H6, E4

Introduction and background:

A majority of people agrees that full employment is a desirable target from an ethical point of view. However, in many European countries full employment was abandoned as an active policy objective. This is due in part to the fact that the monetarist concept of the *natural rate of unemployment* has become an essential element of what Arestis and Sawyer (2004) call the *New Consensus*, a macroeconomic model that summarises the mainstream views concerning the effects of monetary and fiscal policy (Meyer (2001), Mc Callum (2001)). For the

New Consensus unemployment is *natural*, or must in any case remain at its "*Non-Accelerating of Inflation*" level (NAIRU). Hence policies to fight against it are viewed as harmful, and entail the risk to accelerate inflation. As noted by Fitoussi and Le Cacheux (2005, p. 108), a variant of the *New Consensus*, referring to the *New Classical Economics* seems also to be the main argument used in justifying EU post-Maastricht monetary and budgetary policies[1]. In a world where decision-makers tend to focus on the short-term political cycle and to avoid political responsibility for decisions on controversial matters, solutions inspired by *consensus* appear more reassuring than alternatives based on *heterodoxy* (Deleplace and Morrisson, 1985)[2].

Conceptually, "*consensus*" approaches can be brought back to a relatively simple version of the pure competition model developed by Léon Walras and other early neo-classical economists at the turn of the XIX century. Applied mechanically, it makes it hard to defend any active form of policy intervention. Barone (1908) noted already long ago the formal equivalence between Walras' model and the pure command economy, which might explain the fascination it exerts on economists at both extremes of the ideological spectrum.

If Walras model is taken as a limit case that applies under ideal conditions[3], and rigorous thinking is applied to examine what happens when these conditions are not fulfilled, the justification for a full-employment objective and in general for active economic policy intervention becomes clear[4]. This is the route followed by "out of neo-classical equilibrium" approaches, particularly the analyses developed in the last decades by Parguez and others under the heading of *general theory of the monetary circuit*, whose application to the assessment of full employment policies is the object of this review.

The distinctive feature of the circuit is its treatment of money as originated by credit and its focus on the macroeconomy. At the beginning of the circuit, production prices are fixed by enterprises by adding a mark-up on their ex-

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[1] Fitoussi and Saraceno (2004) identified a *Washington-Brussels-Frankfurt Consensus*.

[2] Eric Perée noted orally that the distinction between *orthodox* and *heterodox* economics is of doubtful relevance since a good proportion of "mainstream economists" are actually Catholics. In the same ironical vein, one can also note that according to Nicola (1994), General Equilibrium Theory would be "Catholic", a qualification by which he intends to characterise its tolerance for alternative analytical approaches.

[3] The idea of looking at the pure competitive model as a limit case of more realistic and general social models is borrowed from Leroy (1983, in particular the suggestive chart 6.1 "Le carré des éventualités", p. 264). This idea is also implicit in the concept of the "core" of an exchange economy, developed in the literature on the theory of games, where however it is often presented as a justification for the use of equilibrium analysis. A formal systematisation of what happens when some of the neo-classical assumptions are relaxed, while keeping reference to the other microeconomic "optimising" premises, was also developed by the "rationing approach", which was developed starting from the 1970s by Drèze, Malinvaud, Benassy and others (see also par. 3.2).

[4] Alain Parguez noted orally that Walras would have been shocked by the simplistic way in which his model, and its "fairy equilibrium conditions", is used today in the policy debate.

pected costs, based on their expectations concerning effective demand. Once validated by the banking sector through the granting of credits, the plans of enterprises originate a monetary flow that starts the circuit of wages, income and expenditures. At the end of this circuit, when enterprises recover through their sales the money they advanced as cost, they repay back their loans to the banks and credit money ceases to exist[5].

The circuit shares a number of elements with other approaches that relate the Keynesian heritage to the "classical tradition"[6], such as post-Keynesian and Sraffian analyses[7]. With reference to the neo-classical definition of equilibrium, these features allow qualifying the circuit as an "out of equilibrium" approach, although it may also be viewed as a generalisation of the neo-classical model, since, like the post-Keynesian and Sraffian analyses, it admits walrasian equilibrium as a possible special case.

By definition, "out of neo-classical equilibrium" some form of inconsistency prevails between the plans of the economic agents or social groups that compose society. Economic policy can thus have a positive role in restoring consistency between divergent economic plans. It is argued below that, because of their capacity to address real world problems, post–Keynesian "disequilibrium" approaches are mature to serve as analytical foundations for alternative European economic policies, going beyond the traditional recipes, dubbed *politiques de l'impuissance* by Fitoussi (2005).

The argument developed by Parguez and Bliek is supported by an empirical analysis concerning several countries and different historical periods that will be reviewed in a forthcoming article. It builds also upon their previous book: *Le plein emploi ou le chaos*, in which they made a pitiless diagnose of the economic situation and the policies followed in the last decades in France and in Europe (Bliek and Parguez (2006)), and on other recent related studies (Giovannoni and Parguez (2007)).

In section 2 below some historical background is given on the genesis of the theory of the circuit. Section 3 discusses the relations between the circuit and

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[5] In a pure credit economy (see section 2), where the only form of liquidity is represented by the liabilities of the consolidated banking sector and where the Government is absent, money can only be created when banks extend credits to the rest of economy. It exists and it is used during the production cycle to pay wages and cover other costs and purchases of final products and it is destroyed when loans are repaid. This channel of monetary creation and destruction remains in more realistic models where for instance a legal tender is introduced (see Graziani (2003 pp. 82-87)).

[6] Economists like Smith, Ricardo and Marx, are qualified as "classical", in contrast with Jevons, Menger and Walras, who promoted the "marginalistic revolution" of the late XIX century, who are called "neo–classics" (see for instance Roncaglia and Sylos Labini (2002)).

[7] Roncaglia (1999) identifies three directions in which the analysis of Sraffa was prolonged by his Italian scholars with a view to "reconstruct" the classical approach: the "ricardian" direction taken by Pasinetti, the "marxian" approach associated with Garegnani and the "smithian" avenue followed by Sylos-Labini, the latter being seen by Roncaglia as the most promising for a possible synthesis of the three.

post-Keynesian and Sraffian approaches, whereas section 4 addresses its specific contribution to the analysis of money. Sections 5 and 6 review in detail the main analytical tools of the circuit put forward in the recent contributions of Parguez and Bliek, mentioning the full-cost pricing principle (section 5) and Kalecki's saving-investment identity (section 6). The application of these tools to the interpretation of international macroeconomic evidence is discussed in a forthcoming article, together with other empirical evidence supporting the vision of the circuit. Section 7 concludes.

1. Historical origins of the monetary circuit

The idea of an economy as a circular process of production and exchange can be traced back to the XVIII century's French physiocrats, who looked at the circulation of wealth in analogy with the circulation of blood. Before physiocrats, William Petty had noted that money resembles fat more than blood: a little bit of it is needed and it adds beauty to those who have it already, but too much is unhealthy (Roncaglia (1977)).

The XVIII century vision of circulation concerned goods and services; money really entered into the picture only at the end of the XIX century, with the Swedish economist Wicksell (1898), who developed the concept of a *credit economy*, whereby money is treated as a liability issued by the banking sector when it extends credit. Wicksell influenced many authors of the Austrian and the German schools and particularly the Moravian-born Schumpeter: cf. Sylos Labini (1971), Graziani (2003, chap. 4), Messori (2004).

On money Schumpeter followed the tradition of the *banking school*, like his tutor: von Wieser, in particular the idea that banks create credit money independently from accumulated deposits (Schumpeter (1954, Vol III, p. 472)). In XIX century Great Britain, the *banking school's* position that *loans make deposits* went against the *currency school's* contention that *deposits make loans*. The latter was accepted by the other main pupil of von Wieser: von Hayek, as well as by Wicksell, Leon Walras and later Milton Friedman and the neo-monetarists. Arena (2004) noted that it is somewhat paradoxical that von Wieser was also one of the founders of the marginalistic revolution. Being himself a marginalistic economist, Wicksell exerted a major influence on the Stockholm school (Myrdal, Lindhal, Ohlin, Lundberg) and on Keynes' *Treatise on Money*, which, together with the post-*General Theory* articles appeared on the Economic Journal (Graziani (2003, pp. 64 and 69)), has been a major source of inspiration for the modern analysis of the circuit.

However Keynes' *Treatise* diverged from Wicksell's model on two important points: it adhered to the *banking school's* theses and, on income distribution, rejected the marginalistic approach (Graziani (2003, pp. 97-98)). The mod-

ern circuit adopts in turn a variant of the *Treatise's* approach to distribution that goes back to the Polish economist Kalecki (1933, pp. 43-47 and 51-55, 1938 and 1954). Amongst other antecedents of the circuit, one can mention also the German writings on the *Kreislauf* inspired by Schumpeter, a literature reviewed in Schmitt and Greppi (1996). Graziani (2003) lists also as a predecessor Sylos Labini (1948), a paper where the influence of Schumpeter, with whom Sylos studied, is apparent. Finally many elements of the monetary circuit are present in the *Accumulation of Capital* of Joan Robinson (1956) [8].

Whereas these are the forerunners, the modern monetary circuit owes much to the work done starting from the 1960s by the French Le Bourva (1962), Schmitt (1966), and Parguez (1975, 1981, 1984 and 1996), the Canadians Lavoie (1987) and Seccareccia (1984, 1994 and 1996) and the Italian Graziani (1984 and 2003) [9].

2. Links of the circuit with other non-walrasian approaches

Neo-classical analysis takes Walras' definition of competitive equilibrium as the main reference. Following this tradition and its terminology, any "position of rest" of a model that departs from the set of rather stringent conditions characterising walrasian equilibrium could thus be referred to as a "non-walrasian equilibrium" or as "disequilibrium". Obviously, in any such position, the prices that prevail in the economy diverge from those guaranteeing optimality under the other assumptions retained by the walrasian model and associated with the concept of "perfect competition". These assumptions are for instance the staticity (or stationarity) of the model, the absence of fundamental uncertainty, the convexity of the consumption and production sets, free entry, etc. The optimality obtained under these assumptions implies in turn properties such as the equality between demand and supply in all markets ("market clearing"), maximum efficiency in production and consumption, zero extra-profits or quasi-rents, full em-

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[8] There is a debate on the extent to which Robinson's (1956) *Accumulation of Capital*, one of the masterpieces of the post-Keynesian literature, can be seen or not at the origin of the modern concept of the monetary circuit. Although Parguez (2005) agrees with Graziani (1989), Lavoie (1999) and Rochon (1999) that some important elements of the circuit are present in this book, mainly contained in chapters 23-24, he nonetheless argued that these elements are not essential in the development of its main line of argument, which concerns the critique of the concept of capital (see par. 3.2 below).

[9] Possibly because of the language, these contributions have not been immediately integrated in the standard economic curricula of the main American and European universities. Excellent surveys in English on the modern theory of the circuit are Parguez and Seccareccia (2000) and Graziani (2003). See also Rochon (1999). A general post-Keynesian reference, integrating both the monetary circuit and the "Cambridge UK" tradition, is Lavoie (1992).

ployment, full capacity utilisation, etc., all conditions that, by definition, are not complied with "out of equilibrium".

Three strongly interrelated "disequilibrium" features that the circuit shares with the post-Keynesian and Sraffian analyses are discussed in paragraphs 3.1 to 3.3 below:
   i)   the choice for a dynamic approach;
   ii) the "Kaleckian" modelling of pricing and distribution, which implies that:
        -   it is not possible to measure capital independently from distribution,
        -   there is in general no inverse relation between capital and labour quantities and their remuneration,
        -   unused capacity and involuntary unemployment are likely also in the long run;
   iii) the presence of "extra-profits" or "quasi-rents", which in the case of uncertainty exceed "ex-post risk".

These features jointly characterise the "out of equilibrium" conditions of the circuit, which can also be assumed to be typical of "out of equilibrium" conditions in general. As argued in par. 3.4, under such conditions policy recommendations go beyond the "passive" removal of obstacles to the spontaneous self-regulation of the market.

2.1   *Dynamics*: Through the concept of *surplus*, whose realisation is the precondition for accumulation, classical economists addressed the dynamic issue of reproduction, focusing on *production economies* in *historical time*. In contrast, the neo-classics applied their mathematical optimisation approach to an intrinsically static world where resources are given (Sylos Labini (2005)), focusing on de facto *exchange economies* in *logical time*.

   With her usual *aplomb*, J. Robinson (1978, p.12) defined the term post-Keynesian as relating to "*an economic theory or method of analysis which takes into account of the difference between the future and the past*", a plausible pre-requisite for policy intervention, but that goes against Friedman's (1953) celebrated aphorism according to which the degree of realism of a theory is irrelevant and only its predictive power counts.

   The model of the circuit is fully dynamic because it focuses on the sequence between money creation and its destruction as well as on the related distinction between *initial finance* and *final finance* (Graziani (1984b, 1985 and 1987)). As such it allows for causality. Robinson noted in this respect that: "*In a model depicting equilibrium positions there is no causation. ... At any moment in logical time, the past is determined just as much as the future. In an historical*

model, causal relations have to be specified. Today is a break of time between an unknown future and an irrevocable past" (1962, quoted in Harcourt, (1975)).

2.2   *Prices and distribution*: At the start of the circuit, production prices are fixed by the producers in order to cover expected costs and provide for a certain amount of surplus, on the basis of a mark-up on these costs. As developed by Graziani (for instance 2003 pp. 100-105), mark-up pricing forms the basis of the *monetary prices* theory of the circuit. Its origin can be traced back to Kalecki (1954, chap. 1) and it is also retained by the post-Keynesian and Sraffian analyses of inflation (see section 5 below). Prices defined on the basis of a mark-up on costs do not necessarily clear markets for goods and services.

Graziani (2003 p. 24-25) underlined that Kalecki's theory of distribution is another main point of convergence between post-Keynesian and circuit analysts. Kaleckian distribution is related to mark-up pricing and notably implies that the neo-classical *first order conditions* for the maximisation of producer's profits do not hold, i.e. the real rate of interest is not equal to the marginal productivity of capital and the real wage is different from the marginal productivity of labour, which introduces in turn a causality between investment and savings (see section 6 below). In such circumstances distribution retroacts on growth (Pasinetti (2000)) and thus allocation cannot be separated from distribution, as it is the case in the neo-classical approach. The fact that marginal factor price relations do not hold also implies that at any time capital is "non-optimal" with respect to the generated level of effective demand and hence installed capacity is not fully used.

The widely documented existence of idle production capacities illustrates the relevance of the "disequilibrium" theoretical critique Joan Robinson addressed to the neo-classical concept of capital. As noted by Schefold (1997a, p. 440)), idle capacities mean that when determining "market clearing prices", it is not possible to assume as given an optimal quantity of capital:

> *"Either one is situated in the short period, and then the expectations generated yesterday are among the data of the problem … One has to determine whether effective demand will allow to use equipment and other available resources fully. Or one considers a long-period analysis and then the amounts of capital needed in the permanent state are variables to be determined, not data of the problem." (Schefold (1997a, p. 440)).*

Robinson's critique was further developed in the *capital controversy* between the two Cambridge (UK and Massachusetts) in the sixties and the seventies (Harcourt (1975), Pasinetti (2000)). This further illustrated Sraffa's point that capital cannot be measured independently from distribution, a logical implication of being "out of equilibrium". The *reswitching* debate also demonstrated that it is not appropriate to assume a monotonic inverse relation between the

quantity of capital and its remuneration, as well as between the quantity of labour and the real wage.

This criticism was originally understood to apply only to the traditional version of the neo-classical model, developed by Walras, Menger and Wicksell and applied to unemployment by Pigou (notably first in 1933 and last in 1950). Indeed, Roncaglia and Toveronanchi (1985) underlined the formal analogy between the analysis of unemployment of Pigou, the standard treatment of unemployment by the *neo-classical synthesis* provided by Modigliani (1944 and 1963) and the monetarist model of unemployment of Friedman (1970), all of which are *de facto* general equilibrium models. They noted in particular that in all of the three models the capital critique implies the logical impossibility of considering the demand for labour as an inverse function of the real wage. Hence persistent unemployment of classical type can exist, even with full capacity utilisation, implying that: "*competitive labour markets do not ensure long-run full employment equilibrium*".

Following a better understanding of Garegnani's (1964, 1965 and 1976) points, authors that reviewed the matter recently concluded that the capital critique applies also to the Arrow-Debreu intertemporal model (Debreu, 1959), core of the modern neo-classical theory, as well as to the temporary equilibrium model, the neo-classical variant that today is used more frequently in macroeconomic applications (see for instance Petri (1999, 2003 and 2004), Garegnani (2003) and Schefold (1997a))[10].

Two sophisticated developments of the temporary equilibrium literature are the overlapping generation model of Allais and Samuelson and the rationing equilibria approach developed by Drèze, Malinvaud, Benassy and others. The overlapping generation model introduced money in the neo-classical framework, but only in its reserve function (not for the finance motive) and at the price of assumptions even stronger than those of the standard neo-classical model. The rationing literature developed a rigorous analysis of what happens out of walrasian equilibrium based on the aggregation of microeconomic optimising behaviour, but in a context where money is essentially irrelevant. Both approaches use relatively sophisticated mathematics, which tends to obscure the fact that the capital critique applies to them as well, as to all other temporary equilibrium models.

In conclusion with mark-up pricing and Kaleckian distribution involuntary unemployment is a likely outcome even in the long-run (see also Lavoie (1987 chap. 4 and 1992 pp. 26-41)) and Schefold (1997a p. 441)). It results from the dynamic through which effective demand is generated by endogenous money, generally at a level insufficient to guarantee full employment.

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[10] Donzelli (1988) traces temporary equilibrium back to Von Hayek (1928 and 1937), Lindhal (1928 and 1930) and Hicks (1933 and 1939).

Samuelson's (1965) early contention that, although formally correct, the re-switching critique is of negligible interest from the empirical point of view, Joan Robinson (1975) "final word" as well as Hahn's (1972 and 1982) critical assessment of the *neo-ricardians* are therefore outdated.

Paradoxically, the capital controversies can be retained as having portended to the *Lucas critique* (1972 and 1975), which can be extremely simplified as having shown that economic policy and the econometric instruments used to evaluate it are irrelevant in a context of pure competition, since they will be "optimised-out" by the equilibrium conditions (cf. 3.4).

2.3   *Profits and uncertainty*: In a neo-classical static and deterministic perfect competition case under decreasing returns and free entry *pure profit* in the sense of capital remuneration[11] (or *extra-profit* or also *quasi-rent*) would tend to zero in the long run (Mas Colell et al. (1995), p. 335). In a multi-sectoral model this tendency would be common to all sectors.

Classical equilibria imply instead the uniformity of profit rates across sectors (inclusive of interest), but not necessarily their convergence towards zero extra-profits. Moreover, in the classical approach the economy is seen as gravitating towards the long-period equilibrium without ever reaching it, thus never achieving the uniformity of profit rates across sectors. In the neoclassical model the role of logical time can instead be interpreted as implying the assumption of full and instantaneous convergence to equilibrium (Kurz and Salvadori (2003)), which in many comparative static applications, including standard cost-benefit analysis, is assumed to be the zero-extra-profit equilibrium.

Paraphrasing Davidson (1994 p. 88), it can be noted as typical of all post-Keynesian approaches that the future is uncertain and, contrary to risk

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[11] The terms profit, interest, rent, quasi-rent, extra-profits etc are used with different meanings in the literature. The excess of firm's revenues over production costs (*the surplus*) appears to be an intuitive concept, but its interpretation depends on how production costs are defined. Many understand *pure profits* as the remuneration of physical capital, interest as the remuneration of credit capital, rent as the remuneration of land and generally non-produced factors of production and Marshallian *quasi-rent* any remaining residual, covering also the "exceptional" remuneration of the entrepreneur (Schumpeter (1954), Vol. III, p. 251). Classical economists defined profit as the revenue of the class of capitalists and included in it both interest and risk remuneration. At the other extreme sometimes profits (or extra-profits) are defined as quasi-rents, with reference to the "exceptional" remuneration perceived by the entrepreneur, as distinct from that of the capitalist, which excludes both interest and the normal remuneration of capital. Under long-term conditions of pure competition (including free entry), marginal costs, which equals price under competitive conditions, tends towards the minimum of average costs implying that pure profits or capital remuneration tend to zero in the deterministic case and to the *risk premium* when *ergodic uncertainty* is present (see footnote 12). The term *rent* is also often used to cover all elements of the surplus that are above *normal profits* under competitive conditions, for instance monopoly profits, i.e. all firms net revenues except interest and a "normal" risk premium (see also Perroux (1926, pp. 324-334)).

(Knight (1921)), cannot be reduced to actuarial certainty by probability statements, hence expectations can not be "rational". Without rational expectations, there cannot be "equilibrium" in any neo-classically accepted meaning of the term (Hahn 2003b). Indeed, to respect more faithfully the spirit of Keynes' ideas, Davidson refuses Samuelson's ergodicity assumption[12], which is a necessary condition for stochastic optimisation and is thus implicit in the neoclassical model when the latter is extended to risk. If uncertainty is *non-ergotic*, the economy is almost by definition always in "disequilibrium", or in an equilibrium that is non-walrasian. On the contrary, in the presence of rational expectations and given the other conditions retained for the definition of a walrasian equilibrium, prices clear all markets and ensure the compatibility between the plans of all the participants in the economy, rendering money and economic policy redundant (see below 3.4 and 4).

In a situation of *radical* or *fundamental* uncertainty, the identity between risk and profit breaks down and it is no longer possible to meaningfully distinguish profit from "extra-profit" or rent. For instance, with reference to a static and deterministic neo-classical model any deviation from zero-profits observed in reality would appear as a *temporary rent* or *quasi-rent*, measuring the distance between surplus in a given moment of historical time and the theoretical optimum of prices equal to marginal costs and null profits that the walrasian equilibrium would reach in logical time under free entry. Extending this simplified framework to uncertainty, the zero extra-profit long-term equilibrium becomes positive and equal to the risk premium. However, as in a non-ergotic environment uncertainty cannot be addressed by rational calculus, the "surplus" realised *ex post* over incurred production costs will include both an element of profit compensation for risk actually incurred and an element of rent or quasi-rent, although it is not possible to say how much because there is no obvious norm of comparison like the zero profit condition in the deterministic case. *A fortiori* there is no way to establish how much of the expected surplus is profit and how much is rent *ex ante*. This is also the reason why, in the initial phases of the circuit, banks are assumed to finance both a normal remuneration of capital ("profit") and an element of rent (see the cost identity in section 5).

A more indirect consequence of radical uncertainty is that the pricing of financial products based on the "no arbitrage assumption" (Demange and Laroque, 2001, chapter 2) is arbitrary and the more irrelevant the more the economy is far from equilibrium, something which might help explaining how financial imbalances accumulate.

Rather than an empty theoretical debate devoid of practical implications, the capital controversies of the 1960s and their interpretation in a context of uncer-

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[12] Non-ergodicity means that probability depends on time, or more precisely, that the parameters of the probability distributions of the events shaping expectations, and the distributions themselves, depend on time and the events are thus unforeseeable.

tainty appear thus as an illustration of the link between the analysis of disequilibrium and the fact that capital cannot be measured independently from distribution. By giving a rationale for questioning the internal consistency of the neo-classical model, they point towards the "classical" approach as a possible alternative.

2.4 *Policy implications of disequilibrium*: Be it for the treatment of time, the focus on exchange versus production, the full employment assumption, or for other reasons, there is little doubt that the neo-classical approach, and particularly the modern walrasian general equilibrium variant, is more abstract from reality than the analyses of the classical economists and, apart from a generic support for laissez faire, less prone to providing concrete policy advice.

It is indeed often asserted by neo-classical purists that there is no need for economic policy action unless some external factor disturbs the self-regulating market mechanism. Guesnerie (2001 and 2005) noted that even when market clearing conditions are fulfilled and expectations are rational, multiple equilibria can arise and therefore there is still some limited room for policy choice. But the evidence "*provides, to say the least, only mixed support*" in favour of the rational expectations hypothesis (2005, p. 389). Accordingly there is a more important policy role for the Government in addressing this "expectational market failure", an idea that Guesnerie traces back to Massé (1965) and that is also independently retained by Parguez (see section 6 below).

The policy recommendations arrived at in situation of disequilibrium are to regulate effective demand so as to keep the economy on the full employment path, and are in fact equivalent in their effects to the policy recommendations resulting from the traditional Keynesian multiplier, which although normally introduced in models of the neo-classical synthesis variety, was recognised by Samuelson to have an intrinsically "non-walrasian" nature[13].

3. The circuit as an endogenous money approach focusing on the role of banks

Within the "disequilibrium" approaches, the distinctive feature of the theory of the circuit is that it places the macroeconomic role of money at the centre of the

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[13] In the lecture he gave on the occasion of receiving the prize of the Bank of Sweden in memory of Alfred Nobel Samuelson noted: "… the accelerator-multiplier … provides a typical example of a dynamic system that can in no useful sense be related to a maximum problem." P. Samuelson (1970). See also the original article of Kahn (1931), Kalecki's independent version (1933, 1935 and 1954), as well as Harcourt and Dalziel's characterisation of the multiplier in a sequential framework (1997). In the circuit literature one can note Schmitt's (1972) rejection of the notion of "multiplier" in favour of that of "multiplicand" and Parguez's definition of the multiplier between expected profits and employment as the reciprocal of the expected level of firm's mark-up, which makes extremely clear the link between the employment multiplier, uncertainty and distribution (2007b, p. 18, equation 11).

analysis, developing Keynes' concept of a *monetary production* economy (Keynes (1933))[14]. One of the peculiar features of such an economy is that it is not sufficient to study the individual behaviour of the participants taken in isolation to understand how the aggregate works in the whole, contrary to the traditional neoclassical methods that rely heavily on the aggregation of individual behaviour[15].

Neo-classical micro-based models focus attention on situations of "equilibrium" that could be reached without any need for introducing money, typically in a barter economy. It is increasingly recognised that these analyses failed in providing a satisfactory explanation for the existence and role played by money. One of the most renowned mainstream economists, Frank Hahn[16], noted the inconsistencies in the neoclassical treatment of money more than 40 years ago (Hahn (1965)). Recently he came to suggest that there could be "macroeconomic foundations for microeconomics" (Hahn (2003a))[17], an idea that goes in the direction of the macroeconomic postulates retained in the post-Keynesian analyses and in the circuit literature.

In the circuit money exists to remove the scarcity constraint and allow producers and consumers to realise their plans. It is macroeconomic in the sense that the plans that are the basis for the provision of liquidity by banks are those of the social groups involved in the process of money creation and destruction. In this context, the distinction between banks and the rest of private producers, which is not made in the neo-classical or in the standard post-Keynesian models, is crucial. The role of the banking sector, inclusive also of the central bank, is to produce liquidity at the request of firms, households, the State or the foreign sector. In the absence of corrective action from the State, the plans of domestic and foreign households and firms can be inconsistent between each other, resulting in macroeconomic imbalances such as unemployment and inflation. The State can create money to finance its deficit and thus compensate for these inconsistencies (see section 6 on Kalecki's identity). The two main possible channels of liquidity creation (State and banks) have different impacts on prices and interest rates (Graziani , (1983, 1984a and 2003, Ch. 7)).

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[14] This was the title that Keynes gave to the course he gave in Cambridge in the summer of 1932 and was also the provisional title given to the draft of the *General Theory* (Fontana and Realfonzo (2005)). Between 1984 and 1996 Alain Parguez has been editor of *Monnaie et Production*, one of the series of *Economies et Sociétés*, a revue published by the ISMEA of François Perroux. This series has been an important forum of debate between the French and the international circuit scholars.

[15] The rejection of "methodological individualism" by the circuit is stated clearly in Graziani (2003) pp. 18-21.

[16] Hahn is co-author of the often quoted Arrow and Hahn (1971), for many years the standard advanced reference presenting the "core" of the neoclassical paradigm.

[17] Based on his analysis of the macroeconomic role of money, Parguez (1975) abandoned the neoclassical equilibrium approach much earlier.

4. The circuit's analysis of inflation

The dynamic of money creation and destruction is driven by producers' expectations implicit in their cost-plus pricing behaviour. Mark-up pricing based on the *full-cost principle* forms the basis of the post-Keynesian, Sraffian and circuit analyses of inflation. Parguez (2007b) derives the mark-up equation from the following version of the cost identity:

$$Y = \alpha L p = wL(1 + r^*)(1 + \frac{R}{Y}) + U.$$

In this identity:
- Y   is output in monetary terms
- α is the average productivity of labour
- L   is the level of employment
- p   are average domestic production prices
- r*   is the target rate of profit
- R   is the net interest income (net of taxes) and
- U   is the cost associated with a "too low" or "too high" capital utilisation, an adjustment factor reflecting the sub-optimal level of capacity utilisation.

The identity assumes that a mark-up is added on labour costs to cover targeted profits and interest costs, as well as the costs associated with the "disequilibrium" level of capital utilisation. Having expressed R in proportion of nominal output Y, expressing U in proportion of real output αL, and noting these ratios respectively λ and σ, the following version of the mark-up equation is obtained dividing by real output αL:

$$p = \frac{w}{\alpha}(1 + r^*)(1 + \lambda) + \sigma$$

where w/α represents also unit labour costs, i.e. labour costs divided by output. Given that λ and r* are exogenous policy induced factors, which can be considered constant in the short run, prices increase when either unit labour costs increase or when the factor σ increases.

     In a neoclassical equilibrium, producers are on their long-run minimum average cost curve, so that $\sigma = 0$. With unchanged technology competition brings capital remuneration to zero thus, r*=0, while the rate of interest is equal to its *long-period* or *natural* value $\lambda = \bar{\lambda}$, which depends on the savings-investment balance and is thus indeterminate. Interesting positions are the *maximum efficiency* zero interest of Allais (1947, pp.184-197), the *dynamic efficiency* level foreseen by overlapping generation models, which is in excess of the growth rate of the economy in real terms (Delacroix and Michel (2002, p. 84)), or the *golden rule* level, equal to the economy's growth rate (Phelps, 1965).

They are all compatible with the neo-classical interpretation of the price equation as long as prices equal unit costs and thus all costs are covered without generating a surplus.

Parguez (2007b) argues that in a dynamic economy running close to full employment increases in unit labour costs w/α are unlikely, because in a growth environment wage increases are normally more than compensated by the productivity growth induced by investment, a point which is partially confirmed by the known fact that the behaviour of productivity is pro-cyclical (Kaldoor-Verdoorn law) as well as by the historical episodes of the European reconstruction of the 1950s and the "Clinton's decade" of the 1990s, when high growth went hand in hand with low inflation.

The second inflationary factor, σ, is in turn strictly and positively correlated with unemployment, i.e. when unemployment decreases, capacity utilisation increases and σ decreases. Parguez (2007b) ventures that this channel can provide an explanation for recent econometric findings showing the existence of a long-run inverse relationship between inflation and unemployment in the US, implying no trade-off between these two variables (Giovannoni (2007), quoted in Parguez (2007b)), a possibility noted at the time also by Sylos Labini (1967, p. 126), who argued that low inflation would avoid the need for inflation fuelling salary indexations, thus allowing for lower unemployment rates (see also Sylos Labini (1985 p. 570)).

The above mark-up equation tracks the direct inflationary impact of an interest rate increase through the factor λ. A "zero-inflation" policy pursued through increases in interest rates can produce inflation either directly via this factor λ or indirectly through the effect that lower capacity exerts on price increases through the σ factor.

Parguez (1991) presented an interesting model with one sector producing for consumption and the other for investment where the assumption of zero households savings allows to simplify the mark-up equations, getting a rate of mark-up in each sector exactly equal to the ratio between labour (for the consumption good) and investment (for the investment good) allocated to the sectors of consumption and investment, a result already underlined by Graziani (1984b). The mark-ups are thus revealing the expectations of consumption and capital goods producers on the composition of effective demand (see also Seccareccia (1984)). In the model of Parguez, the role of the central bank and of the commercial banking sector is made explicit, showing how, through the "validation constraint" (i.e. bank's assessment of the value of firms based on the firm's prospective rate of returns), the banking sector impacts on the mark-ups of the two production sectors. In this context, a zero inflation policy based on high interest rates devised to increase unemployment so as to discourage salary increases can produce "profit inflation". In general profit inflation is often associated with unemployment, providing thus an explanation for stagflation, whereas

demand-pull inflation goes together with reduced unemployment that in the end stabilizes prices at a lower unemployment rate. The model is also used by Parguez to redefine the *rationing* concepts of Classical and Keynesian unemployment in a post-Keynesian circuit framework, examining how inflation can develop in each case.

5. Kalecki's savings-investment identity

As argued above, the dynamic of money creation and destruction would normally bring the circuit out of the neo-classical equilibrium. The related inconsistency between the goals of the participants in the economy is solved by a hierarchy between groups of individuals in their capacity to implement their economic plans. Households and enterprises are constrained by their expectations of future revenues: salary expectations for households, profit expectations for enterprises. In accordance with *Kalecki's principle* that "workers spend what they earn, capitalists earn what they spend" (Kalecki (1933, pp. 21-23))[18], enterprises enjoy a larger freedom, because, as a group, they can always fulfil their expectations as long as the banking sector supports them. On the contrary, for households, wage progression is limited by the decisions on the level of economic activity taken by enterprises and endorsed by banks[19]. Paradoxically, the only macroeconomic agent who has no limits in realising its expenditures targets is the State, who creates the money it needs through its expenditures and then destroys it with the collection of taxes.

For Parguez, the purpose of economic policy is to reconcile the imbalances due to the divergent expectations of household and enterprises, using its various powers, including, when necessary, a sufficiently large State deficit (Parguez (1990 and 2002))[20]. Interpreted in terms of endogenous flows of monetary creation and destruction (Parguez (1975, pp. 272-309)), the macroeconomic identity between savings and investments acquires a causal interpretation, with the arrow of causality going from investment to savings.[21]

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[18] Strictly speaking Kalecki's principle applies to an economy with zero household's savings.

[19] The crisis that recently hit the US residential sector can be viewed as the result of a change in the banking sector confidence in the capacity of households to sustain the levels of debt necessary to support the residential prices on the basis of which construction was undertaken in the first place. Its spread to the banking sector and the economy at large evidenced the loopholes existing in the system of banking supervision.

[20] The conclusion that in some situations it could be required to increase the public deficit is obtained by the Nobel Memorial Prize William Vickrey starting from more strictly post-Keynesian premises, for instance in Vickrey (1994) and Vickrey (2000).

[21] "… l'inégalité entre l'investissement optimal et l'épargne optimale caractérise une économie monétaire; cette inégalité est dénouée de signification dans une économie idéale de troc" (Parguez, 1975, p. 319).

Independently anticipated by Kalecki (Robinson (1977)), the determination of savings by investments was one of Keynes' most revolutionary discoveries, for which the General Theory failed to provide a sufficiently rigorous explanation. It contrasted sharply with the then prevailing consensus on the *Treasury view* that savings determine investment and was denied fiercely by von Hayek. It is clear that Europe witnessed the hegemony of the *Treasury view* in the last 30 years, which can be seen as a posthumous revenge of von Hayek on Keynes. The situation is different in the US where the *Humphrey-Hawkins Full Employment and Balanced Growth Act of 1978* requires the FED to look at the employment consequences of its monetary policy decisions (see J. Galbraith, 2006).

The savings–investment identity is:

$$S \quad \underset{\leftarrow}{=} \quad \bar{I}$$

$$\text{\textit{Savings}} \qquad \text{\textit{Investment}}$$

where the causality runs from investment to savings, reason for which investment is "capped".

Breaking it down into the 5 macroeconomic sectors of enterprises (e), households (h), banks (b), Government (g) and the foreign sector (f), it gives:

$$S_e + S_h + S_b + S_g + S_f \underset{\leftarrow}{=} \bar{I_e} + \bar{I_h} + \bar{I_b} + \bar{I_g} + \bar{I_f}$$

Rearranging it to underline the sectoral saving balances it becomes:

$$\underbrace{S_e - \bar{I_e}}_{\substack{\text{\textit{Entreprises}}\\\text{\textit{profits}}}} + \underbrace{S_f - \bar{I_f}}_{\substack{\text{\textit{BoP current}}\\\text{\textit{account surplus}}}} \underset{\leftarrow}{=} \underbrace{\bar{I_g} - S_g}_{\substack{\text{\textit{Government}}\\\text{\textit{deficit}}}} + \underbrace{\bar{I_h} - S_h}_{\substack{\text{\textit{Households}}\\\text{\textit{financing need}}}} - \underbrace{S_b + \bar{I_b}}_{\text{\textit{Banks profits}}} .$$

The identity simply states that if a sector realises a net saving position (saves more than it invests), another sector in the economy or abroad must have a net borrowing position: if, to simplify, the banking sector is "non-profit" and the Government reduces its deficit, other things equal, enterprises must also decrease profits, unless the reduced debt by the Government is compensated by an increase in households or foreign residents' debt (current account surplus)[22]. The

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[22] To simplify, the argument is developed as if debt was the only financial asset available beyond money. Strictly speaking one should talk only about financing need and financing capacity of the various sectors rather than in terms of their borrowing and lending capacity, except possibly for the Government. In this respect one can also note that the investment-saving identity above corresponds to the equality between the "net lending" and "net borrowing" positions (S9) of the various

identity above is a variant of that presented in Kalecki (1954, Ch. 3) and is used by Bliek and Parguez (2007) and by Parguez (2007b) in their empirical assessments reviewed in a forthcoming article.

The first term on the left hand side of the equality represents net corporate profit (net increase in corporate debt if it is negative) and the second term the current account surplus of the balance of payments (addition to the country's domestic sectors claims to foreign residents). The first term on the right hand side represents the Government deficit (excess of Government expenditures over taxes or net addition to public debt). The second term represents household's net increase in debt (savings if negative). Consumption is already subtracted from this term as, as for all the other sectors, the identity is expressed in terms of net investment and net savings. For Parguez consumption has at least the same causal role as investment in sustaining effective demand since it affects net savings in the same way. The last term on the right side represents the banking sector's profits, which depend essentially on the level of interest rates set by the central bank and on the bank's mark-up. It corresponds to the variable R in the cost identity of section 5 and it is the channel through which the central bank can influence prices and distribution: *ceteris paribus* an increase in bank's profits reduces firms' profits, just like an increase in household's or Government savings do.

The hierarchy between the various sectors foreseen by the circuit, confirmed by the econometric results obtained by Giovannoni and Parguez (2007) for the US, explains the further layer of causality that goes from the Government deficit, private consumption and banking sector margins, on the right hand side of the identity, to corporate profits and the balance of payments current account on its left hand side (see also Parguez (2007b)). The latter results from the fact that in large industrial countries such as the US, or in general under free floating of the exchange rate, the foreign constraint does not bind. In other cases this term should move to the right hand side of the identity with a change in sign and become exogenous.

The fact that the Government can influence firm's expected profits implies that, for a given exogenous level of the required mark-up, and thus of the employment multiplier, Government purchases can determine also the level of employment (see footnote 13).

institutional sectors in the UN SNA93 national accounts, basis for the EU ESA95 accounts. There net lending is defined as representing the net amount a unit or a sector has available to finance, directly or indirectly, other units or other sectors.

Conclusion

The circuit helps orienting economic policy thinking in the complex reality of a world where the conditions for neo-classical equilibrium are not fulfilled, rationalising and extending the analyses initiated by Keynes. Whereas equilibrium approaches are often used implicitly or explicitly to provide "consensus" policy recommendations in support of an agenda that leaves little or no room for active economic policy action, the circuit shows how public intervention can be analysed and justified rigorously as a consequence of the *expectational market failure* that follows logically from the unsustainability and the associated irrelevance of equilibrium positions in real world applications (Kirman (1989), Ackermann (2002), Petri and Hahn (2003), Roncaglia (2005)). In the circuit, as in all non-walrasian situations, prices do not achieve the separation of the consumers' and of the producers' decisions (Koopmans (1957)). This also implies that the separation between allocation and distribution, holding in *optimal positions*, cannot be achieved either. Money is the mean that achieves some form of imperfect coordination in a world where decentralised decisions cannot guarantee optimal coordination. In such a sub-optimal world, micro-policy actions, particularly in the field of investment, acquire a macro-economic dimension through their causal impact on savings, a possibility that does not exist under the neo-classical hypotheses. Because of this causality and because distribution feeds back on allocation and growth, the circuit, seen as emblematic of monetary non-walrasian equilibria, can bring support to a coordination of European fiscal policies around an objective of full employment, which it shows to be both a possible and a desirable objective.

While providing arguments for active policy intervention, the circuit also helps drawing a line between policies that increase national wealth and those that feed inflation. For instance it illustrates very clearly that the monetary creation associated with a new and fully justified public investment financed by credit represents a net creation of value in real terms and should therefore not be automatically rejected on fiscal stability or anti-inflationary grounds.

It is also consistent with the fact that with uncertainty, as opposed to risk, no rational calculus can apprehend the future. Therefore the identity between risk and profit breaks down and it is no longer possible to meaningfully distinguish profit from rent or quasi-rent. Policies officially targeted at restoring profitability therefore risk feeding rent instead of supporting genuine entrepreneurial risk-taking. As demonstrated recently, in the absence of stringent ethical standards and strong regulation, they can contribute to the accumulation of dangerous financial imbalances.

Whereas the circuit sheds light on the rather opaque role of money in the neoclassical model, other approaches deriving from the classical tradition, but relying more on microeconomics, address important policy issues difficult to

apprehend within the mainstream approach, such as the effect of technical progress or environment on growth (Pasinetti (1981), Kurz and Salvadori (1995), Petri (2004), Schefold (1997b)). The synthesis between these converging analyses progressed substantially in the last three decades (Harcourt (1996-97)), but is still under development. Lavoie (2006) assesses the progress optimistically whereas Davidson (2005) is more negative. It is to be hoped that the construction of this synthesis will progress further as a cultural by-product of, and in parallel with, EU integration, since there is still a need for a conceptual tool that would allow to compare convincingly the effects of different policy measures, for instance to build a shared vision of the type of macroeconomic coordination to be sought in Europe.

Meanwhile, the use of approaches that have the capacity to provide analytical support for alternative forms of active policy intervention appears inevitable to practically oriented people. As will be shown in a forthcoming article, the available tools provided by the circuit are very useful for this purpose, as they are consistent with a large body of empirical evidence and allow for meaningful interpretations of macroeconomic data.

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