**ESSENTIALITY *VERSUS* NEUTRALITY OF MONEY IN THE *SRAFFA PAPERS***

Ghislain Deleplace, University Paris 8 – LED

 Since the publication of *Production of commodities by means of commodities* in 1960 (hereafter *PCMC*), there has been much debate about the nature of prices in the Sraffa system. Some authors have argued that they were only a special case of walrasian equilibrium prices, while others insisted that, reflecting the conditions of the production of commodities and the state of distribution, they had a specificity which went back to the old Classical surplus approach. Little attention has been however devoted to one particular aspect of such prices: their real or monetary character. As is well known, modern walrasian equilibrium prices are real prices, since their determination depends on forces which can be understood regardless of any assumption about money. Although the theory is supposed to be dealing with a monetary economy, money is then considered as neutral in respect to the determination of relative prices: whatever the way money is or is not “integrated”, the equilibrium price system remains unaffected. Then the question arises of whether it is the same with the Sraffa system, i.e. whether money should also be considered as neutral in respect to the determination of relative prices. The object of the article is an enquiry about what may be learnt on that question from the *Sraffa Papers* (*SP*)[[1]](#footnote-1).

 A central issue of the article is the distinction between the question of the essentiality and the question of the neutrality of money. Hence I first use the drafts of *PCMC* to consider the question of the essentiality of money in relation to the two candidates for a role of money in the determination of prices: *via* the rate of profits as the independent distributive variable and *via* the standard commodity in which prices are measured (section 1). In section 2, I concentrate on the unpublished notes written by Sraffa for his 1932 article against Hayek, where Sraffa discusses the relation between money and equilibrium and criticizes the “subjective point of view” on money. This leads in section 3 to the analysis of Sraffa’s position about hoarding, against Hayek and also the Keynes of *General Theory*. Section 4 stresses Sraffa’s insistence on money as the standard of deferred payments, which belongs to institutional “constants”. Section 5 concludes by suggesting that, in Sraffa’s two-tier approach to money, the essentiality of money is not exempt from an ambiguity which is nevertheless consistent with Sraffa’s project to separate, in the determination of the system of prices, what is “natural” from what is “institutional”.

**1. Money in the drafts of *Production of Commodities*[[2]](#footnote-2)**

***1.1. The link between money and the******rate of profits***

The word “money” appears only once in *PCMC*, in the famous § 44 on the independent variable: “It [the rate of profits] is accordingly susceptible of being determined from outside the system of production, in particular by the level of the money rates of interest” (Sraffa, 1960: 33). This causal determination of the rate of profits by the money rates of interest has been interpreted by several authors as a proof of Sraffa’s concern with the relation between money and distribution. The *SP* have then been scrutinized with a view at substantiating that interpretation, although in various ways. In the line of his 1988 book and article, Panico (2001) concludes: “The examination of the *Sraffa Papers* confirms the results reached by the literature on the links between Sraffa’s earlier papers on monetary questions and his later work on the theory of value and distribution” (Panico, 2001: 302). Looking for a “unifying theme” in Sraffa’s and Keynes’s research programmes, Ranchetti (2001) finds it in “the relationship between the rate of money interest and the rate of profit, within the context of an ‘entrepreneur economy’” (Ranchetti, 2001: 312), and concludes: “the new evidence available [the *SP*] clearly confirm a strong agreement between Sraffa and Keynes both on a monetary and conventional determination of the rate of interest and on the direction of the causal nexus between the two (namely, from the money rate of interest to the rate of profits)” (*ibid*: 327). More inclined to read § 44 in the light of Marx than of Keynes, Bellofiore (2001) comments a quotation from Sraffa’s lectures on industry in the following way: “the ‘distribution’ […] must be understood as the result of choices that are not merely technical and that should be analysed ‘before the harvest’. These, presumably, are choices where money, not in its extremely simple role as measure of value, but as monetary *capital* is of the utmost importance.” (Bellofiore, 2001: 374; author’s italics).

What does the drafting of § 44 bring to light on this issue? Until March 1957, the formulation of § 44 only contained the discarding of the wage as the independent variable and its replacement by the rate of profits, without any mention of the way it could be determined; this remained the case in the pencilled changes introduced at that time in the typescript of the 1956 text (D3/12/8011). A piece of paper heavily crossed-out gave then birth to a new formulation: “... it is possible to conceive of it [the rate of profits] as being “given” from of being determined by circumstances outside the system of production, such as the necessity for it to conform conforming with the pattern of money rates of interest determined independently by the banking system or the Stock Exchange” (D3/12/786; crossed-out by PS). This “determination” survived in a later formulation (D3/12/7813), but, on 29 March 1957, it became: “It [the rate of profits] is accordingly susceptible of being given determined from outside the system of production, in particular by the level of the money rates of interest” (D3/12/809; crossed-out by PS). This formulation would remain unchanged in the typescript dated 20 May 1959 (D3/12/103), in the first proof of 4 December 1959 (D3/12/106), and in the published volume (Sraffa, 1960: 33).

This final change is not trivial: for the “outside” determination of “the level of the money rates of interest”, it bluntly eliminated “the banking system or the Stock Exchange”. Why did this mention disappear? We have no indication about that, but this change may be put in the perspective of what Sraffa wrote about § 44 in a letter to Pierangelo Garegnani dated 13 March 1962: “I did not want to commit myself much, and in general I only wanted to signal something […] the review would do well not to insist too heavily on the passing remark about the monetary interest rate” (quoted in Panico, 2001: 301-2 and Bellofiore, 2001: 366-7). One may think that deleting the mention of “the banking system or the Stock Exchange” was part of a strategy of low commitment on that issue. Nevertheless, the fact that these words showed up during a few days in March 1957 before being deleted gives two indications. First, the mention of “the Stock Exchange” as a determinant of “the pattern of money rates of interest” suggests that Sraffa had *not* in mind a purely monetary theory of the rates of interest – which is not surprising in respect to his critique (in the *SP*) of liquidity preference in Keynes’s *General Theory* (see for example Kurz, 2010). Secondly, it gives some credit to the above interpretations of PCMC in which money influences distribution and prices through the rate of interest, determined “from outside the system of production” by the whole monetary and financial system.

Such an approach focuses the attention on the relation between money and capital. As is well known, this relation had been analysed by Sraffa, a quarter of a century before, in his famous 1932 article “Dr. Hayek on Money and Capital”. Although Sraffa explicitly limited the scope of his article to a critique of Hayek’s approach in his book *Prices and Production*[[3]](#footnote-3), it gave him the opportunity, in a discussion of the notion of the neutrality of money, to single out a particular question highly important for the present inquiry: that of the essentiality of money. The “unintelligibility” (Sraffa, 1932a: 42) of Hayek’s theory of money obscures that distinction, and it is necessary to recall Sraffa’s argument as it is exposed in the introductory part of his article.

By “neutral money”, according to Sraffa, Hayek means “a kind of money which leaves production and the relative prices of goods, including the rate of interest, ‘undisturbed’, exactly as they would be if there were no money at all” (*ibid.*). So one would expect “a comparison between the conditions of a specified non-monetary economy and those of various monetary systems […]. This would bring out which are the *essential characteristics common to every kind of money*, as well as their differences, thus supplying the elements for an estimate of the merits of alternative policies” (*ibid.*: 43; italics added). Hence, under the label “neutrality of money”, Hayek intends to inquire about a situation in which the same results are obtained with and without money. Unfortunately, “the reader [of Hayek’s book *Prices and Production*] soon realises that Dr. Hayek completely forgets to deal with the task which he has set himself, and that he is only concerned with [a] *wholly different problem*” (*ibid.*; italics added): the comparison between a monetary economy endowed with a particular “banking policy” (that which maintains constant the quantity of money multiplied by its velocity of circulation) and “alternative monetary policies”. Hayek wants then to demonstrate that only the former “succeeds in giving full effect to the ‘voluntary decisions of individuals’”, and “he identifies it with ‘neutral money’” (*ibid.*). So doing, he confuses under the same label (“neutrality of money”) two distinct problems: what makes a monetary economy differ or not from a non-monetary one, and what makes a monetary economy differ or not from another monetary one. According to Sraffa, this confusion is the consequence of Hayek’s reduction of the definition of money to “purely and simply a medium of exchange”, rejecting “every notion of the value of money in any sense whatever” (*ibid.*: 44). Although any such “emasculated money” (*ibid.*) should be equally “neutral”, Hayek insists that it is only the case with his particular “maxim of [monetary] policy”: the confusion ends up in contradiction.

Behind the denunciation of Hayek’s confusion, Sraffa then introduces an important distinction between two levels of analysis of money in an economy. The first one is the study of what makes money “essential”; a way to perform that study is to compare what happens in any monetary economy with what would happen in any non-monetary economy. The second level is to compare the properties of various monetary economies. The first level of analysis is logically prior to the second, since, by bringing out “the essential characteristics” of money, it is “supplying the elements” of the latter. Drawing on the adjective used by Sraffa himself, one may call the first level of analysis the question of the essentiality of money. As for the second level, Sraffa does not name it; he only criticizes the use of the label “neutrality of money” to cover both the comparison between various monetary economies and the comparison between a monetary economy and a non-monetary one.

Although the concept of a non-monetary economy is not easy to isolate in Sraffa (1932)[[4]](#footnote-4), one conclusion emerges from that article: one thing is to inquire about the essentiality of money, another thing is to compare different states of a monetary economy. A first addition made by the *SP* is the affirmation by Sraffa that the confusion between these two levels of analysis is an unfortunate novelty introduced by Hayek (more on that quotation later):

“According to Dr H[ayek] the task of monetary theory ‘is nothing less than to cover a second time the whole field which is treated by pure theory [i.e. what is usually called the theory of value and distribution] under the assumption of barter, and to investigate what changes in the conclusions of pure theory are made necessary by the introduction of indirect exchange’ (p. 110). This is not the common opinion, and it does not correspond to the line along which in fact the division of labour between monetary and non-monetary economists takes place. It is sufficient to refer to a standard treatise on value and distribution, e.g. to Marshall’s Principles, to see that these theories are expounded directly in terms of a monetary economy: and this is true even in the case of one like Marshall who rightly or wrongly thought that the consideration of money was essential to the truth of his conclusions (see Principles, Appendix on Barter)” (D3/9181; the parenthesis in Hayek’s quotation is added by PS).

 Sraffa then suggested that authors prior to Hayek, such as Marshall, did not make Hayek’s confusion. Although they may have tried to show that variations in the quantity of money left relative prices unchanged, they did not derive from that property the completely different conclusion that this price system would be the one which would rule in a non-monetary economy. On the contrary, they restricted the validity of their propositions (including the most central ones, concerning value and distribution) to a monetary economy, because they considered (no matter for right or wrong reasons) that money was “essential”. The neutrality of money in Hayek’s sense was simply not consistent with their view of an economy[[5]](#footnote-5).

In this extract of the *SP* Sraffa played Marshall against Hayek, in spite of his own strong disagreement with the marginal theory of value and distribution and, as we will see below, with the characteristics of money which made it “essential” in that tradition. This reinforces the methodological statement which could already be derived from the 1932 article: the question of the essentiality of money was seen at that time by Sraffa as distinct from and prior to the study of the way money affects prices in various states of the economy.

Some of the interpretations of *PCMC* in which money influences distribution and prices through the rate of interest draw a parallel between Sraffa and Marx[[6]](#footnote-6). The necessity to make the distinction stressed above should not be found surprising by their proponents. Marx starts his analysis of the exchange of commodities (in Chapter 2 of *Capital*) by opposing “the direct barter of products”, where “they do not confront each other as commodities, but only as products or use-values”, to a monetary economy where “the social action of all other commodities sets apart the particular commodity in which they all represent their values [and which] becomes money” (Marx, 1867: 86-87). Money is therefore the condition of the existence of commodities as values (and not only as use-values), and Marx studies the characteristics of money which allow it performing that role. Having dealt with the question of the essentiality of money, he may then proceed further and analyse the transformation of money into capital and its consequences for the determination of prices.

It is beyond the scope of the present paper to inquire about the relevance of this approach in Marx and to compare it with Sraffa’s one. I only contend that such a two-tier approach may be helpful to make sense of the existence of money in *PCMC*. In other words, the inquiry about the way money may affect Sraffa prices through the rate of interest is logically posterior to the inquiry about the characteristics of money which make Sraffa prices money prices (the essentiality question). The present paper is devoted to the latter question only, as it may be clarified thanks to the *SP*.

***1.2. A link between money and the standard?***

When asking whether prices in *PCMC* are money prices, one is tempted to look for the answer in the role of the standard commodity as a measure of prices. Indeed, in some drafts of § 43, the reference to money appeared in relation to the “abstract” character of the standard. In a manuscript dated 16 September 1956, PS wrote: “The use in our calculations of a standard of which we do not know what it consists of should not present much difficulty. The degree of abstraction required is nothing as compared with that involved in the current use of an inconvertible paper-money of which even less is known”(D3/12/765). Sraffa later hesitated about the respective “degree of abstraction” involved respectively in the standard commodity and inconvertible paper-money: in March 1957, a sentence mentioning “a comparable degree of abstraction” is crossed out and replaced in the margin by: “although the degree of abstraction involved in the use of inc. paper money would seem even greater” (D3/12/787). A typescript dated of the same month (March 1957) and containing the 1956 formulation was changed by Sraffa’s pencil into: “The use for the purpose of calculation of a standard of which the composition is not known does not involve as high a degree of abstraction as does the current use of an inconvertible paper-money of which even less is known” (D3/12/8011). It was the last time that the “inconvertible paper-money” showed up: on 29 March 1957, the manuscript pages sent to the typist to replace the already typed ones simply state: “And it is curious that we are should thus be enabled to use a standard of which we do not know what it consists of” (D3/12/807; crossed-out by PS)[[7]](#footnote-7). This formulation would only be grammatically altered at the first proof-stage, to become the definitive one on 4 December 1959: “And it is curious that we should thus be enabled to use a standard without knowing what it consists of” (D3/12/106; Sraffa, 1960: 32).

One should observe that the cancellation of the comparison between the standard commodity and inconvertible paper-money eliminated any mention of “abstraction” for both terms; nevertheless, this notion re-emerged for the standard in the final version of the subsequent § 44, in a way which echoes the hesitations of Sraffa about its level: “And when the wage is to be regarded as ‘given’ in terms of a more or less abstract standard, ...” (Sraffa, 1960: 33). This was enough, in Sraffa’s eyes, to convey the notion of abstraction about the standard, without needing a comparison with anything. But the story of that aborted comparison is meaningful: money was nothing else as a term of comparison, deprived of any analytical link with the standard; hence Sraffa’s decision to dispense with it, probably in order to avoid any confusion.

The same prudence is to be found in a letter dated 14 April 1970 and sent to the French translator of *PCMC*, where Sraffa wrote: “The point I am most unhappy about is your translation of ‘standard ratio’ by ‘ratio-étalon’. I do not think this right. I am sure ‘ratio’ should be ‘rapport’; and ‘standard’ should not be ‘étalon’ (which is only one of the many senses of ‘standard’ and not the one intended here)” (underlined by PS). The economic meaning usually associated with the French word “étalon” is the monetary one, as in “étalon-or” (for “gold standard”), and it is most likely that Sraffa had this meaning in mind when he observed that it was “not the one intended” in his own use of the word “standard”[[8]](#footnote-8). This wish to avoid the confusion between the standard commodity and the standard of money seems at odds with the following assertion made by Sraffa in Appendix D of *PCMC* on the “References to the literature”: “The conception of a standard measure of value as a medium between two extremes (§ 17 ff.) also belongs to Ricardo1” (Sraffa, 1960: 94). Footnote 1 directs the reader to Sraffa’s own introduction to his edition of *On the* *Principles of Political Economy and Taxation*, where he wrote: “In edition 3 [of *Principles*], therefore, the standard adopted was money ‘produced with such proportions of the two kinds of capital as approach nearest to the average quantity employed in the production of most commodities’” (Sraffa, 1951: xliv). This excerpt from Ricardo (1821: 45) was in fact attached to “gold considered as a commodity”, and not to money as Sraffa writes, but this matters little since Ricardo himself ended up his argument saying: “To facilitate, then, the object of this enquiry, although I fully allow that *money made of gold* is subject to most of the variations of other things, I shall suppose it to be invariable” (*ibid*: 46; my emphasis). It is striking that here Sraffa suggests a link between his standard and gold-money in Ricardo’s chapter 1 of *Principles*. If proved significant, that link could be extended to paper-money convertible in gold, even in the case when gold would cease to be money and remain only the standard of money, as in Ricardo’s Ingot plan (Ricardo, 1816: 54-69; Ricardo 1821: 356-61).

But the link so established by Sraffa between his standard commodity and “gold” in Ricardo leads to a dilemma. On the one hand, if “gold” is money or the standard of convertible paper-money, it is in both cases anything but “abstract”, since every owner of gold specie or of convertible notes can obtain the concrete form of gold in bullion through melting or conversion at the issuing bank; the “more or less abstract” character of the standard commodity is then difficult to reconcile with this concreteness of gold. On the other hand, if “gold” is a commodity supposedly produced in average conditions as compared to “most commodities”, it is as “abstract” as Sraffa’s standard commodity, but has nothing to do with actual gold as money or standard of convertible paper-money. This dilemma is of course not Sraffa’s but Ricardo’s; it nevertheless invites to repress the temptation of linking the standard commodity with money under the name of gold and to keep strictly to what Sraffa wrote in Appendix D to *PCMC*: the standard commodity is akin to that “medium between two extremes” which Ricardo called gold in Chapter 1 of *Principles* but which has no monetary character.

The adoption of this branch of the dilemma is reinforced by the exploration of the *SP*. In the same Appendix D to *PCMC*, Sraffa underlined that his “interpretation of Ricardo’s theory suggested itself as a natural consequence [...] in the course of the present investigation” (Sraffa, 1960: 93); as is well known, this “interpretation” is presented in Sraffa’s *Introduction* to his edition of *Principles*. Nothing of the kind may be found in Sraffa’s published “Notes” on Ricardo’s monetary writings (in Volume III and IV of the *Works*), and, to the best of my knowledge, the *SP* do not contain any comment on the conception of gold as “a medium between two extremes” in relation to Ricardo’s writings on money or to Sraffa’s own reflections on money.

In the end, the *SP* show that the question of the standard in *PCMC* gave the occasion of two allusions to money. One was to inconvertible paper-money, but it did not survive the final redrafting. The other was to gold money or convertible paper-money, but the alluded link expressed in print has no echo in the material related to money contained in the *SP*. It seems then that we should rule out the introduction of money in *PCMC* through the standard commodity.

 There seems to be no other element in the drafts of *Production of Commodities* which could help for an inquiry about the essentiality of money in that volume. Assuming that Sraffa remained consistent with what he had written 25 years before, one may turn to the part of the *SP* where this question, as mentioned above, was discussed: the preparatory notes for the 1932 article against Hayek.

**2. The drafts against Hayek’s neutrality of money**

***2.1. Equilibrium, the theory of value and the theory of money***

Among the notes for Sraffa (1932a) the following text written in ink is marked in pencil “Introductory”; part of this text has been already quoted above, but it is necessary to reproduce it in full:

“A long review of a short book requires some apology: the more so that the book is a monetary one, and the reviewer is a non-monetary economist.

According to Dr H[ayek] the task of monetary theory ‘is nothing less than to cover a second time the whole field which is treated by pure theory [i.e. what is usually called the theory of value and distribution] under the assumption of barter, and to investigate what changes in the conclusions of pure theory are made necessary by the introduction of indirect exchange’ (p. 110). This is not the common opinion, and it does not correspond to the line along which in fact the division of labour between monetary and non-monetary economists takes place. It is sufficient to refer to a standard treatise on value and distribution, e.g. to Marshall’s Principles, to see that these theories are expounded directly in terms of a monetary economy: and this is true even in the case of one like Marshall who rightly or wrongly thought that the consideration of money was essential to the truth of his conclusions (see Principles, Appendix on Barter). And it is sufficient to refer to a standard book on money, e.g. Keynes’s Treatise, to see that it is the subject matter, or the field covered, that is almost entirely different.

 The dividing line, which appears to assert itself more and more definitely, is another one. The non monetary theory studies a state of equilibrium, and the conditions which determine it: it goes as far as comparing two, or more states of equilibrium, and measuring the differences in their conditions – but goes no further. Here begins the field of monetary theory: or rather, jumping over the study of the path followed in the transition from one position to another, it sets to study states of disequilibrium. I suppose that every monetary economist to-day regards trade fluctuations as his exclusive subject.” (D3/9181; the parenthesis in Hayek’s quotation is added by PS)

This text does not appear in the published article. The *SP* give no indication about the reasons why Sraffa did not find it accurate for publication, and we are left to conjectures about the link between Sraffa’s critique of Hayek and the way the concept of equilibrium was perceived by economists[[9]](#footnote-9).

Sraffa blames Hayek for departing from “the common opinion” on two complementary aspects: on the one hand, by abstracting from money in an inquiry about value theory (contrary to the approach illustrated by Marshall’s *Principles*); on the second hand, by attributing to monetary theory a field – value theory – which is commonly not its own (that is fluctuations, as illustrated by Keynes’s *Treatise on Money*). This means that, as regards equilibrium, the novelty of Hayek’s “book [which] is a monetary one” is to study equilibrium in a moneyless economy, in order to locate the consequences of the introduction of money on equilibrium, while monetary theory, according to Sraffa, is usually concerned with disequilibrium.

To-day, more than fifty years after Arrow-Debreu, Sraffa’s statement would seem strange to a general-equilibrium theorist, because the method which it attributes to Hayek is precisely the one which is advocated by this now dominant theory of value. A modern defender of “real business cycles” would add that fluctuations themselves are part of the theory of a moneyless equilibrium. For Sraffa, however, “the dividing line, which appears to assert itself more and more definitely” is *inside* the study of an economy *with money prices*: the theory of value is concerned with money prices in equilibrium, and the monetary theory with money prices in disequilibrium.

Whether Sraffa describes accurately “the common opinion” of his time is out of the scope of the present paper. The question is rather: does he share it? We may approach this question with two preliminary remarks. Firstly, contrasting Hayek’s approach with this opinion may only be powerful if there is at least no logical contradiction in the fact that “the non monetary theory” (i.e. the theory of value) deals with money prices. Hence one may suppose that Sraffa endorses this characterisation of the theory of value. Secondly, this is confirmed by the fact that, at the beginning of the text, Sraffa describes himself as “a non-monetary economist”. This assertion may look surprising in a draft of the introduction to an article where most of the argument is pursued in terms of disequilibrium and which ends up with a reference (Sraffa, 1932a: 53) to Keynes’s *Treatise on Money* – precisely the illustration given here of “a standard book on money”. Probably the reason of this self-labelling is that “the reviewer” having established himself previously (in his 1926 paper of the same *Economic Journal*) in the field of the theory of value, he feels the necessity of “some apology” for being “a non-monetary economist” – which means that he shares the view according to which, although dealing with money prices, the theory of equilibrium prices is distinct from the monetary theory.

***2.2. Marshall, Hayek, and the “subjective point of view” on money***

Concerning Marshall, the above text suggests that Sraffa approves – against Hayek – his view that equilibrium prices are “directly” money prices. But this approval is immediately played down by observing that Marshall “rightly or wrongly thought that the consideration of money was essential to the truth of his conclusions”. This means that Marshall may be right in considering equilibrium prices as money prices but wrong in the way he considers money when explaining why it is so. Sraffa’s reference to the “Appendix on Barter” in *Principles of Economics* provides the clue of this statement.

 The central topic of that appendix is the relation between equilibrium and money prices: Marshall examines the formation of the equilibrium price in a barter between apples and nuts and shows with different examples that the result will depend on the particular conditions of the exchange, so that “in each case *an* equilibrium would be attained, but not *the* equilibrium” (Marshall, 1920: 653; AM’s italics). The reason is the following:

“This uncertainty of the rate at which equilibrium is reached depends indirectly on the fact that one commodity is being bartered for another instead of being sold for money. For, since money is a general purchasing medium, there are likely to be many dealers who can conveniently take in, or give out, large supplies of it; and this tends to steady the market” (*ibid.*).

And Marshall concludes:

“The real distinction then between the theory of buying and selling and that of barter is that in the former it generally is, and in the latter it generally is not, right to assume that the stock of one of the things which is in the market and ready to be exchanged for the other is very large and in many hands; and that therefore its marginal utility is practically constant” (*ibid.*: 654).

 Three propositions may be inferred from these quotations: a) considering that the theory of value deals with money prices is important for the determination of equilibrium, because the uniqueness of *the* equilibrium is only guaranteed if the process of formation of the price has no influence on it (no path-dependency); b) what in barter impairs the uniqueness of the equilibrium price is the fact that, during this process (hence in disequilibrium), the marginal utility of each good varies; therefore, the condition for avoiding this difficulty is to ensure that one of the objects of the exchange has a constant marginal utility; c) money performs that condition, because its character of “general purchasing medium” makes it abundant in the market.

Now, which of these propositions is endorsed by Sraffa? On the one hand there must be something true in Marshall’s position if Sraffa wants to use it as a weapon against Hayek, and on the other hand the reserve expressed towards that position by the words “rightly or wrongly” should not concern “the truth of his conclusions” – which Sraffa had strongly rejected in his 1925 and 1926 articles – but the fact that “the consideration of money was essential” to it. Proposition a) is consistent with the general line of argument used against Hayek in the 1932 article. Sraffa does not criticise Hayek for extending the theory of value to fluctuations, but for depriving money from any role in either field:

“It is one of the merits of H[ayek] that he shifts the centre of interest away from the fluctuation in the general price-level […]. He is right to emphasize the importance of ‘relative prices’, rate of interest, and production on trade fluctuations. But this shows that his book has nothing to do with the theory of money: on the contrary it is an attempt to show how the general theory of value and distribution is not mere a study of equilibrium but can be extended to trade cycle. On top of this he puts money: which, all the work having been done, must be « neutral ». Is this a theory of money?” (D3/989)

Moreover, in mocking the multiple-equilibria solution advocated in Hayek’s reply to his article[[10]](#footnote-10), Sraffa’s rejoinder (1932b) suggests the importance which he gives to the uniqueness of equilibrium defended by Marshall. But the fact that he shares proposition a) does not imply that he endorses propositions b) and c), i.e. the reason why this uniqueness is jeopardised in barter and the way it is ensured in monetary exchange. Both propositions rely in Marshall on the adoption of the marginal-utility concept in monetary theory. Now, this adoption reflects a “subjective” point of view, rejected by Sraffa in his attacks against Hayek:

“Dr H. moves from the « decisions of individuals » (p. 4) as to how much to save. This is natural enough for one who boasts of taking a « subjective » point of view, and *claims to extend the application of this method to monetary economics*. Although the present reviewer strongly disagrees with this view[[11]](#footnote-11), the reader will be spared the interminable methodological disquisition that would be appropriate to the occasion. The object will be more simply attained by following H. in his argument and attempting to disentangle the jumble of contradictions into which he is led” (D3/922; my italics)

This critique is repeated later on in the *SP*:

“H. wants to introduce subjective method in money. Therefore we must start from “decisions of ind.[ividuals]. But he cannot make up his mind as to *which* individuals take these decisions” (D3/925)

The *SP* then allows drawing a first conclusion: against Hayek, Sraffa agrees with Marshall on the point that the theory of value deals with equilibrium money prices, but he disagrees with him on why equilibrium prices should be money prices. This disagreement is for the time being purely negative: the reason why money prices are the only ones to fulfil the condition to be equilibrium prices is *not* the constancy of the marginal utility of money. This rejection was part of Sraffa’s critique of both Marshall and Hayek for their adoption of a “‘subjective’ point of view” on money. Although this may look like a digression, it may then be useful to ask how Sraffa’s view relates to the modern subjective (i.e. microeconomic) approach to money; this implies to look at the way he considered forward markets.

**2.3. *Money and forward markets***

In his 1932 article, Sraffa introduced the concept of commodity-rate of interest, defined as the interest rate on money plus the difference (in percentage) between the spot and the forward prices of the commodity (Sraffa, 1932a: 50). Forward prices are then explicitly considered in the framework of a monetary economy. This method is in striking contrast with the modern general-equilibrium (Arrow-Debreu) approach in which the assumption of a complete system of contingent forward markets is *alternative* to the existence of money and raises the main obstacle to the so-called “integration” of money in the theory of value. Under such an assumption, all transactions are contracted at the same date, whatever the dates at which the commodities will be delivered, and they are cleared through a centralised system of accounts. This procedure ruling out money[[12]](#footnote-12), various solutions have been suggested “to find an alternative construction without thereby sacrificing the clarity and logical coherence that are such outstanding features of Arrow-Debreu” (Hahn, 1981: 1), including the assumption that forward markets are missing or too costly for some of the commodities, so that their trading takes place sequentially and money might enter the picture.

 The rough notes for the 1932 article contained in the *SP* testify to the fact that, nearly thirty years before Debreu’s 1959 *Theory of Value*, Sraffa was conscious of the contradiction between *complete* forward markets and money:

 “If money did not exist, all effects would be identical as if there were perfect forward markets for all commodities. In this case, money would not be stand.[ard] of d.[eferred] p.[ayments], because everybody would hedge.” (D3/944)

 Fifty years before Hahn, sequential trading was considered by Sraffa as characteristic of a monetary economy:

 “(1) The use of money as a ‘medium of exchange’ cannot go without its being ‘a standard of deferred payments’ or a ‘store of value’, two attributes which are included in the above: this is obvious if money transactions succeed each other in time; and if they are simultaneous, they must be cleared against each other and no money is required.” (D3/9104)

Still more, the modern problem of a zero-price for money when the horizon is finite (Hahn, 1981: 5) was anticipated by Sraffa in relation to the question of hoarding.

**3. Sraffa on money and hoarding**

In a notebook dated “Lent term, 1928”, Sraffa tested several arithmetic examples of relations between sectors of production in a no-surplus economy, a method which would eventually lead to *PCMC*. On a page entitled “Hoarding of money in no-surplus”, he wrote:

 “In the case of no-surplus, instead of barter, we might assume monetary exchange. The money would be used during market day, but what would happen to it during the rest of the year? It would be necessary to assume that the farmers want to hoard: this would be used as an insurance fund against crop failures for the individuals, but of course not for society. *If we did not assume hoarding, the money would dwindle in value during market day, since every one would be trying to get rid of it before the end of the day*. The same result might be reached through a clearing home, for book credits between buyers and sellers: of course everybody ought not to leave the markets with any credits or debts.” (D3/12/1027; my italics)

 One recognizes here the two options offered by modern general equilibrium theory for the realization of exchange: either a centralized clearing system, based on the constraint that every account should be balanced at the end of each trading period, or a decentralized means of exchange, which requires that some agents still have a demand for it at the end of the trading period. Does that mean that Sraffa shares this way of handling money in a theory of the market economy? To answer by the negative, it is necessary to go back to Sraffa’s critique of the “subjective” point of view on money, as it is developed in his notes for his 1932 article against Hayek.

***3.1. Hoarding and Hayek’s neutral-money rule***

Sraffa discussed at length hoarding in a long text which did not find its way to publication in the 1932 article although it went until the form of a typescript[[13]](#footnote-13). An extract of this text reads as follows:

 “Now in our [Hayek’s] case it is expected that, in the final equilibrium, the prices of all commodities will be lower in terms of money, though in various degrees, than they can be at any moment during the period of transition; consequently, during that period, all forward prices of commodities will be lower than their spot prices, in other words the rate on money loans, in the market, must be lower than the natural rate on *any* other commodity. [...]

 Now, this market rate, far from being identical with the expected ultimate equilibrium rate, is only very remotely related to it. In fact, if the *expected* fall of prices is big enough the market rate may easily fall to zero; it cannot become negative, simply because money not being perishable, it can be hoarded. But if all the money issued by the banks goes into hoards, as it certainly will if a zero rate of interest is not sufficient to counterbalance the *anticipated* fall in prices, the task of the banks in attempting to maintain the quantity of money multiplied by its velocity constant, become[s] impossible; unless indeed they are prepared to subsidize borrowers on condition that they use the proceeds to purchase producers’ or consumers’ goods, which amounts to reducing the rate of interest to a negative level. (in this case they would *charge* a similar rate on deposits)” (D3/9165-7; Sraffa’s italics )

 When a deflation of prices is expected for all commodities, the demand for bank money in order to purchase goods falls to zero, hence also the money rate of interest. Only a negative rate could “counterbalance the anticipated fall in prices”, but this cannot happen since “money not being perishable, it can be hoarded”[[14]](#footnote-14). Hayek’s neutral-money rule breaks down, since “all the money issued by the banks goes into hoards” (unless banks pay borrowers and oblige them to spend the money lent, but this would imply a *de facto* negative rate of interest, which in any case would not be equal to the final equilibrium rate).

 Two remarks can be made on this passage. First, it is part of Sraffa’s internal critique to Hayek, and, for the sake of argument, it adopts a “subjective point of view” on money, based on the behaviour of agents towards hoarding. Secondly, the same example of a general deflation of prices was considered by Sraffa five years later in his critique of Keynes’s *General Theory*, and the *SP* are also useful in this context to specify how Sraffa dealt with the concept of hoarding.

***3.2. Hoarding and the limitation of output in Keynes***

 It is no surprise that most of Sraffa’s comments and annotations on *General Theory* refer to Chapter 17, where Keynes mentions Sraffa’s 1932 article to introduce his own use of the “own-rates of interest” of durable commodities (Keynes, 1936: 223n.). A general deflation of prices is evoked by Sraffa in the following comment of what he calls “the Keynes case”:

 “What K.[eynes] ought to have spoken of throughout (e.g. [page] 229 [of *General Theory*] top) is *marg.*[inal] *efficiencies* of various articles, and not their rates of interest. Then, if there is one article the marg. eff. of which never falls below say 5% (this being the valuation of the pleasure people derived from hoarding *any* quantity of it) the production of all other durable assets will stop when their stocks are such that marg. eff. has come down to that level - for otherwise they could not be sold at cost - and all resources saved will be used for producing the hoardable asset. If this asset cannot be produced (paper money), its demand will increase and can only be met by a continuous rise in its value, i.e. fall in general prices. If this hoarding is expected to go on steadily, and all prices are expected to fall in terms of money, the result will be that all own rates of interest of commodities will be higher than the money rate (this is Fisher’s case: and the expected appreciation or depr.[eciation] is the only possible cause of divergence in rates of interest).

 Thus in the K. case, the result on rates of int.[erest] is opposite to K’s conclusion” (I 10011)

 Again for the sake of argument, Sraffa accepted Keynes’s assumption that there exists such a behaviour explaining the level of the rate of interest on money by “the valuation of the pleasure people derived from hoarding *any* quantity of it”. In “the Keynes case” which is at the heart of Chapter 17 of *General Theory*, all durable assets other than money are produced as long as their own-rates of interest are above the money rate of interest; but since these own-rates of interest tend to fall when production increases, investment stops when the own-rate of interest which declines most slowly (here the supposedly fixed rate of interest on money) becomes *higher* than the own-rate of interest of any asset:

 “As output increases, own-rates of interest decline to levels at which one asset after another falls below the standard of profitable production; – until, finally, one or more own-rates of interest remain at a level which is above that of the marginal efficiency of any asset whatever” (Keynes, 1936: 229)

 The argument may be summarized in the following way. If *ik*is the own-rate of interest of the durable asset *k* and *im* is the money rate of interest, *k* is produced as long as ik > im. The increase in production lowers *ik* and the same occurs for every asset until:

1. ik < im ∀ k

Then production stops for all *k* and money is hoarded.

 For Sraffa, however, the fact that in that case money becomes the only asset still demanded means that, since “it cannot be produced” – an assumption made by Keynes at this stage of his argument[[15]](#footnote-15) –, this higher demand is translated into “a continuous rise in its value, i.e. fall in general prices”. This general deflation is the case which Sraffa had already discussed in the *SP* about Hayek (see above), i.e. one in which “the rate on money loans, in the market, must be lower than the natural rate on *any* other commodity” (D3/9166; Sraffa’s italics). In Sraffa’s terms, a general deflation meaning that the spot price is above the forward price for all commodities, the rate of interest on money is *lower* than the rate of interest on any commodity.

 Formally, the interest rate *ij* of commodity *j* (whether durable or not) being defined as ij = im + [(pj – fj) / pj], with *im* the money rate of interest, *pj* the spot price of *j*, and *fj* its forward price, since a general deflation means pj > fj for all *j*, then:

(2) ij > im ∀j

 The comparison between (1) and (2) shows the contradiction highlighted by the end of the above quotation from Sraffa’s manuscript: “Thus in the K. case, the result on rates of int.[erest] is opposite to K’s conclusion”.

 How was such a contradiction possible? The explanation was given by Sraffa at the beginning of the above extract: “What Keynes ought to have spoken of throughout [...] is *marginal efficiencies* of various articles, and not their rates of interest”[[16]](#footnote-16). For Sraffa, the concept of own-rate of interest used by Keynes was not the one which he himself had used in his 1932 article, in spite of Keynes’s reference at the beginning of Chapter 17[[17]](#footnote-17). A consequence of that difference was that Keynes’s concept only applied to durable assets, while Sraffa’s one applied to any commodity, durable or not, for which a forward market existed.

 Another comment by Sraffa on “the Keynes case” is worth noting. In the same page 229 of *General Theory* already mentioned, Keynes insisted on the fact that the rate of interest which “sets the limit of the rate of output” is “that asset’s rate of interest which declines most slowly as the stock of assets in general increases” (Keynes, 1936: 229) – not necessarily the money-rate of interest:

 “If by *money* we mean the standard of value, it is clear that it is not necessarily the money-rate of interest which makes the trouble. We could not get out of our difficulties (as some have supposed) merely by decreeing that wheat or houses shall be the standard of value instead of gold or sterling. For, it now appears that the same difficulties will ensue if there continues to exist *any* asset of which the own-rate of interest is reluctant to decline as output increases. It may be, for example, that gold will continue to fill this rôle in a country which has gone over to an inconvertible paper standard” (*ibid*; Keynes’s italics).

 Later in Chapter 17, Keynes observed that

“it is conceivable that there have been occasions in history in which the desire to hold land has played the same rôle in keeping up the rate of interest at too high a level which money has played in recent times” (Keynes, 1936: 241).

 Sraffa objected strongly these statements:

 “It is only liquidity preference in the case of the standard of value that has any importance for employment: and not for anything (such as land) as K. says p. 241 – If people, as they save, wanted to hold more land, for the sake of the prestige and independently of its return in product, this would have no important effects: the price of land would rise, but prices, employment and investment would be unaffected.” (I 1008; underlined by Sraffa)[[18]](#footnote-18)

 Again, Sraffa adopts Keynes’s point of view to show the wrong conclusion to which it leads: *if* liquidity preference prevents the rate of interest on money from falling, *then* it only sets a limit to investment in “the Keynes case” because money is the standard of value. This does not mean for Sraffa endorsing the liquidity-preference theory of the rate of interest; but it nevertheless attracts attention on the importance of money as standard of value.

 Sraffa’s comments in the *SP* on hoarding of money in Hayek and in Keynes suggest three conclusions. First, Sraffa does not endorse the view that the analysis of money should be based on the existence of a behaviour towards hoarding it; on the contrary, he shows that both Hayek and Keynes are driven into contradictions when they consider such a behaviour. Secondly, Sraffa’s remark that the *possibility* to hoard money prevents it from having a negative rate of interest does not imply that the *desire* to hoard money may explain a positive rate of interest. A corollary is that the definition of money does not rest for Sraffa on its durable (non perishable) character. Thirdly, this raises the question of the relation between money as a *standard* of value and as a *store* of value: it invites to clarify the above quotation from the *SP*: “The use of money as a ‘medium of exchange’ cannot go without its being ‘a standard of deferred payments’ or a ‘store of value’” (D3/9104).

**4. Which monetary economy? Money as the means of exchange and the standard of deferred payments**

 Sraffa’s critique of the own-rate of interest in Keynes helps to understand that for him the store-of-value character of money is only a corollary of its being the standard of deferred payments, and has nothing to do with its being an asset owned for itself. The following extract belongs to the same comments of *General Theory* as above:

 “*P. 228 last para.*[graph of *General Theory*]

The idea that the advantages of possessing a given article have something to do with the own rate of *that* article, leads to this extraordinary paragraph.

 To understand it, notice that the underlying assumption is that people borrow an article in order to *keep it* and enjoy its advantages (liquidity for money, use for house, carrying costs for wheat) and therefore he [Keynes] has in mind permanent assets. But in fact people borrow money for parting from it, and buying things: the thing they borrow is, not what they want to use, but the standard in which they fix their debt: thus they might borrow fresh fish for 100 years, although it has neither liquid.[ity] pref.[erence], nor use at so much per annum – and it would have almost infinite carrying costs” (I 10011)[[19]](#footnote-19)

Does it mean that, although the “standard in which [to] fix [one’s] debt” has nothing to do with an asset in which to own one’s wealth, in both cases it is a matter of choice, hence imply a “subjective point of view”? Going back to the 1932 article allows answering by the negative. Borrowing “fresh fish for 100 years” is the same behaviour as the cotton spinner borrowing cotton for three months by simply purchasing it spot (with money borrowed) and selling it forward (for money). The choice may only be to switch from the social standard to a private one; but the social standard (money) rules since it is “the standard in terms of which debts, and other legal obligations, habits, opinions, conventions, in short all kinds of relations between men, are more or less rigidly fixed” (Sraffa, 1932a: 43).

This “fixity” is more lengthily evoked by Sraffa in the following draft:

 “It is impossible to avoid prefacing a discussion of neutral money, without analysing however briefly what is the essential feature which distinguishes any monetary from [what] may be called a non monetary economy. This I should describe as the existence of ‘monetary constants’. They may be debts or any other legal obligations, habits or fixed decisions of individuals of the kind predilected by H.(1)” (D3/949)[[20]](#footnote-20).

 According to Sraffa, the lack of consideration by Hayek for these “monetary constants” explains why his neutral money is so evanescent:

 “Now, in his discussion, Dr H. never takes into account these monetary constants. He speaks of flows of money, and of monetary debts and credits; but never supposes that their existence may cause people to act differently, e.g. in the case of a steady general fall in money prices, from how they would have acted if no one were in possession of money and debts were fixed in various commodities. […] Now we might ask, whether the ‘monetary constants’ referred to above are in terms of this money, or not; and if yes, how can it be indifferent for a debtor, when the money price of wheat falls, whether his debt is fixed in money or wheat” (D3/950).

 Under the critique of Hayek a positive statement shows up: as standard of differed payments, money is essential, since it “may cause people to act differently” from how they would act if “debts were fixed in various commodities”. But this essentiality of money is not just the contrary of the neutrality assumed by the “subjective point of view” on money: it is not the consequence of a choice made by the agents but one of the “constants” defining the kind of economy in which they behave. Money as a standard of differed payments in Sraffa contrasts then with money as a store of value in the “subjective” approach: it is not chosen as an asset, because it is neither an asset nor something to be chosen.

 To which domain does this “constant” belong? The answer to that question has probably something to do with the distinction made elsewhere by Sraffa about “cost”, between “natural economics” and “institutional economics”[[21]](#footnote-21). If the “monetary constants” belong to institutions, then money in *PCMC* may at the same time be essential and outside the “natural” system of production.

**5. Concluding remarks**

 This exploration of the *SP* in order to clarify the question of the essentiality of money in *PCMC* has first stressed the existence of a two-tier approach to money in Sraffa. The usual insistence on the way money affects prices in *PCMC* through the influence of the money rates of interest on the rate of profits may only show up at a second level of the analysis – the only one explicit in *PCMC* since the standard commodity must be ruled out as a candidate for giving a role to money. But there is another – this one subterranean – level of analysis which is logically prior: the one which studies the characteristics of money which make it essential, i.e. explain why prices are money prices. The *Sraffa Papers* provide some hints of what it could have been, had Sraffa committed himself more in print on the question of money than he did in his 1932 article against Hayek.

 The drafts of that article show that Sraffa drew an opposition between Hayek’s notion of neutral money and a tradition illustrated by Marshall, where all the theoretical propositions – including the ones relative to value and distribution – referred to a monetary economy. But Sraffa also strongly rejected the way this tradition explained the essentiality of money, i.e. its treatment from a “subjective point of view”. This led him to show the contradictions in which both Hayek’s *Prices and Production* and Keynes’s *General Theory* were driven when hoarding of money entered the picture. If the store-of-value function of money was then excluded as foundation of its role in a monetary economy, the *SP* finally suggest that, according to Sraffa, money should be defined as the means of exchange and the standard of deferred payments, and as such belongs to the institutional domain of the “monetary constants”.

 One may then understand that, even if prices in *PCMC* should be considered as money prices, money stays outside the price system. As a means of exchange, money can have no role in a framework leaving aside the process by which prices are “adopted by the market” (Sraffa, 1960: 3) and respecting the “dividing line” between the theory of value (whose task is to determine equilibrium prices) and the theory of money (whose task is to study disequilibrium prices). As a standard of deferred payments, money can have no role in the static framework of *PCMC* which ignores debts. There lies the ambiguity of money in *Production of Commodities*: prices are money prices but money, as it is defined in the *Sraffa Papers*, does not affect them. This ambiguity is however consistent with Sraffa’s project to separate, in the determination of the system of prices, what is “natural” from what is “institutional”.

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1. A preliminary version of the paper was presented to the conference *The Other Sraffa. Surprises in the Archive?*, Bergamo, December 21-22, 2010. I thank the participants to this conference, particularly Richard Arena, Riccardo Bellofiore, and Ajit Sinha, for their remarks, and also Jean Cartelier and Guglielmo Chiodi for later ones. I thank Professor Pierangelo Garegnani for granting permission to quote the *Sraffa Papers*, and Dr. Jonathan Smith and the staff of the Wren Library, Trinity College, Cambridge (UK), for their kind assistance. [↑](#footnote-ref-1)
2. Part of the material from the *Sraffa Papers* used below is gathered in an envelope (catalogued D3/12/78) bearing in Sraffa’s hand: “March ’57 Redrafting of § 41-42 Discarding Standard System as scaffolding” (§ 41-42 were the original numbers of the final § 43-44). The envelope contains 15 pieces, where the bits of text are written in pencil on the back of proofs of Ricardo’s correspondence or covers of *The Economic Journal*. [↑](#footnote-ref-2)
3. Sraffa resisted Hayek’s pressure who wrote in his “Reply” to the article: “I should also like to ask him [Sraffa] to define his own attitude to these problems more clearly than he has yet done. From his article one gains the impression that his attitude is a curious mixture of, on the one hand, an extreme theoretical nihilism […]; and, on the other hand, of an ultraconservatism” (Hayek, 1932: 238). The answer by Sraffa in his “Rejoinder” was the following: “After this Dr. Hayek will allow me not to take seriously his questions as to what I ‘really believe’. Nobody could believe that anything that logically follows from such fantastic assumptions is true in reality. But I admit the abstract possibility that conclusions deduced from them by faulty reasoning may, by lucky accident, prove quite plausible” (Sraffa, 1932b: 250). [↑](#footnote-ref-3)
4. For a preliminary study, see Deleplace (2004). [↑](#footnote-ref-4)
5. Although isolated at the time of Sraffa’s critique, Hayek’s confusion would have a long legacy. Schumpeter repeated it: “So long as [money] functions normally, it does not affect the economic process, which behaves in the same way as it would in a barter economy: this is essentially what the concept of Neutral Money implies” (Schumpeter, 1954: 277). Referring explicitly to Hayek’s *Prices and Production*, Patinkin (1965) adopted the same definition of neutrality (“Strictly speaking, such neutrality [of money] obtains if the mere conversion of a barter economy to a money economy does not affect equilibrium relative prices and interest”; Patinkin, 1965: 75); however, he pointed to a major difficulty raised by this definition (“it is difficult, if not impossible, to make such a comparison in a general way”; *ibid.*), before proposing a method to overcome it, while recognizing that this method “has one serious drawback” (*ibid.*). In modern General Equilibrium Theory, Wallace (2001) makes a clear distinction between the “essentiality” and the “neutrality” of money (I thank Jean Cartelier for this reference). [↑](#footnote-ref-5)
6. See Bellofiore (2001) and the contribution of the same author to the present volume; the comment by Guglielmo Chiodi of the present paper also insists on the link between Sraffa and Marx. [↑](#footnote-ref-6)
7. This mention of “inconvertible paper-money” disappeared from § 43 on the same day as the mention of “the banking system or the Stock Exchange” in § 44 (see above). [↑](#footnote-ref-7)
8. In a previous letter dated 18 February 1969, Sraffa already wondered about the translation of “standard”, asking whether this word was “usable in French”; he referred to his own Italian translation of “standard commodity” by “merce tipo”. In his April 1970 letter he again referred to it, writing after his remark on “standard ratio”: “Similarly the phrase ‘standard commodity’ is not properly rendered by ‘étalon-marchandise’ (which in any case, should be ‘marchandise-étalon’ – étalon for standard here being adjectival). I suggest that ‘marchandise type’ (modelled on the Italian ‘merce tipo’) would render literally what is meant”. There was no further indication given by Sraffa on that matter, and the translation for “standard” remained “étalon”. I thank the original French translator of the book, Serge Latouche, for having given me access to this correspondence. For problems raised by the French translation of *PCMC*, see Deleplace (1999). [↑](#footnote-ref-8)
9. Panico (2001) quotes this text in full and points to changes in the concept of equilibrium occurring in the literature of the time. Bellofiore (2001) also quotes this passage and concentrates on the “division of labour between monetary and non-monetary economists” (in Sraffa’s terms). [↑](#footnote-ref-9)
10. Hayek (1932). This solution was later called by the self-proclaimed Hayekian Ludwig Lachmann “a fatal concession” (Lachmann, 1986: 237; quoted by Caldwell, 1995: 39n). [↑](#footnote-ref-10)
11. The whole passage is written in ink, but above the word “view” is added in pencil: “which?”. [↑](#footnote-ref-11)
12. “The most serious challenge that the existence of money poses to the theorist is this: the best developed model of the economy cannot find room for it. The best developed model is, of course, the Arrow-Debreu version of a Walrasian general equilibrium. A world in which all conceivable contingent future contracts are possible neither needs nor wants intrinsically worthless money.” (Hahn, 1981: 1) [↑](#footnote-ref-12)
13. This text of nearly ten pages (catalogued as D3/9160-169) is a “discussion [of] the period of transition in the case of voluntary saving, under his [Hayek] conditions of a constant monetary circulation” (D3/9161), more precisely a refutation of “the curious argument by which Dr Hayek tries to prove that his policy of keeping the quantity of money constant is the only possible method of equalising the equilibrium (or natural) rate and the money rate” (D3/9164). Sraffa added in pencil on the typescript: “To refute the argument it will be sufficient to find the rate of interest which keeps the quantity of money constant, and to show that it has no relation to the final equilibrium rate” (D3/9165). One may think that the whole text was eventually deleted by Sraffa because he contented himself to show that, during the transition, there was no single “natural” rate to which the money rate might be equated, so that it appeared redundant to show that, again *during the transition*, the money rate could not be equated to the *final* equilibrium rate, even “supposing it is known from the start” (D3/9147 p.6). [↑](#footnote-ref-13)
14. By contrast, in a moneyless economy, the rate of interest on perishable goods can become negative, because their owners, when they have no immediate use of them, are ready to subsidise borrowers in order to get the goods back later, rather than let them go to waste: “If no money (nor other stand.[ard] of def.[erred] pay.[ments]) there would be no single rate of interest. Every article would be lent at a different rate, pos.[itive] or neg.[ative]. Perishable arts. [articles] might be lent at enormous neg.[ative] rates. Cp. commodity markets: only, this would be extended to every article” (D3/942). This passage (in the margin of which are two vertical lines in red pencil) is immediately followed by the above passage on “perfect forward markets for all commodities” (D3/944; there is no D3/943). [↑](#footnote-ref-14)
15. Money differs from other assets in that it does not result from private decisions; hence its own-rate of interest cannot decline, by contrast with the own-rates of other assets, which one after the other fall to the unchanging level of the own-rate of money. Six pages later, Keynes concludes the argument by emphasizing the necessity to “produce” money, not on a private basis but publicly, in a way consistent with an appropriate (full-employment) rate of interest on money: “Unemployment develops, that is to say, because people want the moon; – men cannot be employed when the object of desire (*i.e.* money) is something which cannot be produced and the demand for which cannot be readily choked off. There is no remedy but to persuade the public that green cheese is practically the same thing and to have a green cheese factory (*i.e.* a central bank) under public control” (Keynes, 1936: 235). [↑](#footnote-ref-15)
16. See also, about the notions used by Keynes: “Sect. II. [of *General Theory*, chapter 17] Entirely differentdefinition of rates of interest. These are marginal productivities. Confusion of lumping two def.[initions] together in own rates of own interest” (I 1006; underlined by Sraffa). [↑](#footnote-ref-16)
17. This raises the question of the consistency between two different definitions of the own-rate of interest, both of them being present in Chapter 17 of *General Theory*. This question was central in an exchange of letters between Keynes (on 8 September 1936) and John Hicks (on 16 October 1936); see Keynes (1973: 76-78). [↑](#footnote-ref-17)
18. As far as I know, the first to have stressed this point in a published work is Nicholas Kaldor twenty-five years later: “[The rate of interest on money] does so [limits output] solely by virtue of its serving as a standard of value. If any other asset – say apples – were chosen as a standard of value, it would automatically acquire this property” (Kaldor, 1961: 70) [↑](#footnote-ref-18)
19. This statement is repeated in another comment: “From the whole treatment of this section, from the examples he gives (houses - use; money - liq. pref.; wheat - carry cost) it is obvious that K. has in the back of his mind two wrong notions, which have entirely misled him: a) that commodities are borrowed for holding them till the end of the loan; b) that only durable articles can therefore be borrowed – But in fact it is as convenient to make a loan of fresh fish for 100 years, as it is to make it of gold” (I 1009). [↑](#footnote-ref-19)
20. The superior figure (1) after “H.” refers to the extract quoted above at the end of section 2: “(1) The use of money as a ‘medium of exchange’ cannot go without its being ‘a standard of deferred payments’ or a ‘store of value’, two attributes which are included in the above: this is obvious if money transactions succeed each other in time; and if they are simultaneous, they must be cleared against each other and no money is required”. This extract has been catalogued under the number D3/9104 at the end of file (i), but it is a slip of paper which matches perfectly the bottom of document D3/949, which had been cut. [↑](#footnote-ref-20)
21. See for example D3/12/1198 (*Notebook*, November 1927): “Cost is *means* not *inducement*. The *possibility* to produce depends upon the absolute real size of the remuneration: there is no trick possible, it is a physical material necessity. The *willingness* to produce depends upon the way in which payment is made: time wages or piece wages, premiums etc (which can be deducted from initial wage, so as to make the total wage equal to physical necessaries), payment conditional upon delivery of the goods (Robertson, in Economica) etc. it is a psychological necessity only, and can be overcome by tricks, cheating, etc. P.T.O.

Cost in the sense of *means* belong to *natural economics*, i.e. they are equal in all forms of society, and are independent of institutions.

Cost in the sense of *inducements* belong to *institutional economics*, they vary according to “social standards”, examples, envy, desire for equality, for rising in social standing etc. (slavery, wage earners, managers, politicians, artists, all have the same physical needs, but require varying inducements)

(*Means* are habitual necessaries, as Ricardo says, i.e. physical since that habit is physical; *not* conventional necessaries, as Marshall says – these are psychological and therefore are part of inducement, not of possibility)” (Sraffa’s italics). [↑](#footnote-ref-21)