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[Abstract] The paper analyses contributions, both orthodox and heterodox, in which effective demand is strictly connected with money supply. The principal thesis is that this idea is strictly connected with assuming two fundamental hypotheses. The first is that Say's law or, in a more general way, Walras' law no longer applies or in any case that there is no form of complementarity in the exchanges of goods and services within the social product. The second hypothesis is that money is a particular "good". We stress that this theoretical paradigm is incompatible not only with money that is store of value, but also with commodity money or endogenous money strictly supplied in connection with credit cycle.

Quantity Theory, Say's Law and Effective Demand in Money

Theories

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Abstract

The idea that effective demand is closely connected with money supply, or even that they are the same thing, has emerged a number of times in the history of economic thought, within approaches differing in origin and formulation. In this paper some fundamental contributions are analysed in which this idea is more or less explicit. In particular, we analyse Lange and Patinkin's theses on the orthodox front, and those of Luxemburg and the money circuit theorists on the heterodox front.

The principal thesis proposed is that the idea is closely bound up with the more or less explicit assumption of two fundamental hypotheses. The first is that Say's law or, more generally, Walras' law no longer applies, or in any case that there is no form of complementarity in the exchanges of goods and services within the social product. The second hypothesis is that money is a particular "good", i.e. that it has utility only as unit of account and medium of exchange, has no production costs and is put into circulation independently of the quantity of the other goods exchanged.

We stress that this theoretical paradigm is incompatible not only with money as a store of value, but also with commodity money or endogenous money supplied strictly in connection with the credit cycle.

1. Introduction

In the course of the history of economic thought, money supply has on various occasions been associated with, if not identified as, effective demand. Such has been the case in the context of theoretical approaches of various inspiration, formulation and background, both orthodox and heterodox.

The aim of this paper is to demonstrate that endorsement of this kind of theoretical thesis is closely bound up with – more or less explicit – rejection or acceptance of two fundamental hypotheses. The first is that Say's law or, more generally, Walras' law is not valid, or that no form of complementarity exists any longer in the exchanges of goods and services within the social product. The second is that money is a particular "good", i.e. it has utility only as unit of account and medium of exchange, has no production costs and is put into circulation independently of the quantity of the other goods exchanged.

In order to expound this thesis, in the following section we analyse the various interpretations that can be made of "Say's Law" and the various implications that they generate. We start from the classical interpretation given by Ricardo and taken up by Mill and Schumpeter, to go on to the best known critiques of the Law advanced by Marx and Keynes. The focus will then come to bear on the various perspectives opened up by these two critiques and the diverse implications they may give rise to.

In the third section we analyse the formulation and formalisation of "Say's Law", and its relations with "Walras's Law", in the interpretation by Lange, singling out certain formal steps which lead to rejection of the law that, eliminating any macroeconomic constraint of complementarity, created the conditions for a series of theoretical "optical illusions". In particular, we will focus on the limits to the logical consequences that Patinkin would draw from Lange's model.

In the fourth section we will consider the heterodox contributions by Luxemburg and the monetary circuit theoreticians, demonstrating that certain

conclusions regarding the role of money in the creation of effective demand depend on approaches much the same as those of Lange and Patinkin.

In the final section we will consider the characteristics of all these models in relation to the nature of the macroeconomic constraint of Say's Law. We also contemplate the possibility, deduced from the contribution by Hilferding, to move on from the banality and inadequacy of the latter in describing the functioning of capitalistic type monetary and credit economies without forgoing a macroeconomic constraint reaffirming the reciprocal complementarity of the various parts of the social product.

2. Say's Law

The simplest formulation of "Say's Law" was provided by Keynes in the second chapter of the General Theory, where he pointed out that:

«From the time of Say and Ricardo the classical economists have taught that supply creates its own demand» (Keynes, 2008, p.19).

Actually, no statement of the kind is to be found as such in the writings of Say; rather, Keynes was giving the gist of the following passage:

«A man who applies his labour to the investing of objects with value by the creation of utility of some sort, can not expect such a value to be appreciated and paid for, unless where other men have the means of purchasing it. Now, of what do these means consist? Of other values of other products, likewise the fruits of industry, capital, and land. Which leads us to a conclusion that may at first sight appear paradoxical, namely, that it is production which opens a demand for products» (Say, 2001, p.56).

In the original version, "Say's Law" rests, then, on the assumption that commodities are produced in order that they can be exchanged with other commodities. In other words, the assumption is that exchange values are produced, but solely in order to obtain in exchange use values produced more efficiently by others.

Furthermore, this idea did not constitute an original contribution by Say, but had already been formulated by Mill, as Marx pointed out:

«The conception (which really belongs to [James] Mill), adopted by Ricardo from the tedious Say (and to which we shall return when we discuss that miserable individual),

that overproduction is not possible or at least that no general glut of the market is possible, is based on the proposition that products are exchanged against products, or as

Mill put it, on the “metaphysical equilibrium of sellers and buyers”, and this led to [the conclusion] that demand is determined only by production, or also that demand and supply are identical. The same proposition exists also in the form, which Ricardo liked particularly, that any amount of capital can be employed productively in any country» (Marx, 1863).

Ricardo drew upon the observations by Say – whose sole merit, Marx held, was to have brought Smith's thought to the French – to support his theories on profit against Malthus's thesis of an inevitable decline in the rate of profit resulting from growth in capital stock overtaking growth in aggregate expenditure:

«M. Say has, however, most satisfactorily shewn, that there is no amount of capital which may not be employed in a country, because demand is only limited by production. No man produces, but with a view to consume or sell, and he never sells, but with an intention to purchase some other commodity, which may be immediately useful to him, or which may contribute to future production. By producing, then, he necessarily becomes either the consumer of his own goods, or the purchaser and consumer of the goods of some other person. It is not to be supposed that he should, for any length of time, be ill-informed of the commodities which he can most advantageously produce, to attain the object which he has in view, namely, the possession of other goods; and, therefore, it is not probable that he will continually produce a commodity for which there is no demand» (Ricardo, 2004, p.290).

A further attempt seeking, like the above, to draw deeper significance from Say's observations was made nearly a century and a half later by Schumpeter, who pointed out:

«More clearly than did others, Say perceived ... that ...[u]nder division of labour, the only means normally available to everyone for acquiring the commodities and services he wishes to have is to produce – or take part in the production of – some equivalent for them» (Schumpeter, 1954, p.616).

As Schumpeter saw it, then, "Say's Law" represents a macroeconomic constraint, that links up the various parts of the social product among themselves and with the whole. It is seen simply as an assertion that in a economy of independent small producers market exchanges are the means by which their effective social dependence is impersonally reaffirmed.

Effectively, this observation coincides with what Marx, in the celebrated letter to Kugelmann of 11 July 1868, held to be the real meaning of the theory of labour value:

«Every child knows a nation which ceased to work, I will not say for a year, but even for a few weeks, would perish. Every child knows, too, that the masses of products

corresponding to the different needs required different and quantitatively determined masses of the total labour of society. That this necessity of the distribution of social labour in definite proportions cannot possibly be done away with by a particular form of social production but can only change the mode of its appearance, is self-evident. No natural laws can be done away with. What can change in historically different circumstances is only the form in which these laws assert themselves. And the form in which this proportional distribution of labour asserts itself, in the state of society where the interconnection of social labour is manifested in the private exchange of the individual products of labour, is precisely the exchange value of these products» (Marx, Engels, 1953);

or, again, with the point he makes in observing that:

«The basis, the starting-point for the physiology of the bourgeois system—for the understanding of its internal organic coherence and life process—is the determination of value by labour-time» (Marx, 1863).

As we know, Marx made no secret of his very low intellectual evaluation of Say. He called him an inane, tedious and miserable individual because he had the only merit of summarising Smith's Political Economy system all in one textbook, «superficially but quite systematically». (Marx, Engels, 1979, p. 168). Marx is equally well known to have been a scathing critic of "Say's Law" as it had been appraised by Ricardo, namely as the impossibility for any general overproduction of commodities to come about. Marx did not, however, consider Say's propositions to be logically false in the original formulation. He simply thought they were tautologies for a barter system or partial truths in the simple mercantile mode of production (a society of small producers exchanging their products to satisfy their needs). In other words, he deemed Say's observations simply inadequate to describe not only economies characterised by the capitalistic mode of production, but also any monetary economy whatsoever.

In fact Marx held that even in a simple mercantile production system the basic formula for the metamorphosis of commodities, C-M-C (Commodity-Money-Commodity), contains in itself the germ of accidental arrest of the circulation of commodities:

«The possibility of crisis therefore lies solely in the separation of sale from purchase. [...] If the commodity could not be withdrawn from circulation in the form of money or its retransformation into commodity could not be postponed—as with direct barter—if purchase and sale coincided, then the possibility of crisis would, under the assumptions made, disappear» (Marx, 1863).

However, the process of metamorphosis of commodities is not in itself a sufficient condition to bring about a deficit in effective demand:

«The general, abstract possibility of crisis denotes no more than the most abstract form of crisis, without content, without a compelling motivating factor. Sale and purchase may fall apart. They thus represent potential crisis and their coincidence always remains a critical factor for the commodity. [...] The factors

which turn this possibility of crisis into [an actual] crisis are not contained in this form itself » (Marx,).

In a context of simple mercantile production interruptions in the circulation process are improbable and entirely accidental. The only systematic cause to be observed lies in hoarding, a common phenomenon in this productive context, but operating on a small scale with gradual dynamics diluted over time, to the extent that it cannot bring about sudden, violent crises such as characterise the modern economy (Sweezy, 1942).

The real quality leap therefore comes with transition from simple mercantile production to capitalistic production, the circulation formula consequently changing from C-M-C to M-C-M' (Money-Commodity-Money), with $M' > M$. In this new context, production proves no longer finalised to consumption so much as to the valorization of capital. The capitalists objective becomes that of increasing the value of the capital invested (ΔM), or its magnitude in proportion to the original magnitude of the capital: $\Delta M/M$. The aim of production thus becomes maximising the rate of profit. And in this changed context Marx sees no reason to justify "Say's Law" any longer. As he saw it, then, the failure of the classical economists to take in this crucial transition left them incapable of getting properly to grips with the phenomenon of the recurrent capitalistic crises. In fact, a rate of profit below the level considered normal can lead capitalists temporarily to keep their capital in the form of money pending the return of more favourable conditions to valorize it (Sweezy, 1942).

According to Marx, therefore, the statement that supply creates its own demand has no general validity, but may have local and contingent validity in the expansive phases of the cycle. In the depressive phases, the capacity of supply to create its own demand cannot be counted on since money, as monetary capital, tends to crystallise in that form (hoarding), while waiting for the business cycle to bring about adequate conditions of returns on investments once again.

Keynes, instead, agrees with Malthus on the idea that there is a general tendency, closely connected with the progressive accumulation of capital, towards a lack of effective demand, because of insufficient growth of unproductive consumption (Keynes, 2008, p.226), although Ricardo had contested Malthus on this point,

invoking Say. The only point in the General Theory where we find explicit reference to Say's law of *débouchés* is to be found in the following quote from Malthus:

«Of all the opinions advanced by able and ingenious men which I have ever met with, the opinion of Mr. Say, which states that, *un produit consommé ou détruit est un débouché fermé* (I, i, ch. 15.) appears to me to be the most directly opposed to just theory, and the most uniformly contradicted by experience. Yet it directly follows from the new doctrine, that commodities are to be considered only in their relation to each other,—not to the consumers. What, I would ask, would become of the demand for commodities, if all consumption except bread and water were suspended for the next half year? What an accumulation of commodities! *Quels débouchés!* What a prodigious market would this event occasion!» (Malthus, 1820, p.363, cit in Keynes, 2008, p. 227).

Thus, while for Marx the inapplicability of "Say's Law" is manifested in the periodical arrest of the circulation of commodities and outbreak of crises due to the monetary nature of mercantile exchange and the periodical tendency of capital to stagnate in its monetary form, for Keynes it arises in a tendency, as capital is progressively accumulated, to stagnation in economic activity and the demand for labour resulting from insufficient growth in unproductive consumption:

«the question is, whether this stagnation of capital, and subsequent stagnation in the demand for labour arising from increased production without an adequate proportion of unproductive consumption on the part of the landlords and capitalists, could take place without prejudice to the country, without occasioning a less degree both of happiness and wealth than would have occurred if the unproductive consumption of the landlords and capitalists had been so proportioned to the natural surplus of the society as to have continued uninterrupted the motives to production, and prevented first an unnatural demand for labour, and then a necessary and sudden diminution of such demand» (letter from Malthus to Ricardo, dated July 16, 1822, cit. in Keynes, 2008, p.227).

Obviously, this stagnation interpretation of the inapplicability of "Say's Law" was inherited by the Keynesians, who set out to demonstrate its total falseness with the one trite exception of a barter economy, as clearly emerges in the entry "Say's Law" in the *Elgar Companion to Classical Economics* (Mongiovi, 1998).

3. Lange's model and Patinkin's criticism of the neutrality of money

In 1942 Lange, in turn, identified "Say's Law" with the statement that:

« the total supply of commodities cannot be in excess (general excess of supply), because the supply of all the commodities is exactly equal to the total demand for all commodities» (Lange, 1942).

Lange considered this law a corollary of Walras' Law, that is of the existence of a Walrasian general economic equilibrium, in a monetary economy in which money money is only a medium of exchange, defining as "Walras's Law" identity between the monetary value of the aggregate supply of and the monetary value of aggregate demand for commodities other than money.

Thus, given a closed economic system with n goods, in which the n th good is only utilised as numéraire and medium of exchange, indicating with p_i the price of the i -th commodity, (with $p_n \equiv 1$), and calling $D_i = D_i(p_1, p_2, \dots, p_{n-1})$ and $S_i = S_i(p_1, p_2, \dots, p_{n-1})$, respectively, the demand and supply functions of commodity i , the equilibrium prices are determined by $n-1$ independent equations of the following type:

$$D_i(p_1, p_2, \dots, p_{n-1}) = S_i(p_1, p_2, \dots, p_{n-1}) \quad i = 1, 2, \dots, n-1$$

[3.1]

Given the nature of the commodity money, its demand and supply will depend on the sum of all the demand and supply in value of the remaining $n-1$ commodities:

$$\sum_{i=1}^{n-1} p_i D_i \equiv S_n \quad [3.2]$$

$$\sum_{i=1}^{n-1} p_i S_i \equiv D_n \quad [3.3]$$

The aggregate demand for and supply of all the n commodities will then be given, respectively, by:

$$\sum_{i=1}^n p_i D_i \equiv \sum_{i=1}^{n-1} p_i D_i + D_n = S_n + D_n \quad [3.4]$$

$$\sum_{i=1}^n p_i S_i \equiv \sum_{i=1}^{n-1} p_i S_i + S_n = D_n + S_n \quad [3.5]$$

Which implies that the aggregate demand and supply are identical:

$$\sum_{i=1}^n p_i S_i \equiv \sum_{i=1}^n p_i D_i \quad [3.6]$$

That is Walras' Law according to Lange.

Obviously, this relation also applies to a barter economy in which there is no general equivalent utilised in exchanges (the n -th commodity in Lange's model), but only one of the remaining $n-1$ commodities that serves as numéraire. As in fact we know, the existence of a price vector guaranteeing the occurrence of a Walrasian equilibrium for the $n-1$ commodities other than money implies that each of the k agents in the model respect their budget constraints, or in other terms that:

$$\mathbf{p} \mathbf{d}_i = \mathbf{p} \boldsymbol{\omega}_i \quad i = 1, 2, \dots, k \quad [3.7]$$

where:

\mathbf{p} is the vector of the equilibrium prices of $n-1$ commodities;

$\mathbf{d}_i = [D_1, D_2, \dots, D_{n-1}] = \mathbf{d}_i(\mathbf{p}, \mathbf{p} \boldsymbol{\omega}_i)$ is the vector of the demand for commodities of agent i ;

ω_i is the vector of the initial endowments of commodities of agent i .

This implies that:

$$\sum_{i=1}^{n-1} [\mathbf{p} \mathbf{d}_i(\mathbf{p}, \mathbf{p}\omega_i) - \mathbf{p}\omega_i] = \mathbf{p} \left[\sum_{i=1}^{n-1} \mathbf{d}_i(\mathbf{p}, \mathbf{p}\omega_i) - \sum_{i=1}^{n-1} \omega_i \right] = \mathbf{p}\mathbf{z}(\mathbf{p}) = 0 \quad [3.8]$$

where $\mathbf{z}(\mathbf{p})$ is the excess demand vector.

This constitutes, in fact, the present-day formulation of *Walras's Law* (Varian, 1978), which shows the need, for the purposes of equilibrium, for the price vector and the excess demand vector to be orthogonal.

From this property, necessary for Walrasian equilibriums, it immediately results, reordering the terms of [3.8], that:

$$\sum_{i=1}^{n-1} p_i D_i \equiv \sum_{i=1}^{n-1} p_i S_i \quad [3.9]$$

[3.9] coincides exactly with the definition of "Say's Law" given by Lange. Thus, in a barter economy Say's law coincides directly with Walras' law according to Lange.

This identity is a macroeconomic constraint, by which every supply variation implies an identical variation on the demand side.

Thus, in a barter economy, "Say's Law" proves to be a logical consequence of the effectiveness of the budget constraint of each economic agent. In a credit economy "Say's Law" remains valid if, in accordance with a principle dear to banking technique (Graziani, 1996), it is the deposits that generate investments, or in other words if the budget constraint no longer applies to individuals but continues to apply to the aggregate: the excess demand with respect to one agent's budget constraint must be perfectly offset by the savings of others.

However, [3.9] is a more rigid property of "Walras's Law" as identified by Lange in the context of a monetary economy that uses as universal medium of exchange a currency (be it commodity, fiduciary or fiat money) of the Marshallian type,

which thus serves no other purpose than to make exchange process fluid, has no value store function, and demand for which is consequently regulated solely by the necessities of the transactions. In this context, in fact, "Say's Law" proves a corollary to "Walras's Law" if, and only if:

$$D_n \equiv S_n \quad \Leftrightarrow \quad \Delta M = D_n - S_n = 0 \quad [3.10]$$

The demand for monetary balances must therefore correspond exactly to the quantity of money available: in other words, there must be *monetary equilibrium*. Utilising [3.3], stating $S_n = M$ and introducing the circulation speed of money (v), this equation becomes:

$$\sum_{i=1}^{n-1} p_i S_i \equiv vM \quad [3.11]$$

This is the micro version of the *Cambridge equation*, underlying the *quantitative theory of money*.

Thus, in Lange's formulation, Say's law depends on the hypothesis that all the agents do not change their monetary balances, given the practices and institutional rules that determine the speed of the circulation of money, because money is a pure medium of exchange. This accords with the points that Say had to make in the following extract:

«Thus, to say that sales are dull, owing to the scarcity of money, is to mistake the means for the cause; an error that proceeds from the circumstance, that almost all produce is in the first instance exchanged for money, before it is ultimately converted into other produce: and the commodity, which recurs so repeatedly in use, appears to vulgar apprehensions the most important of commodities, and the end and object of all transactions, whereas it is only the medium. Sales cannot be said to be dull because money is scarce, but because other products are so» (Say, 2001, p. 56).

and with the following observation by Ricardo:

«Productions are always bought by productions, or by services; money is only the medium by which the exchange is effected» (Ricardo, 2004, p.291).

Since, in a barter economy, "Say's Law" coincides with "Walras's Law", the system of equations determining the $n-1$ relative prices contains only $n-2$ independent equations. Thus, following Lange's approach, "Say's Law" can be rewritten as follows:

$$\sum_{i=1}^{n-2} p_i D_i + p_{n-1} D_{n-1} \equiv \sum_{i=1}^{n-2} p_i S_i + p_{n-1} S_{n-1} \quad [3.12]$$

For "Walras's Law", if $D_i = S_i$ for the first $n-2$ commodities, then $D_{n-1} = S_{n-1}$. But in a monetary economy in which money is only medium of exchange, it must also be true that $D_n = S_n$. Thus, if Say's law rules, there are n prices to be determined, but the system has only $n-2$ independent equations. Arbitrarily choosing a numéraire, it will be possible to determine the $n-1$ relative prices, but the monetary prices are undetermined.

In the spirit of "Say's Law" the monetary balances are no more than a stock, which, being there, oils and eases the exchange of real flows. Variations in the monetary balances do not constitute effective demand; that is to say, they cannot definitively be taken as flows of real commodities. Nor, at the aggregate level, can variations in the monetary balances be implemented with the sale of commodities. Ultimately, there is no substitutability between money and commodities (Lange, 1942). Since demand curves, as functions of the relative prices, are based on the axiom of substitutability of commodities, the monetary prices – in the sense of relative prices between commodities and money – can have no effect on the quantities demanded. Demand functions are homogeneous of degree zero in all relative prices and the monetary prices become arbitrary scale transformations of the relative prices, deriving from the arbitrary monetary value assigned to the real numéraire (relative price of the real numéraire in terms of money):

$$p_i = p_{n-1} \pi_i \quad i = 1, 2, \dots, n-2 \quad [3.13]$$

where π_i is the relative price of commodity terms of real numéraire $n-1$ and p_{n-1} is the monetary price of the real numéraire.

In classical money theory price p_{n-1} is determined with the supplementary equation (Lange, 1942):

$$kp_{n-1} \sum_{i=1}^{n-1} \pi_i S_i = M \quad [3.14]$$

where k is in fact the reciprocal of the speed of circulation of money.

What this equation actually amounts to is a transformation of the identity on which the quantitative theory of money is based and postulates, as we know, *dichotomy* between real system and money. On this basis, money is “neutral” in the determination of equilibrium prices and constitutes a mere “veil” that can simply be ignored in determining the equilibrium level of production and employment.

Lange then decomposes aggregate supply and demand thus:

$$\sum_{i=1}^n p_i D_i \equiv D_F + D_{IR} + D_{IN} + D_P + D_C + D_n \quad [3.15]$$

$$\sum_{i=1}^n p_i S_i \equiv S_F + S_I + S_P + S_C + S_n \quad [3.16]$$

where subscripts F , I , P and C indicate, respectively, the primary factors (in practice, productive labour services, production being considered as integrated and consolidated in form), the intermediate products, the final products and final services, while IR and IN distinguish the demand for intermediate substitution goods (amortisation) from the demand for additional intermediate goods (net investments).

This – apparently neutral – scenario actually brings into Lange’s model significant implicit hypotheses to put some distance between it and the commodity exchange system which Say had in mind. In fact, taking a marginal viewpoint, Lange tends to take commodities and services of the productive factors as equivalent. The upshot is that, what for Say had been simple exchange

of products between independent producers becomes also exchange of products with the producers' services. In addition to the simple exchange of products we find added and associated, in the guise of exchange, the phenomenon of distribution of the social product amongst the participants in the productive process. In this new context, the macroeconomic constraint identified by Schumpeter changes in nature, no longer representing the simple complementarity of the various parts of the social product but also, at the same time, the complementarity between surplus and necessary product.

On the basis of "Walras's Law" [3.15] and [3.16] can be combined in the following way:

$$(D_F + D_{IR}) + D_{IN} + D_P + D_C + \Delta M \equiv S_F + (S_I + S_P) + S_C \quad [3.17]$$

The addends in brackets in the right member are the total costs of production, while the addends in brackets in the left member represent commodity supply.

In turn [3.17] can be rewritten thus:

$$(S_F + S_C) - (D_F + D_C) \equiv (D_{IR} + D_{IN} + D_P) - (S_I + S_P) + \Delta M \quad [3.18]$$

where it is demonstrated that the excess supply of labour services must prove equal to the excess demand of commodities plus the variation in the monetary balances.

In the case of monetary equilibrium ($\Delta M = 0$), as assumed by "Say's Law", the excess supply of labour services must be exactly equal to the excess demand of commodities (the sum of the two excess demands must come to zero). The two members do not necessarily have to have nil value, but if there is an excess supply on one side, there must necessarily be a excess demand of equal proportion on the opposite side and vice versa. This tends to re-establish equilibrium, provided it is stable.

If Say's law does not work, then $\Delta M \neq 0$ and an excess supply of labour can be associated with an excess supply of goods, should the aim be an increase in the monetary balances, money supply remaining equal.

This exception makes sense, however, only if it is possible to aim at variations in the monetary balances independently of variations in transactions or the rate of circulation of money. Money cannot, therefore, be a pure medium of exchange, but must be able to be desired for other purposes. Thus it must be either an argument of the utility functions or play a strategic role as a value store.

But if Say's law does not remain valid there is another interesting effect. If the variations in the demand for money can generate generalised excess supplies (or, in other words, generalised demand deficiencies), then increases in the money supply can generate increases in effective demand, which can rebalance the system. In practice, therefore, a supply of money in excess of demand becomes effective demand able to absorb the excess supplies of productive factors and commodities.

Criticising the logical consistency of the dichotomy between relative equilibrium prices and monetary prices in classical money theory developed on the basis of Lange's model, Patinkin went on to deny the neutrality of money, once again hypothesising violation of "Say's Law" (Patinkin, 1948, 1949, 1951). Nonzero excess demand for money can, in fact, be identified only on condition that there be excess demands for the commodities whose algebraic sum is other than zero. Moreover, the *real balance effect*, with which Patinkin overcomes the dichotomy and integrate relative and absolute prices in a single system, assumes exchange between commodities and monetary balances, again violating the condition characteristic of "Say's Law" that commodities are ultimately exchanged always and only with other commodities, even though through the transitory mediation of money. Moreover, as we have seen, substitutability between monetary balances and commodities is the necessary condition for them to be able to coexist alongside one another as arguments of the excess commodity demand functions (Patinkin, 1948, 1949, 1951; Valavanis, 1955).

5. Money and effective demand in Luxemburg and in the monetary circuit theories.

Taking money as a limiting element, if not determinant of effective demand, as emerges from the models of Lange and Patinkin, is a condition also to be seen in other economic approaches within different theoretical frameworks that,

chronologically, preceded and followed those examined, although produced independently of one another. Here we mean to refer, on one hand, to the theory of Marxist derivation as pursued by Rosa Luxemburg, and, on the other hand, to the modern *economic circuit theories* (Graziani, 1996). Deep-reaching formal analogies can be detected between the two approaches (Bellofiore, 2009), although there is no actual link of parentage but, rather, posthumous recognition.

The connection between availability of money and effective demand emerges in the work of Rosa Luxemburg in the course of analysis of Marxian reproduction schemes, seeking to account for the nature of crises (Scarano, 2011). In this respect, Luxemburg raised for the first time in a Marxist context the problem of the connection between accumulation of capital and satisfaction of solvable demand (exogenously given demand):

«A further condition is required to ensure that accumulation can in fact proceed and production expand: the effective demand for commodities must also increase. Where is this continually increasing demand to come from, which in Marx's diagram forms the basis of reproduction on an ever rising scale?» (Luxemburg, 2003, p. 104).

According to Luxemburg, Marx's schemes of reproduction on an enlarged scale showed a number of unrealistic simplifications which made them unsuitable for analysis of this issue of capitalistic accumulation. The two main critiques of the Marxian schemes proving relevant to the problem of effective demand can be summarised thus:

a) Production seems to be able to create a market of adequate proportions. Thus seems to disappear the possibility that global demand be *tendentially* below the level of a productive capacity in rapid expansion, contradicting the assertion repeated by Marx in a number of passages in the third book of *Capital*.

b) Scant importance is attributed to the phase of monetary realization of surplus value, although this proves a crucial stage in the completion of the reproduction process.

The former critique seems to sum up the dispute between Ricardo and Malthus, in which reference to "Say's Law" first appeared.

The second critique, on the other hand, is closely bound up with the confusion between solvable demand and the stock of money recurrent throughout Luxemburg's analysis. The fact that surplus value must first be generated in monetary form to be able, then, to be transformed into supplementary money capital, and so into additional industrial capital, leads, in fact, to identifying the problem of solvable demand with the availability of money. The need of the individual capitalist to find on the market owners of liquid funds able to "realise" the value of his commodity capital is extended, in a purely additive way, to the entire aggregate of capitalists:

«To accumulate capital does not mean to produce higher and higher mountains of commodities, but to convert more and more commodities into money capital. Between the accumulation of surplus value there always lies a decisive leap, the salto mortale of commodity production, as Marx calls it: selling for money. Is this perhaps only valid for the individual capitalist, but not for the entire class, for society as a whole? Definitely not. For in the social observation of phenomena '... we must not,' says Marx, 'lapse into the manner copied by Proudhon from bourgeois economy and look upon this matter as though a society with a capitalist mode of production, if viewed en bloc, as a totality, would lose this its specific historical and economic character. No, on the contrary. We have, in that case, to deal with the aggregate capitalist.

Now, the accumulation of profit as money profit is just such a specific and quite essential characteristic of capitalist production, and is as valid for the class as it is for the individual employer» (Luxemburg, 1921, p. 71-72).

Here Luxemburg completely loses sight of the fact that the generation of surplus value in Marx, although mediated by money, must in the aggregate ultimately be seen as an exchange of commodities between capitalists, exchanging with one another the share of the social product they have appropriated in the course of the capitalist production process, for purposes of consumption or investment. Transition from commodity capital to the form of money capital is not

simultaneous for all the capitalists. The need to convert commodity into money is felt by all the capitalists, but not at the same moment in time. In the normal course of business, transformation of commodity into money capital for one capitalist will, then, coincide with the transformation of money capital into factors of production for another. Only a temporary halt in the process of capital rotation can interrupt this process of reciprocal exchange of commodities and money. This, however, is exactly what happens during crises. The lack of effective demand, in this case, is a result of the very process of capital rotation due to the decision to suspend momentarily reinvestment of the surplus value in new forms of productive capital because the rate of profit is perceived to be lower than the normal expected level. It is not, then, the consequence of the short supply of money, however much hoarding of the monetary form of a part of the stock may hold back the process of metamorphosis of another part of it.

Moreover, Luxemburg sees the process of accumulation of capital at the aggregate level as a process of production of monetary values by means of smaller monetary values, and looks into the origin of these differences in money that can bring about this transformation. Once again, however, she loses sight of the fact that money plays a role only as unit of account and not as having real purchasing power in the process she describes.

Luxemburg's theoretical oversights are, once again, then, to be ascribed to her losing sight of the internal link of the complementarity between the various parts of social product, and treating money as pure and simple medium of exchange.

The role Luxemburg attributes to an original, mythical creation of money has led some to discern in her a forerunner of the modern circuit theoreticians (Bellofiore, 2009). In fact, the exponents of this current of thought, starting from the insights and schematization of Wicksell, Schumpeter and Keynes, exclude any role for money as commodity and construct a scheme of the credit circuit characterised by sharp distinction between enterprises and banks, in which the latter are able to generate money from nothing, and to a limitless degree. Following this pattern, it is demand for loans that generates deposits, and not vice versa. The supply of money, in the absence of costs for its production, is determined solely by demand and has no form of regulation on the supply side.

Thus, once again, disappears any macroeconomic and intertemporal constraint which, in Marxian terms, might limit credit in accordance with the availability of idle liquid sources periodically emerging from the capital rotation process, or, in modern terms, that might tie credit to the system's saving potential.

6. Conclusions

Ultimately, "Say's Law" is a macroeconomic constraint endowed with logical validity only and exclusively in a barter economy or, rather, in an economy of small independent producers turning out commodities and services with the explicit aim of obtaining through exchange other commodities and services to satisfy their particular needs. Obviously, it does not apply to monetary and credit economies of the capitalist type, in which production has as its immediate goal the valorization of capital and in which money takes on the role of monetary capital, which can generate forms of hoarding associated with the prospects of profitability of investments. In such a context, the non-applicability of "Say's Law" does not do away with a more general macroeconomic constraint, of which the law is merely one particular expression in the context of the barter economy: the fact that market exchange amounts to no more or less than reciprocal exchange between the producers of shares of the social product.

Thus the simple abandonment of "Say's Law" opens up the economic system in a logically indeterminate way. Attempts to eliminate this indeterminacy have led to models open on the front of demand components which, losing sight of the links that must directly or indirectly reconnect these components to the totality of the social product, can create "optical illusions" and apparent "perpetual motion".

Is there, however, any way to do without the inadequate banality of "Say's Law" without losing the more general links of the macroeconomic constraint? An interesting contribution in this direction is offered by Hilferding's theoretical construct.

In Hilferding, who develops Marx's theory of credit, *capital credit*, which is channelled into financing new investments, derives from temporarily idle liquid sources, transformed into monetary capital generating interest. While *exchange credit* is determined by the needs of circulation, and thus adjusts to the demand

for it, production credit, as mere transference of purchasing power from one agent to another, is thus limited from above by saving, or in other words by the formation of surplus generated in the process of capital accumulation. In modern terms, credit turns out to be constrained on the supply side. And as monetary capital is "in search of investment", it is supply that seems to play the leading active role in determining the overall volume of credit. This approach gives due recognition to a macroeconomic constraint of an intertemporal kind, in sharp contrast with the idea of *ex-novo* generation of credit by the banks, which, as we have seen, characterises the modern money circuit theories. The intertemporal budget constraint that emerges from this relation is also an attractor in that it can be temporarily violated, but only by accumulating tension and triggering more or less violent readjustment dynamics (monetary or financial crises (Scarano, 2010).

According to Hilferding, then, capital credit represents in general the transformation of hoarded money into active monetary capital (productive investment). In institutional contexts that see other property owning classes alongside the capitalists, part of this hoarded money will consist of actual saving funds, but the largest part will be represented by amortisation funds and other forms of lock up necessary for the process of capital rotation (Hilferding, 2007).

However, credit is not only subject to constraint on the supply side. What it boils down to is the creation of *credit money*, and, as such, it is subject to the same laws that regulate the quantity of money. The creation of credit money is, in practice, endogenous money, regulated by the needs of the circulation of commodities. It represents the way in which money supply, within its upper limit, adjusts to the demand for it. The intertemporal budget constraint can be temporarily violated only in the ascending phases of cycle, in a context that sees speculative bubbles taking shape, but only by creating at the same time the conditions for violent readjustment processes consisting in crises.

In Hilferding credit, like fiat money, is limited on the demand side by a particular version of the "quantitative theory of money", to the effect that an increase in the quantity of money generates a proportional increase in the general level of *money prices*. This is compatible with a Marxian type theory of production prices, such as the one adopted by Hilferding, since, as we know, the latter are

expressed in terms of value and are indifferent to the quantity of commodity money and token money alike. From this point of view, a sort of dichotomy forms in Hilferding's system between exchange values and money prices, much the same as in the classical theory of money.

According to Hilferding's version of the *quantity theory*, for credit money and token money alike it is the sum of the monetary values of the social product that determines the minimum of it required by circulation. Any variation in the quantity of credit money below or above this minimum will have no other effect than readjustment of the general level of money prices. (Scarano, 2010).

The demand for credit money is thus limited by the need of circulation according to the following formula (Hilferding, 2007):

$$\frac{\text{total value of commodities}}{\text{velocity of circulation of money}}$$

Bearing in mind here that the expression "value of commodities" means Marxian production prices, and so corresponds to the sum of the prices for the quantities of commodities, the above formula coincides with the Cambridge formula.

Credit money, like *token money*, is no longer, then, a direct measure of value but, rather, only an indirect measure insofar as it depends on the overall value of the social product which, measured in terms of all the social labour embodied, is the real numeraire of the prices of production in terms of labour value.

In this context the quantitative theory of money is no longer a theory of the determination of "prices", but, rather, the theory of the determination of value represented by token money. Obviously, this will tautologically determine as reciprocal the level of money prices of commodities. But this amounts to nothing more than a nominal conversion, and will have no effect on the laws of determination of the production prices.

Taking into account the fact that the circulation of commodities, in Hilferding as in Marx, in a capitalist type society is simply a manifestation of the circulation of capital, we can then extend the meaning of the effect of its needs on the determination of demand for money to the extent of incorporating the recurrent demand for money aiming at conserving capital in monetary form while waiting

for the business cycle to bring the rate of profit back to a level expected as normal. In other words, it can go so far as to incorporate something much like the Keynesian *speculative demand for money*, but which originates in the real cycle rather than in the world of financial speculation.

The solution ultimately emerging from Hilferding's theory, then, rests on application of the theory of labour value which, significantly, as we saw in the first section, Marx approached in direct relation to recognition of the macroeconomic constraint in the process of commodity exchange. To eliminate the problems associated with the necessary abandonment of "Say's Law", then, the need is to develop an invariant measure of value which, overcoming the limits of the theory of labour value, re-asserts the profound significance of the macroeconomic constraint operating in a capitalist society.

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