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**FROM RICARDO TO SRAFFA:  
A QUEST FOR A MODERN CLASSICAL STANDPOINT ON MONEY**

Ghislain Deleplace

**1. Introduction**

It is generally acknowledged that the theory of prices built by Sraffa in *Production of Commodities by Means of Commodities* (Sraffa 1960) is a development of Ricardo's theory of natural prices in *On the Principles of Political Economy, and Taxation* (Ricardo 1817-1821) and that it allows establishing on a firmer ground the main static results obtained by Ricardo, namely a determination of the price system consistent with the assumption of a uniform rate of profit on all units of capital and an inverse relationship between this rate of profit and the wage share in the aggregate income. However, although Ricardo insisted that all prices – whether natural or market prices – were expressed in money and he devoted many pages to the currency, in *Principles* as before and after, there is no theory of money in *Production of Commodities* which could complement the price system. It is thus surprising that, in comparison with the vast literature on the Sraffa system of prices, very few works have explored the possibility of its consistency with Ricardo's theory of money or with any other theory of money. The object of the present chapter is to discuss some directions in which such consistency has been looked for, and to focus on a specific one, based on my understanding of Ricardo's theory of money (in Deleplace 2017) and on some writings by Sraffa prior to *Production of Commodities*. As such, it aims at contributing to a quest for a modern Classical standpoint on money, if by “modern Classical” one means faithful to Ricardo – the greatest Classical author on money – and consistent with a Sraffa system of prices.

The famous § 44 of *Production of Commodities*, in which Sraffa writes that the rate of profits is “susceptible of being determined from outside the system of production, in particular by the level of the money rates of interest” (Sraffa 1960: 33), has been often interpreted as a way to introduce money into Sraffa's theory of price. This does not seem appropriate for a money *à la* Ricardo for two reasons. First Ricardo contended that the quantity of money did not affect permanently the market rate of interest, which was regulated by the rate of profit, not the other way round. Second, the store-of-value function of money was absent from Ricardo's theory – and, also, as we will see, from some early writings by Sraffa on money.<sup>1</sup> For Ricardo money was both the unit of account in which the prices of commodities are expressed and the circulating medium which purchases these commodities; for a monetary system to be “sound”, there must exist a standard of money. This is what should be made consistent with a Sraffa system of prices.

The present chapter is organised as follows. In Section 2 I contend that the adoption of Sraffa prices by a monetary economy, in accordance with Ricardo's theory of money, requires a specific working of the market for the commodity selected as standard of money, so that this commodity is “outside the system of production” (to borrow Sraffa's expression about the rate of profit). In Section 3 I suggest that the extension of Ricardo's analysis of gold to a modern economy calls for the adoption of a public bond as standard of money, in line with Sraffa's reflexions in the 1930s about the various standards in terms of which to fix one's debt.

**2. Sraffa's theory of price and Ricardo's theory of money**

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<sup>1</sup> For a more detailed critique of the introduction of money through the rate of interest, see Deleplace (2017: 276-8) about Ricardo and Deleplace (2014: 141-6) about Sraffa.

Sraffa explicitly assumed that the prices which reflect the physical constraints of production and the social distribution of the product – in Ricardo’s terms, the natural prices – are “adopted by the market” (Sraffa 1960: 3). One should then inquire about the relationship between money and market prices. When this question is raised in *any* monetary theory, the focus is on the quantity of money. To sum up: how does a change in the quantity of money affect the market prices of commodities? The most widely accepted answer to this question in the literature is the Quantity Theory of Money: a change in the quantity of money causes a *uniform* change in the market prices of *all* commodities in the same direction, which preserves their relative prices (money is neutral). Contrary to a widespread opinion, it has been advocated by some scholars that this does not need to be the case from a Classical standpoint, including Ricardo’s. Two recent reconstructions illustrate in a different way this rejection of the Quantity Theory of Money to analyse a monetary system endowed with a standard (e.g. gold). For the one, a change in the quantity of money causes a *non-uniform* change in the market prices of all commodities in the same direction, *except* for the standard of money (2.1.). For the other, a change in the quantity of money causes an adjustment in the market price of the standard of money which is *specific* to it (2.2.). This raises a question which will be dealt with in Section 3 below: what is precisely the role of the monetary standard in a Classical approach to money?

### 2.1. Money, market prices, and the “Cantillon rule”

A monetary reconstruction has been recently proposed for Part I of Sraffa (1960), that is, a system of production of commodities by means of commodities with circulating capital only and one technique of production for each commodity. The purpose of the exercise is to offer a representation of the economy that takes as given data the monetary flows circulating between its various component parts rather than the physical quantities of commodities exchanged between them. Two studies illustrate such a reconstruction: Benetti, Klimovsky, and Rebeyrol (2014), and Cartelier (2018: 215-7). The difference between these two studies is that in the latter the monetary flows taken as starting point of the analysis are equilibrium ones (they are consistent with one another), while in the former they are arbitrary, the equilibrium monetary system being deduced from the initial (disequilibrium) one. The important conclusion, common to both studies, is that all the salient results obtained by Sraffa on the basis of a matrix of physical quantities may be obtained on the basis of a matrix of monetary flows. This is in particular true for the inverse relationship between the rate of profit and the wage share in the aggregate income.

According to their authors, one advantage of such exercise is to get rid of the questionable objectivity and observability of physical goods, which have to be assumed in the “real” analysis. The data required to build a monetary representation of the economy are objective and observable, since they are the monetary flows written in the accounts of the economic units. It is therefore noticeable that results considered as landmarks of the Classical tradition reconstructed by Sraffa may be freed from the difficulties associated with the assumed physical objectivity of commodities. There is, however, a restriction to this monetary duplication of Sraffa’s results, and it is the obvious consequence of an exercise that aims at dispensing with the assumed knowledge of physical quantities: the very notion of price per unit of commodity vanishes.

It is then worthwhile inquiring whether this notion of price may be reintroduced when the monetary flows taken as the data of the system are supposed to be spent in the purchase of given quantities of commodities. The matrix of money flows is then not only considered as alternative to the matrix of physical quantities exchanged at natural prices but also as a description of actual transactions at market prices. An immediate consequence is that money

is not only a unit of account – something sufficient to duplicate the Sraffa system of (natural) prices – but also the circulating medium with which commodities are purchased in the market. The theory of market prices consistent with such analysis is the “Cantillon rule”, in which the market price of a commodity is the ratio of the purchasing power in money spent in its market to the quantity actually offered of the commodity.

Benetti and Cartelier (2020) combines a Sraffa system of natural prices, the “Cantillon rule” of determination of market prices, and a monetary system exclusively composed of notes convertible into a standard (gold) at a fixed legal price.<sup>2</sup> The authors’ purpose is to explore a theory of a standard-based money which can be made consistent with the Classical theory of prices, meaning by that a theory of natural prices as developed in Sraffa (1960) and a theory of market prices according to the “Cantillon rule”. The main result obtained by the authors is that, due to this rule, a change in the note issue causes a *non-uniform* change in the market prices of commodities in the same direction. This result is obviously at odds with the Quantity Theory of Money, in which the market prices of all commodities vary uniformly with the quantity of money, a condition to ensure the neutrality of money in respect to relative prices.

In Benetti and Cartelier (2020), there is, however, one exception to the (non-uniform) positive effect of a change in the quantity of money on the market prices, and it concerns the monetary standard itself (gold). Because of the existence of a fixed legal price of gold, the authors maintain that its market price cannot depart from this level: if it did, the absence of one side of the bullion market would rule out any actual transaction. If the market price of gold were below the legal price, no one would offer it in the market because it would be more advantageous to part from it at the bank of issue for notes. If the market price of gold were above the legal price, no one would demand it in the market because it would be more advantageous to obtain it from the bank against notes. The absence of transactions on gold out of equilibrium is, according to the authors, a necessary property of a monetary system in which notes are convertible both ways into the standard at a legal price. In other words, the market for gold may only exist in equilibrium: transactions can only occur at a market price equal to the legal price. This statement has an important consequence: since the market price of gold cannot be affected by the quantity of notes issued, the regulation of this quantity does not result from a price adjustment in the market for gold but it is to be explained by the (non-uniform) price adjustment in all other markets.

Such an exclusion of the market price of the standard from the regulation of the quantity of money as a consequence of convertibility would imply that the general emphasis in England – not only Ricardo’s – on “the high price of bullion” (as compared with the mint price) was characteristic of a period (from 1797 to 1819) when the convertibility of the Bank of England note had been suspended. In a monetary system with convertible notes, the practical existence of a spread between the market price and the legal price of the standard, and the theoretical interest for the relationship between this spread and the quantity of money, could only be linked to the coexistence of notes and coins, but they would both disappear with a circulation exclusively composed of notes convertible into the standard at no cost.

This conclusion might be somewhat surprising to scholars familiar with Ricardo’s Ingot Plan where such paper money was advocated and the note issue was regulated through varying it inversely with the sign of the spread between the observed market price and the legal price of gold – a rule of monetary policy which implied that such a spread might exist even in this system. Even if one takes at face value Benetti and Cartelier’s warning that they

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<sup>2</sup> There are other studies which involve, jointly or separately, the authors already mentioned and develop what may be called a monetary approach; see for example Benetti *et alii* (2015) and the volume Cartelier (2018). I restrict here myself to those studies which explicitly aim at making the Sraffa system and the existence of money mutually consistent.

assume to be unfaithful to Ricardo's monetary thought, the exclusion of the market price of gold from the regulation of the quantity of money contradicts an important argument taken by Ricardo from Thornton (who nevertheless originated a distinct Classical approach to money from Ricardo's) and applying to *any* system of convertible notes. This argument is what I have called "the Penelope effect" (Deleplace 2017: 259-62). In short, when the metallic reserve of the bank of issue falls below a certain limit, the bank is forced to purchase bullion in the market, although by doing so it has to pay a higher price than the legal price at which it gives gold against its notes. The bank thus provides the missing side of the market for bullion, in the absence of any demand by all other agents who may obtain gold from the bank at the legal price.

It is thus erroneous to maintain that the market price of gold cannot depart from the legal price under convertibility because no transaction might take place in this circumstance. Indeed, such transactions are not between individual agents who all behave like arbitragers and are only on one side of the market for gold. On the other side, the bank of issue is not arbitraging because its behaviour is constrained by convertibility. The fact that this side of the market is the monetary institution does not prevent a transaction on gold from being a market one (at a market price), distinct from the convertibility relationship between the same individuals and the same monetary institution (at a legal price). In fact, the market and the legal relationships between the bank and the arbitragers are complementary: both sides are "living on the same spot, and giving constant employment to each other", as Ricardo quoted from Thornton (Ricardo, 1810-1811: 59). Convertibility does not imply that the market price of gold is necessarily equal to its legal price; in the contrary, this supposition would amount to assuming away convertibility: why would arbitragers return their notes for gold to the bank at the legal price if they could not sell this gold in the market at a higher price, where it is purchased *by the bank itself*? This arbitrage is central in the Classical analysis of the regulation of the quantity of money by the market price of the standard, as we will now see.

## 2.2. The quantity of money and the market for gold bullion

I have contended elsewhere (Deleplace 2017: 143-6) that Ricardo's theory of money may be summed-up by a Money-Standard Equation, which states that the rate of change in the value of money is equal to the rate of change in the value of the standard minus the rate of change in its market price. The first determinant reflects the change in the conditions of production of the commodity selected as standard of money (e.g. gold) while the second one reflects the discrepancy between the change in the actual quantity of money and the change in the "conformable" quantity of money, that is, the quantity required by "the wants of commerce". When there is no such discrepancy, the value of money only varies with the value of the standard (*ibid*: 245-7). Contrary to the Quantity Theory of Money in which a change in the quantity of money *directly* causes a uniform change in the market prices of all commodities in the same direction (hence a change in the value of money in the opposite direction), in Ricardo a change in the quantity of money causes an opposite change in its value *indirectly*, through its effect on the market price of the standard. The monetary standard is therefore central in Ricardo's theory of money, and it is of the utmost importance to analyse how its market price adjusts when either cause of change in the value of money – a change in the conditions of production of the standard or a change in the actual quantity of money relatively to its conformable level – operates.

It may be shown that this adjustment process is different for each cause. When, for whatever reason (the discovery of a new highly productive mine or of a new technique of production, or the necessity to work less productive mines to answer a new demand for monetary purpose) the conditions of production of gold change, its market price adjusts in accordance with Ricardo's analysis of the formation of the natural price of a competitively-produced commodity (*ibid*: Chapter 5). When the cause of change is monetary (for example when the issuing of notes is greater than what is required by "the wants of commerce", to accommodate government budgetary needs or because the bank of issue "forces" its notes by discounting at a lower rate than the market for loans), an arbitrage is set in motion between the market for bullion and the bank of issue which eventually eliminates the discrepancy between the actual and the conformable quantities of money and restores the equality between the market price and the legal price of gold (*ibid*: Chapter 7).

This adjustment of the quantity of money is a consequence of the arbitrage emphasised above between the market for the standard (gold) and the monetary institution (the bank of issue). Speaking of arbitrage implies that: a) the market price of gold may diverge from the legal price; and b) ~~that~~ this divergence will generate correcting forces which will eliminate it. In Ricardo, the divergence between the market price and the legal price of gold simply reflected the discrepancy between the actual and the conformable quantities of money. As for the forces which eliminated this discrepancy, hence the divergence of prices, they resulted from "the Penelope effect" mentioned above. Since the bank of issue purchased bullion in the market (to replenish its metallic reserve) above the price at which it was legally compelled to give gold against its notes, it made losses. Sooner or later, the bank had to change its behaviour and it contracted the issue, in the hope that, issuing fewer notes through discounting, fewer notes would be returned to it to be converted into gold: "The Bank would be obliged therefore ultimately to adopt the only remedy in their power to put a stop to the demand for guineas. They would withdraw part of their notes from circulation, till they should have increased the value of the remainder to that of gold bullion." (Ricardo 1810-1811: 59)<sup>3</sup>

Even if the reduction of the excess quantity of notes eventually occurred, this adjustment might take quite a long time, depending on the lag with which the bank first purchased bullion in the market, and second contracted the issue to stop its losses. During this interval, the market price of gold bullion remained above the legal price: money was depreciated. According to Ricardo, this was one of the reasons why the monetary system could be improved by his Ingot Plan that replaced the mixed circulation of coins and notes by an exclusive circulation of notes (convertible into bullion), the quantity of which was to be immediately adjusted when the market price of gold diverged from the legal price.

The real and the monetary adjustment processes have obviously opposite results for the market price of gold. In the first, this price was set at a new level, which corresponded to the permanent new conditions of production (the new natural price of gold). In the second, after it had changed, the market price of gold sooner or later returned to the legal level, illustrating that the monetary cause could only be temporary: the inadequacy of the actual quantity of money was eventually corrected. Consequently, there seems to be a contradiction between these two features of the economic system, both of them emphasised by Ricardo. According to his theory of value and distribution, the market price of gold must change with the conditions of production of this commodity (which determine what Ricardo calls its value)

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<sup>3</sup> Contrary to what is usually ascribed to Ricardo, the exportation of bullion, which under inconvertibility adjusted the aggregate quantity of money when it was in excess, only played a role at the beginning of the adjustment process under convertibility. As soon as the bank of issue purchased bullion to replenish its metallic reserve, the exportation of bullion was replaced by a domestic adjustment: the reduction of the bank issue under the pressure of the Penelope effect. For the international part of the adjustment, see Deleplace (2017: Chapter 8).

since it is competitively produced. According to his theory of money, the market price of gold should adjust to the legal price since gold is the standard of money. In other words, the market price of gold should be “regulated” by its ever-changing value (as for any competitively-produced commodity) and by its fixed legal price (because gold is the standard of money). As Ricardo emphatically declared in 1819: “In a sound state of the currency, the value of gold may vary, but its price cannot”; Ricardo 1951-1973, V: 392).

I contend that there is no contradiction if it is assumed as a necessary condition of a standard-based monetary system that the commodity selected as standard of money in a given economy should be produced outside this economy, that is, in another economy where *another* standard of money is used.<sup>4</sup> In *Principles*, the historical example of gold being used as standard of money in England and produced “in Spanish America” (under a silver standard) was a metaphor of a theoretical requisite: for a monetary system to be “sound”, the standard of money should be outside the system of production of the commodities circulated by this money.

This assumption was not explicitly made by Ricardo, even if in Chapter III “On the rent of mines” of *Principles* he observed that “by the discovery of America and the rich mines in which it abounds, a great effect was produced on the natural price of the precious metals” (Ricardo 1817-1821: 86) and in Chapter XIII “Taxes on gold” he mentioned that for this metal “its market value in Europe is ultimately regulated by its natural value in Spanish America” (*ibid*: 195). This assumption is obviously contradictory with the well-known supposition in *Reply to Bosanquet* of “the gold mine to be actually the property of the Bank [of England], even to be situated on their own premises.” (Ricardo 1811: 216) But it should be noted that in the Bullion Essays of 1810-1811 Ricardo was not yet equipped with his later theory of value and distribution. What I contend is that the exteriority of the standard of money from the system of production of commodities is a necessary condition for applying Ricardo’s theory of value and distribution to a monetary economy.

### **3. From Ricardo’s standard of money to Sraffa’s standard in which to fix a debt**

#### 3.1. Ricardo’s and Sraffa’s “standard commodity”

The expression “standard commodity” was used by Ricardo in his *Proposals for an Economical and Secure Currency* (Ricardo 1816: 58) to emphasise the necessity of having a commodity as standard “to regulate the quantity, and by the quantity the value of the currency” (*ibid*: 59). On this occasion, he not only discarded the “idea of a currency without a specific standard” (*ibid*) but also the opinion “that we might judge of its value [of the currency] by its relation, not to one, but to the mass of commodities” (*ibid*), which means that he excluded that the standard of money could be a composite commodity.<sup>5</sup> In *Principles*, after having analysed the effect of differences in the durability of capital on the relative values of

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<sup>4</sup> Gold should also be a non-basic product, so that it does not affect the distribution of income, hence the ranking of the mines by their physical productivity; see Deleplace (2017: 182-3).

<sup>5</sup> The exclusion by Ricardo of “the mass of commodities” as standard of money is not contradictory with his definition of the value of money by its purchasing power over all commodities except the standard. See Deleplace (2017: 89-93; 115-6)

competitively-produced commodities, he supposed that gold could be considered as the standard commodity.<sup>6</sup>

As is well-known, Sraffa's "standard commodity" is a composite one which is constructed by the combination of the basic commodities in appropriate proportions. In *Production of Commodities*, the link with Ricardo's standard of value used as standard of money was suggested by Sraffa himself in an indirect way: "The conception of a standard measure of value as a medium between two extremes (§ 17 ff.) also belongs to Ricardo<sup>1</sup> and [...] the Standard commodity [...] has been evolved from it." (Sraffa 1960: 94) Footnote 1 attached to "Ricardo" directs the reader to Sraffa's own introduction to his edition of *Principles*, 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) One observes that Sraffa refers to "money" when Ricardo's quoted excerpt was attached to "gold considered as a commodity" (Ricardo 1817-1821: 45); this was consistent with Ricardo's expression in a later sentence: "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, and therefore all alterations in price to be occasioned by some alteration in the value of the commodity of which I may be speaking" (*ibid*: 46; my emphasis). According to Sraffa, his "standard commodity" thus descended from Ricardo's standard of value supposed to be also the standard of money (gold).

One should, however, resist the temptation of linking Sraffa's standard commodity and Ricardo's standard of money.<sup>7</sup> As seen above, a monetary theory *à la* Ricardo presupposes the existence of arbitrage between the market for the standard of money and the monetary institution.<sup>8</sup> This rules out any conception of the standard of money as a commodity constructed on the basis of the actual commodities that belong to the system of production. Of course, such a composite commodity may substitute for gold as numéraire to measure prices, and it might even be imposed legally (as in the mechanism of indexation of the minimum wage in some countries). But to become the standard of money (and not simply an arbitrary numéraire), this composite commodity should fulfil two conditions: a) convertibility both ways into the currency, which means a legal price at which the monetary institution guarantees this convertibility; and b) the existence of a market in which this commodity is exchanged for the currency at a variable price, and not only the existence of a market for each of the commodities entering the composition of the standard. In the absence of these two conditions, arbitrage *à la* Ricardo is impossible. If modern financial markets where contracts on indexes are traded offer an example of fulfilment of the second condition, it is difficult to imagine that a market determination of the prices of commodities might coexist with a legal fixation of the price of their constructed aggregate. In addition, I have contended above that, for a monetary system to be "sound" in Ricardo's sense, the standard of money should be

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<sup>6</sup> See Ricardo (1817-1821: 45-6). In his *Notes on Malthus*, Ricardo justified this supposition: "It was never contended that gold under the present circumstances was a good measure of value, it was only hypothetically, and for the purpose of illustrating a principle, supposed that all the known causes of the variability of gold, were removed. [...] I beg you [Malthus] to suppose all causes of variation removed, that we may speak about the variations of other things in an unvarying measure without confusion." (Ricardo 1951-1973, II: 82-3)

<sup>7</sup> For another discussion of the relation between the standard commodity and the standard of money, see Marcuzzo and Rosselli (1994).

<sup>8</sup> The emphasis on an arbitrage implying the market for gold (whether international arbitrage with its foreign markets, as in Marcuzzo and Rosselli 1991, or domestic arbitrage with the monetary institution, as in Deleplace 2017) is a distinctive aspect of the unorthodox understanding of Ricardo's monetary theory; see Deleplace (2020).

outside the system of production of commodities. This excludes the selection of Sraffa's standard commodity as standard of money.

Discarding Sraffa's standard commodity as standard of money in Ricardo does not mean that Sraffa's earlier views on the question of the standard cannot be useful to build a modern Classical standpoint on money. Since such a standpoint puts the standard of money centre stage it is first necessary to mention a possible extension of its analysis by Ricardo to modern times. In Deleplace (2017: 388-9) I have suggested that Ricardo's conditions for "a sound state of the currency" in no way require the standard to be metallic: any marketable asset that is legally convertible both ways into money at a fixed price may play the same role, provided that it does not belong to the system of production of commodities. This exteriority of Ricardo's gold standard implied the supposition that gold was produced in a foreign economy, where it was not the standard of money. Another kind of exteriority can be imagined for a financial asset if it is a public one, issued outside the privately-operated system of production of commodities. The standard of money would then be a public bond accepted and given against money by a central bank at a fixed legal price and traded at a variable price on a secondary market. The market price of such a public-debt standard would be determined, as for any financial asset, by the anticipation of its future returns. Here the introduction of a time horizon makes room for Sraffa's writings before *Production of Commodities*.<sup>9</sup>

### 3.2. Money, gold, or fresh fish: in which standard to fix one's debt?

In his manuscript critique of Keynes's own-rate of interest (inserted in his own copy of *General Theory*), Sraffa made a comparison between gold and fresh fish: "From the whole treatment of this section [in Chapter XVII of *General Theory*], from the examples he gives (houses – use; money – liq.[uidity] pref.[erence]; wheat – carry cost) it is obvious that K.[eynes] 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." (*Sraffa Papers*: I 100/9)

The role which fresh fish might play as conveniently as gold was explained two pages later: "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." (*ibid*: I 100/11; Sraffa's italics) For the individuals, fresh fish or gold was thus "the standard in which they fix their debt" and not an asset in which they own their wealth.

One might think that each of these two standards being "as convenient", selecting one or the other would be a matter of individual choice. However, since borrowing such an "article" to make it a standard implies purchasing it spot with money today and selling it

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<sup>9</sup> For a detailed study of money in Sraffa from the late 1920s to *Production of Commodities*, see Deleplace (2014).

forward for money later,<sup>10</sup> the way it allows to “fix [one’s] debt” depends on the role of money as a means of spot and deferred payment.

In preparatory notes for his article against Hayek (Sraffa 1932), Sraffa had observed that the existence of money supposed the absence of a *complete* system of forward markets: “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.” (*Sraffa Papers*: D3/9/44) In the contrary, sequential trading was a characteristic of a monetary economy, and consequently the means of exchange was also “standard of deferred payments”: “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” (*ibid*: D3/9/104).<sup>11</sup> Money was thus for Sraffa a “standard of deferred payments.”

In the 1932 paper and the preparatory notes for it, another aspect characterised a monetary economy: “the essential feature of money [is] the singleness of the standard,” in contrast with “non-monetary economies, in which different transactions are fixed in terms of different standards.” (Sraffa 1932: 51) This singleness was a necessary attribute of “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,” (*ibid*: 43) what in his preparatory notes Sraffa called “monetary constants” (*Sraffa Papers*: D3/9/49).

It should be observed that in all these quotations, the word “standard” used by Sraffa refers to money in which “all kinds of relations between men are more or less rigidly fixed,” *not* to the standard of money in the sense of Ricardo, that is, something in which money itself is fixed. When money is used to borrow fresh fish or gold so as to fix a debt in terms of one or the other rather than in money, these articles become *a* standard of money. But so doing they do not necessarily retain the social character attached by Sraffa to money when he spoke of “monetary constants”, and they certainly do not acquire the legal character attached by Ricardo to *the* standard of money. In a non-monetary economy where “different transactions are fixed in terms of different standards,” fresh fish might be one of these standards, and in a monetary economy it could only be a private standard, chosen by some individuals rather than the single common one (money). By contrast, gold was during centuries the social standard of money, thanks to legal convertibility both ways into money. Fixing debts in terms of money amounted to fix them in terms of the standard of money (gold), although it was always possible, for matter of individual convenience,<sup>12</sup> to fix them in terms of a private standard (e.g. fresh fish), by buying spot (with borrowed money) and selling forward this particular article. As suggested above, a public bond might be substituted for gold as the legal standard of money in a modern economy, leaving open the possibility for all kinds of future contracts to be used as private standards in which to fix one’s debt and so fulfil particular needs.

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<sup>10</sup> “Loans are currently made in the present world in terms of every commodity for which there is a forward market. When a cotton spinner borrows a sum of money for three months and uses the proceeds to purchase spot, a quantity of raw cotton which he simultaneously sells three months forward, he is actually ‘borrowing cotton’ for that period.” (Sraffa 1932: 49-50)

<sup>11</sup> In this extract Sraffa mentioned as “attribute” of money “a store of value” (see also Sraffa 1932: 43). As seen above, in his manuscript notes on *General Theory* (four years later), he discarded Keynes’s “underlying assumption [...] that people borrow an article in order to *keep it* and enjoy its advantages.” It is possible that Keynes’s faulty use (in Sraffa’s view) of the notion of “commodity-rate of interest” Sraffa had introduced in his 1932 article led him to stress that fixing one’s debt in terms of an article was different from storing it.

<sup>12</sup> “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.” (*Sraffa Papers*: D3/9/50)

A last point may be worth mentioning. In a *Notebook* dated November 1927, Sraffa drew about the notion of cost a distinction between “natural” and “institutional economics”:  
“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’. [...] (Means are habitual necessities, as Ricardo says, i.e. physical since that habit is physical; not conventional necessities, as Marshall says – these are psychological and therefore are part of inducement, not of possibility).” (*ibid*: D3/12/11/98; Sraffa’s underlines) It is ironical that, in the case of the standard of money *à la* Ricardo (whether gold or a public bond), the necessary requisite of being outside the system of production echoes Sraffa’s project to separate, in the determination of the system of prices, what is “natural” from what is “institutional”.

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