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Hayek and Keynes on Say's Law

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Abstract

The more general and usual understanding of Say's Law is that "supply creates its own demand". Baumol (1999) shows however that in Say's writings seven other variants of the law can be found. Sowell (2008) distinguish "Say's identity" that "aggregate supply is identically equal to aggregate demand" in a non-monetary economy from "Say's equality", which is only valid in equilibrium and that implies that temporary disequilibrium levels of output can prevail. Sowell criticizes Keynes for having reduced Say's Law to Say's Identity and having thus defined it as a situation where "there is no obstacle to full employment". De Gottardi (2000) further developed the distinction between the identity and the equilibrium definitions in the logic of quantum macroeconomics of his teacher Bernard Schmitt.

Sardoni (2011) argued that Marx criticized Ricardo's version of Say's law for being expressed in a barter economy, where it is necessarily valid. For Marx, like for other "classical economists", Say's law implies that the economy always runs at full utilisation of productive capacity, but does not require that the economy be at full employment.

Say's law has thus different meanings, depending on whether it is defined within a "classical" reproduction scheme, which was the one of reference for Say himself, or whether one considers it within the static neoclassical paradigm. In both cases the distinction between a monetary and a non-monetary economy introduces two further variants in this theoretical framework.

The present text discusses different possible definitions of Say's law and then presents the way Hayek and Keynes defined it. It suggests that Hayek reasons in a "classical framework", where however he defines his equilibrium and later his "spontaneous order" concepts as those of an economy where credit money is abolished (or "*neutral*") and that is *de facto* equivalent to a barter economy. On the contrary, Keynes looks at a monetary production economy, where credit plays an essential role. While Keynes treatment of Say's law, and in general his approach, has ambiguities as well, these can be clarified with the help of the modern theory of the monetary circuit, considered in the versions of Parguez, Graziani and Schmitt, whose work provides the background for this discussion. Finally the policy implications of the analysis are drawn.

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Introduction:

Say lived during the period of "classical economics"[1] that preceded the advent of marginalism, but was an "early proponent of the utility theory of value" (Sowell, 1987, p. 249). He notably rejected the labour theory of value retained by Smith, Ricardo and Marx, but shared the other elements of the classical vision, such as the focus on "long-term equilibrium" positions. While generally supportive of Ricardo's quantity theory of money, he nonetheless acknowledged that the "nominal" quantity of money could have effects on the real economy (Jacoud, 2013, p. 7), thus rejecting the complete dichotomy generally associated with his "law of markets" or "loi des débouchés". In fact, this law became a characteristic trait of the classical vision itself (Schumpeter, 2006 [1954], pp. 585-594), especially after Say conceded the possibility of demand shortages to Malthus and Sismondi in the fifth edition of the *Traité* dated 1826 and in the *Cours* published in 1828-29 (Sowell, 1987, p. 249)[2].

After 1826's reformulation, the only classical economist who kept a really critical position towards Say's law was Karl Marx, because his concept of "path dependent" development (Schumpeter, 2003 [1943][3], Sylos Labini, 1994), whose dynamics was governed by money (Sardoni, 2009) and technical progress (Sylos Labini, 1984 [1954]), was potentially conducive to economic crises or "general gluts", in direct contradiction with the law itself; but also, in contrast with the long-term equilibrium "stationary assumption" retained by Smith and Ricardo that Marx wanted to criticize.

In line with Smith and Ricardo, but contrary to Say, Marx kept the reference to the labour theory of value, which was abandoned by the mainstream with the advent of marginalism in favor of a theory of utility which was closer to Say's views. Of the three main authors that developed marginalism in the 1870s, each giving rise to a different stream of what was further called "neoclassical" economics, the one of interest for the purpose of this text is Menger who founded the so called "Austrian" school, of which Hayek was the most emblematic epigone in the XXth century[4]. The Austrian school kept stronger ties with the classical tradition than the other two, led by Jevons and Walras. However it was Walras who discovered a law, later called "Walras law", which was widely treated in parallel with Say's law, to the point that it was often confused with it.

With the advent of marginalism and until Keynes criticized it in the *General Theory*, the labour theory of value was abandoned in favor of the theory of utility, Marx criticisms of Say's law were forgotten and the law itself was put aside, being assumed to hold by definition[5]. In the words of Sowell (2008):

> *"Discussions of Say's Law virtually disappeared from economics for at least a generation after John Stuart Mill wrote on it in the 1840s. Even the sweeping challenges of neoclassical economics to classical orthodoxy, beginning in the 1870s, largely bypassed the issue of Say's Law. Isolated criticisms came from beyond the pale - from Marx, Hobson and assorted cranks. Within the economics profession, Say's Law was one of those things simply assumed and ignored. Early in the 20th century, Knut Wicksell explored the relationship between the quantity theory of money and Say's Law. ... However, Wicksell's own belated recognition by*

[1] Here the term "classical" is used with reference to Sraffa's distinction between the "arc" and the "spiral" views of economics, which he identified respectively with the "equilibrium" tradition (supply and demand) and the "classical" approach (based on the conditions for reproduction of the circular flow). The former goes from Catillon to Say, Walras and includes all marginalist (or neoclassical) economists, while the latter goes from Petty and Quesnay to Smith Ricardo and Marx. See Roncaglia (2005, pp. 279-80).

[2] Rosestein Rodan (1936) notes that, following the criticism of Sismondi, the chapter on "Des débouchés" grew from three and a half to twenty pages from the first edition of the *Traité* in 1803 to the fifth edition of 1826, which is the one retained in its collected works.

[3] "... his analysis runs a fundamental idea... the idea of a theory ... of the economic process as it goes on, under its own steam, in historic time, producing at every instant that state which will of itself determine the next one." (Schumpeter, 2003 [1943] p. 43).

[4] Graziani (1996, p. 339) notes that it would be more correct to talk about the theory of Böhm-Bawerk rather than of the Austrian theory of capital, as many Austrians such as Menger, Wieser and Schumpeter, never accepted Böhm-Bawerk's average period of production, as Hayek himself noted in *Prices and Production*.

[5] An exception is Marshall ([1920] 2013, p. 591), quoted by Claassen (1964), who, referring to Mill's presentation of Says law, rejects it, at least as an identity: "... though men have the power to purchase, they may not choose to use it."

> *the English-speaking world meant that Say's Law did not become a major concern again until the appearance of John Maynard Keynes's General Theory of Employment, Interest and Money in 1936".*

In the *General Theory* Keynes's criticized Say's law mainly to mark the difference between his analysis and that of his predecessors[6], which he referred to as "classical economists". In fact, for Keynes the "classical economists" were essentially Marshall and Pigou, who would be defined today as "neo-classical" or "marginalist". However, given the continuity between mainstream classical and neo-classical economists in ignoring Say's law after Mill, one can say that by attacking Say, Keynes was in fact criticizing both the mainstream classical and neoclassical approaches.

Concerning Say's law, there was however at least a major difference between the classic and the neoclassical authors, noted by Sardoni (2009 and references cited therein): whereas for Say and for the classical economists, even under free competition, the law implied full utilisation of productive capacity, but not necessarily full employment[7]; for Pigou and the neo-classical, coupled with free competition, Say's law implied necessarily full employment. Keynes thus attacked Say's law to emphasize his main result that, in a monetary production economy, equilibrium involuntary unemployment is a possible outcome.

Despite being the main successor of the Austrian marginalist tradition in the XXth century, as well as the most radical and consistent "mainstream" opponent of Keynes, Hayek quoted Say's law very rarely in his writings, contrary to Walras law, to which he made often reference, albeit somewhat indirectly. It is nonetheless clear that in Hayek's world, unemployment is only voluntary, therefore one would say that Hayek would have adhered to the neoclassical interpretation of the law implied by Marshall's and Pigou's work attacked by Keynes. However his position is complex, as, in line with the Austrian tradition, Hayek kept a natural link with the "long-period" analysis of the classical economists through the concepts of "average production period" and "degree of roundaboutness" of capital. Moreover some aspects of his economic model, such as the fact that wages are paid in advance (Graziani, 1996 and 1998), give a distinctive classical flavor to his analysis.

It is also noteworthy that, although the marginalist tradition, particularly in the version of Walras, is associated with a vision of the economy that is essentially "non-monetary" (barter), Hayek clearly developed his neo-Austrian version of marginalism in a monetary framework, where, however, money is fixed exogenously and remains, or should remain, constant in order to be "neutral". Thus, rather paradoxically, Hayek vindicated the validity of Say's law in its neo-classical full-employment interpretation, without almost ever referring to it and with the help of a monetary model that kept a number of the classical features of barter or stationary economies.

To add to the paradox, Keynes' monetary analysis, keeping several links with the classical tradition, implied also that the identity between savings and investment always holds, which, in line with its classical interpretation, gives and indirect but full validation to Say's law.

There is thus a rather convoluted web of concepts and definitions used by the various authors in relation to Say's law, which extends also to the diversified character of their assumptions. In the conclusive paragraph that he devotes to the *Law of Markets*[8] in his History of Economic Analysis, Schumpeter notes:

> *"A man of the name of J.B. Say had discovered a theorem of considerable interest from a theoretical point of view that, though rooted in the tradition of Cantillon and Turgot, was novel in the sense that it had*

[6] Barrère (1979, 75-79) identifies in Say's law the "second cleavage" (after Walras' law) between Keynes and his predecessors.
[7] In fact the very notion of unemployment did not exist and was meaningless for Say and his contemporaries. For classical economists, when someone was ejected from the labour force living out of a monetary wage, he would return to the traditional non-capitalistic sector where he would earn the subsistence wage paid out in subsistence goods. It is only after the non-capitalistic sector disappeared completely from advanced industrial economies, in the second half of the XIX century in the UK, that the notion of unemployment was developed. The author is grateful to Mario Seccareccia for drawing attention on this rather important point, developed in particular by Polany.
[8] Schumpeter notes that a more correct translation of "Loi des débouchés" would be "Law of Outlets".

> *never been stated in so many words. He hardly understood his discovery himself and not only expressed it faultily but also misused it for the things that really mattered to him. Another man of the name of Ricardo understood it because it tallied with considerations that had occurred to him in his analysis of international trade, but he also put it to illegitimate use. Most people misunderstood it, some of them liking, others disliking what it was they made of it. And a discussion that reflects little credit on all parties concerned dragged on to this day when people, armed with superior technique, still keep chewing the same old cud, each of them opposing his own misunderstanding of the 'law' to the misunderstanding of the other fellow, all of them contributing to make a bogey of it." (Schumpeter, 2006 [1954], pp. 593-594)*

These circumstances indicate that it is worthy clarifying what is really meant by Say's Law, which is the object of Section 1 below. This clarification prepares the ground for a brief discussion of the respective positions of Hayek (section 2) and Keynes (section 3) on the law. Section (4) concludes with some implications of the analysis for the current policy debate.

1. Say's Law

1.1 Say (1803): In the *Traité*, in chapter XV of the first book on Production, entitled "*Des débouchés*", Say wrote a paragraph that gives a rather clear definition of what became the Law named after him.

> *"L'homme dont l'industrie s'applique à donner de la valeur aux choses en leur créant un usage quelconque ne peut espérer que cette valeur sera appréciée et payée que là où d'autres hommes auront les moyens d'en faire l'acquisition. Ces moyens, en quoi consistent-ils ? En d'autres valeurs, d'autres produits, fruits de leur industrie, de leurs capitaux, de leurs terres : d'où il résulte, quoique au premier aperçu cela semble un paradoxe, que c'est la production qui ouvre des débouchés aux produits.*
> *Que si un marchand d'étoffes s'avisait de dire : Ce ne sont pas d'autres produits que je demande en échange des miens, c'est de l'argent, on lui prouverait aisément que son acheteur n'est mis en état de le payer en argent que par des marchandises qu'il vend de son côté." (Say 1972 [1803], p. 111)*

It can be noted that when Say wrote: "*c'est la production qui ouvre des débouchés aux produits*", his statement did not differ much from the "supply creates its own demand" of Keynes and the post-Keynesians, sometimes quoted to be unfaithful to the original.

It is also noteworthy that, in this key paragraph, Say's argument is developed in terms of "values": he talks about the exchange of values against other values ("*Ces moyens, en quoi consistent-ils? En d'autres valeurs, d'autres produits*"); money only providing an intermediary medium of exchange, "neutral" to the transaction ("*son acheteur n'est mis en état de le payer en argent que par des marchandises qu'il vend de son côté* "). Say's thus seems to retain a conceptual framework that corresponds to what was later called by Keynes the "real exchange" or the "cooperative economy", which Keynes opposed to the "monetary production economy", of which he tried to establish the theory.

This is understandable as most of the classical authors, with the possible exception of Marx, reasoned in a quasi-barter economy framework, which is somehow natural if one retains the concept of a *commodity money*, based on gold or silver, which was the reality at the time, as opposed to that of a *fiat money*, based on some "social definition" of its value, such as for instance its labour equivalent, as it is the case under certain interpretations of Marx. Like for other classical writers, money was thus considered by Say as a "veil" concealing the fact that goods are exchanged for goods and actually, for Say, the "value of goods" is exchanged for an "equivalent value", although he had not developed fully what this means in terms of utility, which was done only after 1870 with the marginalist revolution and its refinements.

As the same time, Say was aware of the fact that money creation can have a real impact. As noted by Jacoud (2013, p. 7-8), already in the first edition of the *Traité* of 1803 he commented upon the fact that the depreciation of money favors debtors and worsens creditors (Say, 1803, vol. I, p. 461). Similarly in the *Complete Course* of 1828 he observes the effect of the British Government to reduce the circulation of paper to restore the value of the pound paper and of gold benefitted those who had fixed rents and

penalized the others (Say, 1828, vol. III, p. 68). But the most significant quote from this viewpoint can be found in fifth edition of the *Traité*, where he asserts that:

> *"we can thus observe, at the origin of all paper monies, a certain activity in circulation which is very favourable to the development of industry. The beginning of Law's system under the regency were brilliant; the same can be said of the early days of the* assignats *in the French revolution; and agriculture, manufactures and trade in Great Britain rapidly expanded in the years which followed the suspension of payments in specie by the Bank of England." (Say 2006, vol. I, pp. 505-7, quoted by Jacoud, 2013, p. 7)*

Also, one can find in the same chapter on "débouchés" already quoted above, a passage where in fact Say also recognizes indirectly a role for demand:

> *"Pour que la consommation soit favorable, il faut qu'elle remplisse son objet essentiel, qui est de satisfaire à des besoins. Lorsque Napoléon exigeait qu'on parût à sa cour avec des habits brodés, il causait à ses courtisans une perte égale, tout au moins, aux gains qu'il procurait à ses brodeurs. C'était pis encore lorsqu'il autorisait par des licences un commerce clandestin avec l'Angleterre, à la charge d'exporter en marchandises françaises une valeur égale à celle qu'on voulait importer. Les négociants qui fesaient usage de ces licences, chargeaient sur leurs navires des marchandises qui, ne pouvant être admises de l'autre côté du détroit, étaient jetées à la mer en sortant du port. Le gouvernement, tout à fait ignorant en économie politique, s'applaudissait de cette manouvre comme étant favorable à nos manufactures. Mais quel en était l'effet réel? Le négociant, obligé de perdre la valeur entière des marchandises françaises qu'il exportait, vendait en conséquence le sucre et le café qu'il rapportait d'Angleterre, le consommateur français payait le montant des produits dont il n'avait pas joui.", (Say 1972 [1803], p. 146)*

In fact, as noted also by Skinner (1967), Say reasoned in terms of the “classic” circular flow of Quesnay, Turgot and Smith. In this circular flow, once it is admitted that all revenue is spent and that there are no hoardings, it is obvious that supply creates its own demand (see below paragraph on Schmitt), and it is equally evident the level of activity is not necessarily the one corresponding to the full employment of the labour force. One may add with Graziani (1994) that, in this classic circular flow, it is also clear why savings determine investment, because wages, which represent the essence of investment in this stationary and “money-neutral” economy, are paid in advance. The previous accumulation of a “wage fund” in the hands of the employers is the precondition to pay for investment in fixed and/or circulating capital.

In line with his classical background, Say's argument was actually developed to demonstrate that there was no limit to economic progress from the demand side, because the decision to produce would always create the demand necessary to absorb all the products produced. In the circular flow, whatever revenue is created by the decision of the capitalists to produce, is used, either for consumption or savings, and it is therefore equal to demand by definition[9]. This is different from the use for Say’s law that was done after economics became the science of the use of scarce resources.

1.2 Rosestein-Rodan 1936: As discussed, an important aspect of the characterisation of Say's law is the more or less neutral role of money in the economy to which it applies. According to Patinkin and Steiger (1989) the term "neutral money" was introduced in the English literature by Hayek (1931), who quoted Wicksell and Johan G. Koopmans for its origin, which they date around the 1920s. On the contrary, for the expression "veil of money", they do not find a sure origin, but they estimate that it was introduced approximately after the First World War. Neutral money, is often used as a synonymous for “veil money” and both concepts refer to the comparison between barter and monetary economies

[9] “Autrement comment ferait-on pour acheter maintenant en France, dans une année, six ou huit fois plus de choses qu'on n'en achetait sous le règne misérable de Charles VI ? Il est évident que c'est parce qu'on y produit six ou huit fois plus de choses, et qu'on achète ces choses les unes avec les autres.” (Say 1803, p. 111)

The logical relations between barter and monetary economies have been discussed in detail in a paper Rosestein-Rodan wrote in 1936 [10]. Making reference to the traditional definition of the three functions of money: a) money as a unit of account; b) money as a medium of exchange; and, c) money as a store of value, and using the analytical framework of Walras, Rosestein-Rodan notes that there are three possible types of barter economies:

i) two goods economies where each good is a *numéraire*;
ii) three or more goods economies where exchange is indirect and a different good performs the first two functions of money (*numéraire* and medium of exchange), with this good being different for different individuals; and,
iii) three or more goods economies where exchange is indirect and a different good performs all the three functions of money with again this good being different for different individuals.

In each case, the corresponding monetary economy has the same number of goods but only one good performs all the relevant functions of money (one, two or three functions, according to the case, as illustrated in the table below) for all individuals.

Rosestein-Rodan took money neutrality as equivalent to money as a "veil". It defined it by comparing a barter and a monetary economy for what concerns the effect of variations in the quantity of money on the relative prices and/or the quantities consumed. For him, in type i) monetary economies, changes in money do not alter the relative prices nor the relative quantities, hence money is neutral by definition. In the type ii) monetary economies, under the assumptions retained by the classical authors of constant (average) costs, variations in the quantity of money do not have an impact on relative (long-run) relative prices, while their impact on quantities consumed can be neglected, by virtue of the classical assumption of a given output (or retaining a stationary economy). Hence also for type ii) economies money can be neutral whenever changes in its quantities either do not influence relative prices or have the same effects as under a barter economy.

Barter economies	***Monetary economies***	***Functions of money***			***Money neutrality: Effect of ΔM***
		as a unit of account	*as a medium of exchange*	*as a store of value*	
i) Two goods economies where each good is a numéraire	i) Two goods economies where one good is a numéraire	X			Neutral on relative prices and quantities
ii) Three or more goods economies where exchange is indirect and a different good performs the first two functions of money (numéraire and medium of exchange), with this good being different for different individuals	ii) Three or more goods economies where exchange is indirect and one good performs the first two functions of money (numéraire and medium of exchange), with this good being the same for different individuals	X	X		Neutral on relative prices (constant average costs) and negligible on relative quantities (output given or stationary economy)
iii) Three or more goods economies where exchange is indirect and a different good performs all the three functions of money with again this good being different for different individuals	iii) Three or more goods economies where exchange is indirect and the same good performs all the three functions of money with again this good being the same for different individuals	X	X	X	Neutrality in the sense of Say's law, existence of money implies a dynamic economy -> uncertainty and expectations

Rosestein Rodan noted however that this traditional conclusion on money neutrality, which allowed the classical authors to develop their argument in terms of a barter economy, concerned only the first two functions of money.

> *" As long as the third monetary function and all it implies is assumed away, the two definitions are identical, the analogous circumstances are obvious but uninteresting. Eliminating the store of value function means assuming away the problem. When however the third monetary function is considered, it becomes far more difficult to analyse precisely what these analogous circumstances are ", (Rosestein-Rodan, 1936, p. 261).*

[10] The paper is for instance quoted by Rist (2002[1951], p. 356 and ibid. footnote 2) and qualified as "important", however, it was probably too old to attract the attention of Patinkin and Steiger, who did not quote it.

The core of his article was thus devoted to the analysis of the consequences of taking into account the function of money as a store of value. In so doing he introduced a further definition of money neutrality in terms of the impossibility of general gluts in the sense of Say:

> *" A third idea of neutral money which was also thought of as identical with the two first ones is implied in J. B. Say's famous theory of gluts. General overproduction is impossible; it is only the veil of money which conceals the fact that "products pay for products ". The criticisms of Sismondi and especially Malthus compelled Say to extend and to try to state more precisely his theory. ... The scope of the theory is very much restricted in the 5th edition, where Say confines the term " product " to a commodity which fetches an equilibrium price, adding that a commodity which fails to cover its cost of production does not merit the name of product. All this theory says is thus restricted to the truism: 'if all goods produced fetched equilibrium prices (or one may add 'if all goods were produced with a correct foresight of their prices ') general overproduction would be impossible.' In other words: 'in equilibrium general overproduction is impossible.' But the idea that Say conveyed, and obviously intended to convey, implied more than that. It was more or less as follows. In a (stationary) barter economy everybody obviously knows the (equilibrium) price. In successive states of equilibrium at successive moments of time, everybody would also know it. In a monetary economy money may conceal this knowledge. But money does not change the fundamental relationships obtaining in a barter economy. If it is only a "veil" then general overproduction is also impossible in a monetary economy.*
> *... The third conception of neutral money here implied is just a statement of conditions of a monetary equilibrium, which have been since characterized by absence of cumulative processes. Say may be thus shown to be a predecessor of Wicksell. The starting point of the analysis from a state of equilibrium obscures the portent of the theory and the meaning of neutral money in the third sense. J. G. Koopmans is mainly concerned with this third conception of neutral money, trying to formulate the (normative) principles of a banking policy which would preserve the 'monetary equilibrium' ". (Rosestein-Rodan, 1936, p. 268-9).*

Say's law is thus taken by Rosestein Rodan as a synonymous for money neutrality in a monetary economy where money plays all its three functions, including that of a store of value, which requires a framework that is properly dynamic:

> *"the assumption of money and static equilibrium at the same time are incompatible. We can deal with money only in a dynamic economy. "*

According to Rosestein-Rodan, Wicksell, Keynes and Hayek failed to achieve the integration of money into a proper dynamic context, for which uncertainty and expectations should have been taken explicitly into account. In the end of the article he made some suggestions in this sense, which however appear today as obsolete.

1.3 Lange 1970 [1942]: Lange (1942) defined Say's law as:

> *"... the proposition that there can be no excess of total supply of commodities (general oversupply) because the total supply of all commodities is identically equal to the total demand for all commodities." Lange 1970 [1942] p. 49.*

Equipped with this definition, he derived a number of interesting propositions associated with the law:

1) Say's law is not only stronger than Walras law (which he defines as meaning that total supply equal total demand, including money), but also stronger than the monetary equilibrium defined by $\Delta M=0$[11], as it implies that the total demand for cash balances must be ***identically equal*** to the money in existence, therefore it implies $\Delta M \equiv 0$. This also means that: "*Purchases of commodities*

[11] Lange poses that the stock of money in existence is equal in value to the aggregate of all the other commodities, therefore money velocity is equal to one. Under this assumption, the money stock remains constant, which appears in itself a more stringent assumption than just that of "no general gluts" of Rosestein Rodan. Lange notes that the condition that cash balances remain constant is equivalent to the "classical" assumption that money performs only a function of *numéraire* and means of exchange.

are never financed from cash balances nor do sales of commodities serve to increase cash balances." (p. 53).

2) By distinguishing between commodities bought by entrepreneurs and commodities sold by entrepreneurs[12], Lange obtains the relation:

$$\left(\Pi - D_{IN}\right) - \left(D_P - S_F\right) \equiv \Delta M - \Delta C$$

where:

Π	=	Total gross profits entrepreneurs plan to receive
D_{IN}	=	Demand for a net increase in the stock of intermediate products (net investment)
D_P	=	Demand for final products
S_F	=	Supply of primary factors
ΔM	$\equiv$	the demand less the supply of money (D_n-S_n) is the total increase in cash balances
ΔC	$\equiv$	is the net demand for direct services (D_s-S_s).

In this relation the first parenthesis on the left hand side represents the net stream of money demanded by entrepreneurs (if negative), which corresponds to net monetary profits (if positive). The second term between parentheses represents the net stream of money offered to entrepreneurs or the monetary savings of households if negative. Lange notes that each of the terms in the identity except ΔM represents an independent set of decisions. The terms in the first parenthesis represent entrepreneurial decisions, and the terms in the second parenthesis represent decisions to buy from entrepreneurs and to sell to entrepreneurs. On the right-hand side the term ΔC represents decisions to sell and to buy direct services. Lange defines the sphere of capitalistic decisions as those transactions that relate to sales to or purchases from the class of entrepreneurs, in other terms the left hand side of the relation. As decisions to buy and sell direct services do not relate to entrepreneurs, Lange defines them as pertaining to the sphere of "non-capitalistic decisions. ΔC is also the difference between the stream of money demanded and the stream of money offered in exchange for direct services, or the demand for increase of cash balances arising in the non-capitalistic sphere of decisions". As ΔM is the total demand for increase of cash balances (relative to the quantity of money available), ΔM - ΔC is the demand for increase of cash balances (relative to the quantity of money) arising in the capitalistic sphere of decisions. Lange then defines a *monetary equilibrium* in the capitalistic sphere of decisions the situation where ΔM - ΔC=0. In this case, Π-D_{IN}=D_P-S_F and the:

> *"... condition which permits entrepreneurs to realize exactly their planned total profit and their demand for new investment is not equivalent to monetary equilibrium for the whole system (ΔM = 0) but to monetary equilibrium in the capitalistic sphere of decisions " (p. 56).*

In this case:

> *" Whatever the total profit and new investment planned by entrepreneurs, the net stream of money offered to them is always such as to enable them to realize their planned profit and new investment, irrespectively of whether there is equilibrium of demand and supply of each separate commodity.* ***Thus total entrepreneurial receipts are, under Say's law identically equal to total***

[12] "Let us distinguish between commodities bought by entrepreneurs and commodities sold by entrepreneurs. We shall call the first 'factors' and the other 'products.' A commodity may be both a factor and a product, or it may be neither. Thus, we get the following four classes of commodities: commodities which are only factors, commodities which are both factors and products, commodities which are only products, and, finally, commodities which are neither factors nor products. We shall call these four classes 'primary factors', 'intermediate products', 'final products', and 'direct services', respectively."

> ***cost plus planned total profit.”****.... " Thus Say's law implies ·the impossibility of a "universal glut" only for a purely capitalistic system." (p. 57)*

In other words, once direct services are neglected in their monetary effects ($\Delta C=0$), i.e. in a pure capitalistic economy, when a monetary equilibrium is achieved ($\Delta M=0$), Say’s law implies both the realization of entrepreneur’s expectations and the equality of investment and savings and it corresponds to a monetary equilibrium in the capitalistic sphere of production where universal gluts are impossible. This equality is an identity in the sense that it holds always under these restrictions. It is reminded that in the classification proposed by Lange, direct services are those commodities that are neither “factors” nor “products”, which means that they are products not bought nor sold by entrepreneurs. They could include for instance services given by a household to another household or presumably the subsistence sector where it exists. Assuming away these products does not seem to imply a particularly strong restriction, therefore, in the following, Say’s law is also taken to mean that the savings-investment identity holds.

3) However Say's law does not imply that the total demand and the total supply of products are identically equal. Neither does it imply an identity of the total demand and the total supply of primary factors and direct services:

> *" The total supply of primary factors and direct services may, [therefore,] differ from the total demand for primary factors and direct services. Similarly, the total demand for products may differ from the total supply of products. Neither of the two discrepancies is precluded by Say's law." (p.58)*

Lange also notes that while, when Say’s law holds, an excess supply of factors corresponds to an excess demand of products and vice versa and that therefore equilibrium tends to be restored, this is not true when Say’s law does not hold. In such a case an excess supply of products may coexist with an excess supply of factors and direct services, and vice versa, as long as $\Delta M>0$.

> *“In this case there is no direct tendency to restore equilibrium through the simple mechanism of exchange between primary factors and direct services on one side and products on the other side. Equilibrium can be restored only through abatement of the desire to increase cash balances relative to the quantity of money. This will happen only if the fall in prices resulting from the excess supply tends to make $\Delta M=0$. We may say that in such cases the conditions for a stable 'monetary equilibrium are satisfied. Otherwise there is no tendency to reach an equilibrium”. (p. 59)*

4) *"... when Say's law holds, the equilibrium prices are indeterminate" and " the demand and supply functions of commodities are, when Say's law holds, homogeneous of zero degree, a proportional change of all prices does not affect the quantities demanded or offered. These quantities depend merely on the relative prices, i.e. on the ratios of the prices" (p. 63) ... " it is possible to determine the equilibrium values of the relative prices, i.e., of the ratios of the money prices, of commodities. The money prices, ·however, remain indeterminate." (p. 64)*

5) *" **Under Say's law the relative prices of commodities are found to be independent of the quantity of money in the system**. Money is "neutral," or, to use the phrase of the classical economists, it is merely a "veil" which can be removed and relative prices can be studied as if the system were based on barter. Indeed, by precluding the substitution of money for commodities or vice versa, Say's law constructs a system which is equivalent to a barter economy. Money in such a system is merely a worthless medium of exchange and a standard of value." p. 64) " Either Say's law is assumed and money prices are indeterminate or money prices are made determinate - but then Say's law and hence the "neutrality" of money must be abandoned. Say's law precludes any monetary theory. ... **The theory of money must, therefore, start with a rejection of Say's law**." (p.66)*

6) *" In the dynamic theory of prices Say's law implies thus, in addition to homogeneity of the demand and supply functions of commodities, homogeneous expectation functions. This*

> *additional assumption makes Say's law much more unrealistic in the context of a dynamic theory of prices than it is ill the context of static theory. Both in static and in dynamic theory Say's law leaves money prices indeterminate." (p.68)*

Although not always quoted, this remarkable paper, probably one of the best Lange has ever written, was influential on the subsequent literature, and notably on the frequently referenced work of Baumol and Becker (1952).

Kates (2009) drew on Clower and Leijonhufvud 1984 [1973] to criticize Lange's systematization, notably because, like that of Becker and Baumol, it does not refer to Keynes. One may note in this respect that Clower and Leijonhufvud 1984 [1973] reasoned exclusively in terms of a general equilibrium model of pure exchange, which is intrinsically static by definition. Perhaps for this reason, these authors did not talk about *Say's law*, but about *Say's principle*. One may also note that Clower and Leijonhufvud's interpretation of Keynes has been rejected by Barrère (1977) and Parguez (1981c) on grounds that appear correct to the author. For the purposes of the present paper, Lange's contribution is thus useful in clarifying the concepts, and using them to develop the argument in order to contrast Hayek's and Keynes' approaches on Say's law.

1.4 Patinkin 1989 [1965]: Patinkin (1965) developed a critique and a correction of neo-classical monetary economics to integrate and generalise the Pigou's effect. This defined the course for much of what became later the "*neoclassical synthesis*" in the influential variant developed by the Chicago School in the ninety fifties and sixties and that strongly influenced also neo-Keynesian economics in general.

Patinkin's starting point is the critique of the neoclassical theory of money for its lack of determination of nominal prices. In the absence of the corrective action of the real balance effect, defined as the effect on relative prices of a change in the real money balances (money held deflated by the price index), the walrasian system can only determine relative prices and in fact fails to determine the nominal money stock, the interest rate and the general price level by the quantity theory of money, that regulates the monetary side of an economy where the full dichotomy between real and nominal variables prevails. For Patinkin, the real money balance effect saves the logical integrity of the neoclassical money theory by eliminating the homogeneity postulate. In developing his argument, Patinkin draws heavily on what, following Becker and Baumol, he calls *Say's Identity*, but in a definition that coincides largely with that given to it by Lange[13]:

> *"Following Lange, we define Say's Identity as stating that—regardless of the prices and interest with which they are confronted—individuals always plan to use all of their proceeds from the sale of commodities and bonds for the purpose of purchasing other commodities and bonds. In other words, they never plan to change the amount of money they hold: its amount of excess demand is identically zero. In still other words—and as a direct consequence of the budget restraint—the aggregate value of the amounts of excess supply of commodities must always equal the value of the amount of demand for bonds: people divert any reduced expenditures on commodities to the purchase of bonds, never to the building up of money balances. It can readily be seen that this assumption implies that equilibrium money prices are indeterminate." (Patinkin, 1989 [1965], p. 193)*

It is precisely the indeterminacy of equilibrium money prices that is important, as it ultimately implies a barter economy in which Say's law always holds in the absence of real balance effects:

> *" ... Say's law is inconsistent with the existence of a money economy with determinate prices. But this is the only type of money economy that has any economic meaning. Hence we can say that the existence of Say's identity implies the existence of a barter economy. Conversely, the existence of a barter economy implies the existence of Say's identity"..."With this we have also said all that need to be said for our purpose about*

[13] In Lange Say's law is $\Delta M \equiv 0$, rather than $\Delta M=0$, which would be a monetary equilibrium condition. However while Lange talks about "Say's Law", although he defines it as an identity, Becker and Baumol have stressed the distinction between *Say's Identity* and *Say's Equality*, the latter being the equilibrium condition.

a barter economy. Such an economy is the home - the necessary and only home - of the 'homogeneity postulate' and Say's identity. For in such an economy it is physically impossible to " sell" one commodity or bond without " buying" another; thus Say's Identity in this economy is nothing but a statement of the budget restraint. In other words, people never plan to change their level of money balances in a barter economy, because, by definition, such balances are always zero. Let us now return for a moment to the 'homogeneity postulate.' As was demonstrated above, this postulate implies the absence of a real-balance effect and the consequent indeterminacy of money prices.

By the same argument as in the preceding paragraph, we can then say that the existence of the 'homogeneity postulate' implies the existence of a barter economy. Conversely, the existence of a barter economy implies the existence of the 'homogeneity postulate.' For in such an economy there are no money holdings, the " absolute price level" has no meaning, and hence there can be no real-balance effect. Thus, contrary to the accepted opinion, Say's Identity and the 'homogeneity postulate' are logically equivalent properties: both are necessarily present in a barter economy; both are necessarily absent from a money economy. Thus the existence of the one implies the coexistence of the other.

With this we have also said all that need be said for our purpose about a barter economy. Such an economy is the home—the necessary and only home—of the 'homogeneity postulate' and Say's Identity.

Prices in this economy can be measured either in terms of one of the commodities or—as in a Wicksellian 'pure credit economy'—in terms of an abstract unit of account. Thus, at most, only relative and accounting prices are defined. The former are determined by the workings of market forces, the latter—as always—by arbitrary decree. Money prices not even being defined, their determinacy or indeterminacy cannot be meaningfully discussed." (Patinkin, 1989 [1965], pp. 194-195)

For Patinkin, Say's Law is thus an identity that holds in a barter economy, where there is no balance effect and the homogeneity postulate prevails. For him, introducing a real balance effect allows to avoid an inconsistency in the neoclassical monetary theory that assumes complete dichotomy between the real and the monetary sector at the price of leaving the general price level indeterminate. With the real balance effect this complete dichotomy is removed and the general price level can be determined.

Following the systematization given by Lange, Patinkin thus takes Walras law as of a more general nature than Say's law. The former can hold as an identity in a monetary economy, while the domain of validity of the latter is the barter economy.

This conclusion is however not justified, as proven first by Parguez (1969), who shows that Patinkin's conclusions only apply to an economy of pure exchange, and cannot be extended to an economy of production, and later by Parguez (1975), who shows that the interpretative value of both Patinkin's (and Friedman's) model and that of Pesek and Saving (1967), despite pretending to be both fully monetary and to integrate the transaction role of money, reduce in fact to that of the barter economy already analyzed by Koopmans (2007 [1933]), notably because they must assume a given stock of exogenous money whose origin is left unexplained.

"Il ressort de la première partie de ce titre que la monnaie ne joue, en définitive, aucun rôle dans la théorie néo-classique ... A contrario, les conditions de l'intégration de la monnaie sont:

1) *La finalité de la théorie ne doit plus une simple étude formelle des conditions d'équilibre et l'explication économique du tâtonnement walrasien.*
2) *La monnaie ne doit pas être traitée comme un bien.*
3) *Le cadre formel de l'équilibre général doit être rejeté et, avec lui, la condition d'équilibre entre l'offre et la demande de monnaie" (Parguez, 1975, p. 64)*

Thus, for Parguez (1975), in order to integrate money in economic theory in a meaningful way, one does not have to reject Say's law, as argued by Patinkin, but Walras' law. This conclusion, which appears rather revolutionary, is in fact already implicit in Hahn (1965), Graziani (1965), Schmitt (([1966] 1975) or even Demaria (1967). It is not necessarily in contradiction with maintaining a certain role for Say's law, as shown by the work of Schmitt examined in the next paragraph.

1.5 Schmitt 1960 and 1971: Drawing on Samuelson (1941), who defined three meaning's of Say's law: a) identity between supply and demand; b) impossibility to destroy purchasing power once created; and, c) impossibility of unemployment in a world where prices are flexible, Schmitt (1971) elaborated on his previous writings on Say's law (Schmitt, 1960) to established a clear distinction between "*grandeurs réalisées*" and "*grandeurs attendues*". In the first case supply determines demand: revenues created are spent. In the second case demand determines supply. It is because demand is expected at some level, that producer establish supply at that level. In both cases the multiplier of investment (where investment comprises, like for the classics, also wages), is equal to 1.

The distinction introduced by Schmitt can be applied to the question of the causality between savings and investment, which is indeed, the key question at the root of the differences between Hayek and Keynes views on macroeconomics. As it will be developed below, Hayek offers a complex but relatively consistent framework implying that savings determine investment, whereas Keynes contribution, although it is possibly less internally consistent, can be corrected with the help of the literature on the circuit developed by Schmitt, Parguez and Graziani, and it explains why in a monetary economy there can be no doubt that it is investment which causes savings.

2. Hayek's position

Hayek gave important contributions to economics, but also to social sciences in general and their methodology. In one of its first writings (Hayek, 1928, further developed in Hayek, 1937), he gave a seminal contribution to intertemporal general equilibrium theory, which puts him amongst the founders of this literature, together with Lindahl (1928 and 1930) and Hicks (1933 and 1939). These authors rediscovered the concept of instantaneous equilibrium of Walras and Pareto in an attempt to escape from the stationarity assumption that was retained by much of the Walrasian and Paretian literatures of their time (see Donzelli, 1988, p. 32, footnote 31).[14]

In *Value and Capital* Hicks tried to combine the Austrian view that general equilibrium must be enshrined in historical time, with the idea of intertemporal equilibrium by developing the concept of a "temporary equilibrium" and defining the conditions that allow the latter to coincide with the former. Hicks defines the temporary equilibrium as implying the equality of demand and supply on the "spot markets", i.e. the markets for goods and services produced and consumed during the current period. If it is accepted that "temporary" market clearing only applies to demand and supply for current goods, at the exclusion of capital goods, then only when expectations are correct would the prices prevailing on this *temporary equilibrium path* (Hicks' 1939, *spot economy*) coincide with those guaranteeing *equilibrium over time*[1] (Hicks' 1939 *futures economy*), which is sometimes called by Hicks "perfect equilibrium" and coincides with the notion of intertemporal equilibrium of Hayek, which was later systematized by Arrow, Mc Kenzie and Debreu. Hicks' (1939) temporary equilibrium, also the starting point for Samuelson (1947) and the neoclassical developments that followed, is already anticipated in Hayek's (1928) paper and, indeed, this is not a coincidence since Hicks was a student of Hayek at the London School of Economics, together with other members of "Robbins' circle" such as Kaldor and Lerner[15].

Also in a temporary equilibrium context, Say's law can be defined as meaning that, in an exchange economy, as that retained by Patinkin (1948, 1965) and Grandmont (1983), where fiat money is the only exogenous asset: "*the value of aggregate excess demand* $p\ \Sigma_a z_a(p)=0$ *is zero for every price system p*", where a is the index representing the consumers, z is the vector representing excess demands and p is the price vector (Grandmont, 1983, p. 10). In the same economy, Walras law implies that: "*the aggregate demand for money be equal to the amount of money in circulation*" (idem, p. 11). However interesting to

[14] Their approach is one of a sequential equilibrium that can be followed in different points in time. Since Hayek assumes that there are no errors in expectations, his concept of "intertemporal equilibrium" is also an instantaneous or temporary equilibrium.
[15] Robbins invited Hayek to join the London School of Economics to counter the influence of Keynes (Robinson, 1972, 2, quoted in Mendell and Polany (1989, p. 180)

clarify the difference between Say's and Walras' laws in Walrasian models, these definitions, largely equivalent to those of Lange, apply however to a standard instantaneous equilibrium where new capital goods are not distinguished from the ones already in existence, and each period represents thus a closed episode in "a world where history starts again from zero at every period" (Graziani, 1965, p. 67). They do not add much to the analysis of Lange quoted above.

As he maintained himself, despite the wide range of subjects he touched, there is a fundamental unity and overall consistency in Hayek's works. This can be found in the constant reference to a concept of natural "market equilibrium", which became later a "social order", which he inherited from his Austrian education. He saw this order as desirable and inherently stable and he feared it could be threatened by Keynesian policies and, worse for him but in the same vein, by socialism. As noted by Mendell and Polanyi-Levitt (1989), this fear can be traced back to the years of his education in Vienna, where he participated to Mises' private seminar, established to counter the then overwhelming intellectual influence of social-democratic and other left-wing forces in the country at the time.

In line with the Austrian tradition, Hayek recognized that the economy was almost always out of equilibrium in historical time, but assumed that this was a temporary position and could persist only because of wrong policies, in the absence of which, the natural order would be re-established. This convergence to equilibrium was simply assumed to come from the permanent search of equilibrium by optimizing agents playing freely of the market, seen as a discovery process. His politically libertarian positions were for him naturally associated with his strongly anti-Keynesian views in economic policy, particularly in the monetary field, where he went as far as advocating the de-nationalisation of money and the competition between currencies.

As mentioned above, in his economic writings Hayek started from a personal version of Walras general equilibrium that, in line with the Austrian tradition, he enshrined in historical time and that, even after he came to criticize Walrasian analysis, he kept as a reference for the spontaneous order permanently rediscovered by competition in a free market economy. In his writings Hayek almost never quoted Say's Law explicitly, except in *Prices and Production*, where he clearly associates the Law to a non-monetary equilibrium:

> *" In the case of our ideal position of equilibrium, which we construct as a guide to interpretation, and in which all parts are assumed to be perfectly matched, ... analysis in real terms is not only in place, but is almost essential. Since at each point money is in the strictest sense only an intermediary between definite quantities of certain goods, all the essential relations in this system are relations between goods (rates of substitution between certain quantities of goods determined by the total quantities of these goods). Or, in other words, it will be true of this system - what has sometimes been asserted to be true in the real world - that the total supply of goods and the total demand for goods must be identical. (This so-called " Law of Markets" of J. B. Say is indeed one of the first formulations of the modern concept of equilibrium.) ", Hayek 2009 [1941], p . 32.*

At the same time, shortly before, he clearly indicates that any causal analysis must be made in monetary terms:

> *"where analysis aims directly at a causal explanation of the economic process as it proceeds in time, the use of the conception of a moneyless exchange economy is misplaced. It is self-contradictory to discuss a process which admittedly could not take place without money, and at the same time to assume that money is absent or has no effect.", Hayek 2009 [1941], p . 31.*

Parguez (2013, p. 57) has shown that the economic system of Hayek is based on an exogenous rate of interest that reflects the pure rate of time preference of consumers. The rate of interest determines the allocation of demand between consumption and savings. This "consumption norm" (Parguez, 1981b) reflects the intertemporal equilibrium, which concerns both a flow condition (investment=savings) and a stock condition by which the sectoral composition of the capital stock reflects correctly the temporal composition of demand (Graziani, 1996). As in Hayek's (1928), only variations in the quantity of money can

prevent the economy to reach this equilibrium, because a change in the quantity of money modifies relative prices and therefore prevent the attainment of the stock equilibrium condition (Graziani, ibid.). In this equilibrium, the rate of profit adjusts to the rate of interest, which corresponds to the expression of Say's law in a monetary economy[16].

One can note that, within the assumptions that Hayek retains, his system is consistent. Within the "classical" assumptions of his Austrian theory of capital, savings actually determine investment. In particular: in line with his vision of intertemporal equilibrium, the latter requires both a flow (I=S) and a stock condition to be fulfilled (K=K*). Under these assumptions, unless the quantity of money remains constant, relative prices will be distorted and therefore the composition of capital will not the one consistent with the exogenous intertemporal preferences. As shown by Graziani (1995), the exogenous quantity of money can in fact be accommodated with by a variant of Wicksell's model where traders are introduced alongside with banks and entrepreneurs. In such case deposits create loans. In addition, as wages are supposed to be paid in advance, it is possible for the capitalist to pay them out of the previous period's savings, thus investment determines savings. Indeed, for Hayek, like for all classical economists, capitalist investment is made of wages. Finally, because for Hayek the only role of banks is that of lending accumulated deposits (deposits create loans), the model can be assumed to be stable and a form of Say's law is always holding. This implies that any excess of investment over savings is compensated sooner or later by a downward reduction in the price of capital goods. Therefore Hayek assumes an intertemporal equilibrium concept that is stable by construction. For Hayek, out of this equilibrium, the causality runs from savings to investment.

However, as noted also by Parguez, there is nowhere a demonstration of why the assumptions that guarantee stability (essentially the fact that by definition Say's law, taken as an expression of money neutrality, almost always applies) are justified. One may guess that, given the following development of Hayek's thought in the direction of information and knowledge after 1941, the assumed stability comes from a process of learning out of equilibrium. However, while this process is not described in Hayek (apart from when it is implicit in the assumption that the relative price of capital goods always evolves in the direction opposite to that of the price of consumption goods out of equilibrium), applying this conceptual apparatus to economic policy is an act of faith. As shown by the recent literature on learning out of equilibrium, this act of faith is far from having solid rational bases (Evans and Honkapohja, 2001; Guesnerie and Rochet, 1993; Guesnerie, 2001, 2005, 2013).

Moreover, and perhaps more importantly, to the extent that, as shown by Graziani (1996), Hayek retains de facto the average period of production typical of the long-period traditional approach to general equilibrium, his overall theory falls with the capital critique of Garegnani (see Petri, 2004, 2011 and 2013 for an updated account). In substance the latter shows that, given that it is impossible to measure the stock of capital independently from the interest rate, it is also not possible to assume a negative relationship between the demand for capital and the interest rate. Therefore the main mechanism that, in the long-period version of the neoclassical model, which, as discussed, is retained also by Hayek, brings the economy back to equilibrium cannot be assumed to be operational (see also Roncaglia, 2009). It follows that, despite its overall internal consistency, Hayek's model, which assumes de facto that Say's laws applies or should always apply, is unrealistic, because the intertemporal equilibrium it assumes as a reference is unlikely not only to be ever reached, but also to be simply approached.

3. Keynes' view

Keynes mentions Say's law right from the start of the General Theory:

> *"Let Z be the aggregate supply price of the output from employing N men, the relationship between Z and N being written Z = ϕ(N), which can be called the aggregate supply function. Similarly, let D be the proceeds*

[16] The author is grateful to Alain Parguez for drawing his attention on this important point.

which entrepreneurs expect to receive from the employment of N men, the relationship between D and N being written D = f(N), which can be called the aggregate demand function.

Now if for a given value of N the expected proceeds are greater than the aggregate supply price, i.e. if D is greater than Z, there will be an incentive to entrepreneurs to increase employment beyond N and, if necessary, to raise costs by competing with one another for the factors of production, up to the value of N for which Z has become equal to D. Thus the volume of employment is given by the point of intersection between the aggregate demand function and the aggregate supply function; for it is at this point that the entrepreneurs' expectation of profits will be maximised. The value of D at the point of the aggregate demand function, where it is intersected by the aggregate supply function, will be called the effective demand. Since this is the substance of the General Theory of Employment, which it will be our object to expound, the succeeding chapters will be largely occupied with examining the various factors upon which these two functions depend.

The classical doctrine, on the other hand, which used to be expressed categorically in the statement that 'Supply creates its own Demand' and continues to underlie all orthodox economic theory, involves a special assumption as to the relationship between these two functions. For 'Supply creates its own Demand' must mean that f(N) and ϕ(N) are equal for all values *of N, i.e. for all levels of output and employment; and that when there is an increase in Z(= ϕ(N)) corresponding to an increase in N, D(= f(N)) necessarily increases by the same amount as Z. The classical theory assumes, in other words, that the aggregate demand price (or proceeds) always accommodates itself to the aggregate supply price; so that, whatever the value of N may be, the proceeds D assume a value equal to the aggregate supply price Z which corresponds to N. That is to say, effective demand, instead of having a unique equilibrium value, is an infinite range of values all equally admissible; and the amount of employment is indeterminate except in so far as the marginal disutility of labour sets an upper limit.*

If this were true, competition between entrepreneurs would always lead to an expansion of employment up to the point at which the supply of output as a whole ceases to be elastic, i.e. where a further increase in the value of the effective demand will no longer be accompanied by any increase in output. Evidently this amounts to the same thing as full employment. In the previous chapter we have given a definition of full employment in terms of the behaviour of labour. An alternative, though equivalent, criterion is that at which we have now arrived, namely a situation in which aggregate employment is inelastic in response to an increase in the effective demand for its output. Thus Say's law, that the aggregate demand price of output as a whole is equal to its aggregate supply price for all volumes of output, is equivalent to the proposition that there is no obstacle to full employment. If, however, this is not the true law relating the aggregate demand and supply functions, there is a vitally important chapter of economic theory which remains to be written and without which all discussions concerning the volume of aggregate employment are futile." (Keynes, 2013 [1936], pp. 25-26)

As noted by Costa (1979), whatever the meaning of Keynes's concept of effective demand is, it is clear that the version of Say's law used by Keynes is not that of Lange. However, as it is clear from the previous quote, this author cannot be followed when he argues that Keynes version of Say's law coincides with effective demand.

In fact Keynes attacked a version of Say's law that was associated with full employment under conditions of competition and that was neither that of Say himself nor that of "the classical" economists, but Pigou (1927 and 1933)'s version of the classical doctrine, as Pigou's was Keynes' rival disciple of Marshall in Cambridge.

As shown by Roncaglia and Tonveronachi (1985) and in Roncaglia (2013), Pigou's model can be summarized in three equations in which the quantity of money is exogenous and, with constant velocity of circulation, money supply determines income. The real wage is equal to the marginal productivity of capital. The model is completed with a production function in which output is a function of employment and where the marginal productivity of labour is decreasing. Thanks to the properties of the "neoclassical" production function, nominal wage flexibility in the presence of unemployment is sufficient to guarantee the tendency to full employment given the money supply. Alternatively, with a fixed nominal wage,

equilibrium can be reached through an expansion of the money supply that increases prices and thus decreases the real wage.

With respect to the “classical” model of Say, Ricardo and Marx, the new element in Pigou is thus the “neoclassical” production function coupled with the idea that real wages establish themselves at the level of the marginal productivity of labour. With constant money supply, this allows to reach also full employment, in addition to the previously reviewed results of Say’s law, according to which entrepreneurs realize their profit expectations, work at full capacity, etc., which continue to hold. Roncaglia and Tonvernachi (1985) have first shown that this “pre-Keynesian” classical model of Say fully corresponds to the model of the neoclassical synthesis as developed by Pigou after the publication of the General Theory and by Modigliani in his celebrated 1944 article: real wage flexibility allows to obtain full employment.

However Keynes model was different both from Pigou's “classical inspired” analysis and from the neo-classical synthesis of IS-LM. In Keynes’ model the role played by credit money is crucial. As noted by Sardoni, it was in fact Marx who, for the first time, based the rejection of Ricardo's version of Say's law on the fact that he retained a barter economy:

> *" The only circumstance which could prevent overproduction in all industries simultaneously is … the fact that commodity exchanges against commodity – i.e. recourse is taken to the supposed conditions of barter. But this loophole is blocked by the very fact that trade (under capitalist conditions) is not barter, and, that therefore the seller of a commodity is not necessarily at the same time the buyer of another. This whole subterfuge then rests on abstracting from money and from the fact that we are not concerned with the exchange of products, but with the circulation of commodities, an essential part of which is the separation of purchase and sale. (Marx, 1968, pp. 532-3) quoted in Sardoni (2009, p. 13)"*

As developed in Sardoni (2009), if one accepts the idea that Marx and the classical economists assumed an L shaped average cost curve, it is easy to see why they could think that Say's law implies that productive capacity is always fully used, while unemployment could still persist. In fact, for Marx the "reserve army" of the unemployed was the main regulatory variable over the business cycle. Only during the crisis periods of capitalism one could talk about a "general glut" or, in Keynesian jargon, of a problem of effective demand.

Keynes, on the contrary, assumed a rising marginal cost curve and, although this is not crucial for the argument developed here, his explanation for the existence of equilibrium unemployment was not entirely consistent with the assumption he retained of competitive market structures, which was incidentally analogous to that of Marx, apart from short-term effects. In this Sardoni (2009) retains the point already made by Sylos Labini (1956) that, apart from short-term effects, the Keynesian multiplier and thus the related theory of effective demand, can only hold under non-competitive market conditions.

What is more important to understand in Keynes is how the interaction of production and money, in a world where fundamental uncertainty prevails in the long-run, can determine an equilibrium level of unemployment. As rightly argued by Keynes, this is only possible in his model if the conditions for Say’s law are violated, in other words if, contrary to the classical assumptions retained from Say to Ricardo and received by Hayek, money in not neutral.

The theory of the monetary circuit developed by Schmitt, Parguez and Graziani gave a consistent description of how this chain of causes and effects can play together and interact. Although there are more recent accounts, it is often useful to make reference to the initial contributions, because the authors that tackle a problem for the first time give a general overview of the problem that is lost in the following contributions and are thus easier to understand. The latter take for given a number of considerations and assumptions that are far from obvious for those that approach the literature for the first time.

As noted by Parguez (1981c), Keynes' message was distorted by three successive counter-revolutions: the first by Hicks and Samuelson, in the name of the general equilibrium; the second by Clower and Leijonhufvud, in the name of the micro-economic foundations of macroeconomics; and the third by Morishima, in the name of a strict return to Walras.

> *"Le coeur de la Théorie générale est la théorie du revenu des chapitres 6 et 7. Keynes y raisonne non pas en termes de marchés mais de circuit. Celui-ci est défini par une propriété qui s'impose à tous les agents sans aucun fondement micro-économique : pour tout niveau du revenu, l'épargne formée par la société est obligatoirement égale à la dépense d'investissements, car il s'agit du même phénomène, la dépense de capital saisie à deux moments différents du circuit." (Parguez, 1981c, p. 175)*
> *… "Le circuit s'achève donc lorsque la dépense de capital a produit tous ses effets : maintien de la valeur du capital, formation du profit global qui couvre le paiement définitif des moyens de production et justifie (si les anticipations sont réalisées) la dépense initiale. " (Parguez, 1981c, p. 176)*

In this circuit representation of the economy, it is clear that the Say's law does not hold:

> *"Keynes représente une économie qui ne peut exister que grâce à la monnaie de crédit. La monnaie de crédit et le mode de production capitaliste sont logiquement indissociables. La théorie du circuit du capital n'a de sens que si la dépense — impulsion du circuit — est celle d'un capital avancé qui ne provient d'aucune vente préalable. Si les entreprises peuvent dépenser — créer le pouvoir d'achat disponible — sans vendre, c'est que la loi de Say est fausse." (Parguez, 1981c, p. 184)*

Keynes' disequilibrium is not the one of the rigid price literature:

> *"L'économie monétaire de Keynes n'est pas compatible avec la théorie de la valeur, car ce n'est pas une économie de l'équilibre. La théorie des anticipations et son corollaire la théorie de la spéculation donnent une représentation où ne peuvent exister ni un équilibre au sens de Walras, ni un équilibre au sens de Hayek (coordination des plans), ni un circuit réel au sens de Sraffa. L'économie de Keynes est affectée de deux types de « déséquilibres », ou plutôt de contradictions:*
> - *Les unes concernent les rapports entre les groupes d'agents qui correspondent aux différentes fonctions mises en jeu par le circuit. D'abord au rapport Entreprises- Ménages correspond la contradiction entre le niveau rentable de l'emploi fixé par les anticipations et le niveau social qui procure, vu le niveau du salaire, le revenu qui achèterait les moyens de consommation rentrant dans la norme . Cette contradiction se résout par le chômage qui vient de ce que - dans le capitalisme vu par Keynes - les entreprises sont amenées à retenir des niveaux d'emploi trop bas pour employer toute la force de travail demandant un revenu." …*
> - *" Les autres concernent les rapports à l'intérieur du groupe des entreprises, les conflits entre anticipations, l'incompatibilité irréductible entre les projections du circuit. Conflits qui sont la marque de la concurrence dans une véritable économie monétaire" (Parguez, 1981c, p. 184-185)*

As a consequence, Keynes explanation of the crisis is also different:

> *"Les crises n'ont aucune place dans les modèles de déséquilibre qui ne font apparaître que des états stables."… "La crise, c'est la rupture de la ligne antérieure d'évolution de l'économie; elle se traduit par une baisse de l'emploi, par une baisse du niveau d'utilisation des ressources. Cette crise ne peut trouver son origine que dans la dépense génératrice, et donc dans les anticipations des entreprises. Celles-ci provoquent la crise : 1) quand elles font apparaître une baisse brutale de la dépense nette en capital; 2) quand celle-ci, quel que soit le taux de salaire, ne permet plus que d'employer de manière rentable une main-d'oeuvre de plus en plus faible." (Parguez, 1981c, p. 185-186)*

Finally, one must also recognise that Keynes' argument is not necessarily fully developed in his writings and may require some reworking:

> *"Que Keynes ait développé tous ces aspects de sa révolution, non! Trop souvent, il ne peut exprimer ses découvertes que dans un langage qui est celui de l'économie dominante. Ces découvertes ne sont esquissées, que trop souvent; il en est ainsi de la théorie du capital, de la distinction entre les dépenses qui en maintiennent la valeur et celles qui l'accroissent. Etre keynésien ce n'est pas faire une talmudique lecture*

de Keynes. Etre keynésien, c'est reprendre la révolution où Keynes la laisse, prolonger ses découvertes, les articuler dans une représentation cohérente." (Parguez, 1981c, p. 186)

4. Conclusions: Implications for the current policy debate

The discussion of Say's law developed in this paper showed that Hayek almost never quoted it explicitly, although he developed the notion of *neutral money* that the subsequent literature, following his colleague Lange and his student Patinkin at Chicago, showed to be equivalent to a condition of constant cash balances that is consistent with a definition of Say's law itself compatible with Walras law and general equilibrium. The latter, to which Hayek gave seminal contributions, remained as a reference in all of his work, where it plays the role of a natural attractor, without that the stability process by which this equilibrium is ever made explicit nor demonstrated. The fact that for Patinkin the stabilizing factor was to be found in Pigou's real balance effect, does not mean that Hayek necessarily agreed, as in fact he really never showed why he assumed that the general equilibrium to be stable, save for generic references to the learning dimension of market competitive processes. On the contrary his student Hicks, after having built the conceptual foundations of the neoclassical synthesis of the neo-Keynesian variety in the celebrated *Value and Capital* (1939) around the necessary correspondence between intertemporal static general equilibrium theory and the temporary equilibria prevailing in historical time, had to abandon the project because of its logical inconsistencies and gave a completely different direction to its investigations in economic dynamics, finally rejecting his own very successful creature: the IS-LM model itself.

Keynes attacked a version of Say's law that has nothing to do with the one developed by Lange, itself consistent with general equilibrium and Walras law and thus compatible with Hayek's theoretical inclinations. This should not be surprising, since Keynes approach is incompatible with Walras law expressed in monetary terms and *a fortiori* with Walras law as holding in a barter economy and/or the associated concept of Say's law developed after Lange and Patinkin.

There are thus fundamental analytical differences between Hayek and Keynes' analysis of Say's law. By and large one can say that, for Hayek, Say's law should hold continuously (it is a natural attractor), for Keynes it does not need to ever hold. One could thus say that, apart form other differences, Hayek's takes Say's law as an identity and Keynes, contrary to Sowell's interpretation, as an equilibrium condition. Policy recommendations deriving from their use of Say's law are opposite for the two authors.

For Hayek, savings determine investment; therefore the only way to increase wealth is to increase savings. Hayek provides in fact the only serious intellectual justification for austerity policies: if you want to grow, save. For Keynes it is the contrary: investment determines savings, if you want to grow you should invest. Austerity policies, devised to increase savings, will not generate additional wealth, but increase unemployment and feed rentiers' income.

More generally, Hayek analysis, albeit being allegedly monetary, takes as a reference the optimality of a "real exchange economy". Money is perceived as a disturbing factor able to distort the optimality prevailing naturally in the market. Ideally money should be constant. Therefore money creation should be taken out of the hands of the State: it should be denationalized. The State itself should be abolished or reduced to its minimum terms. Currencies should be allowed to compete with each other, an idea that one can sometimes find also in the original writings of Say. However, at the same time, the identification of Say's law with money neutrality, which is seen as having all the advantages of barter economies' general equilibrium, is not necessarily consistent with Say's vision as a classical economist. It is indeed paradoxical to invoke Say's law to justify austerity, as Say himself, reasoning in a classical framework, only wanted to show that scarcity is not a problem: it is always possible to reach whatever level of demand is consistent with the decisions of income creation taken by suppliers.

Although Hayek's austerity reading of Say's law is internally consistent, it is not relevant to interpret reality, because in a monetary production economy investment cannot but cause savings, as loans cannot but make deposits. Hayek's policy recommendations are thus likely to generate effects that are contrary to those expected. It should therefore not be surprising that austerity policies fail.

One could perceive an Hayekian/Sayian logic in the way that Euro was built, even if this was probably not there, or at least not for the great majority of European federalists that worked on the development of the Monetary Union. This lies in the fact that with the Euro the monopoly of new money creation is taken out from national governments and given to an independent institution, which can only respond to the endogenous requests of the private sector, therefore obtaining the result of privatizing the facto the natural monopoly per excellence which is that of monetary base creation (Parguez, 1999), at least until mechanisms are created for external money creation at federal level.

Thus, an obvious policy suggestion that derives from the present analysis is that, rather than denationalizing and privatizing money by forbidding the financing of the national deficits while there is no way to create a federal deficit in the absence of Political Union, one should "nationalize" the Euro at federal level, by promoting growth with active fiscal policies based on increased public expenditure coordinated at continental level. In a transitional phase where there is not yet a true federal budget, these would allow to create a European federal deficit that appears as a necessary condition for Europe to regain active control over the cycle.

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