THE STANDARD COMMODITY
AND THE STANDARD OF MONEY

par Maria Cristina MARCUZZO et Annalisa ROSSELLI

INTRODUCTION

In this paper we address some of the issues raised in comments on our book *Ricardo and the Gold Standard* (Marcuzzo-Rosselli, 1991) and suggested to us by recent works on the standard of value in Ricardo and on interpretations of Sraffa's standard commodity (Bidard, 1992; Deleplace, 1994; Kurz-Salvadori, 1992 and 1993).

We consider two questions in particular. The first is whether the commodity chosen as the standard of money should have particular properties, or whether any commodity could be arbitrarily chosen as the standard of money. The second question is whether Sraffa's standard commodity could, in principle, be a commodity standard, i.e. the standard of a monetary régime where the price of the currency in terms of the chosen commodity or basket of commodities is kept fixed.

The structure of the argument is as follows.

In Section 1 we review Sraffa's assessment of the questions raised by Ricardo in his search for a standard of value. In Section 2 we look at the function of the standard of value and spell out in detail what the function of the standard of money is and why it is not simply a *numéraire*. Then we turn to Sraffa's standard commodity as a possible candidate for the standard of money. In Section 3 and 4 we show why this possibility should be rejected. In Section 5 we argue that while it

---

1 We wish to thank the participants in the workshop on "Ricardo's Monetary Writings", held in Paris at the Hôtel de la Monnaie in February 1992, for a fruitful discussion. We are indebted to Ghislain Deleplace and Fernando Vianello for stimulating comments and criticism.
is not necessary for the standard of money to be a good standard of value - if it is merely the mechanisms of adjustment of the money supply that are to be accounted for - it is nevertheless required if the superiority of a commodity standard régime over another monetary régime is to be asserted. Finally, we conclude that in the absence of a theory to direct our choice of the standard, a commodity standard régime is at best useless and at worst harmful.

1. Ricardo after Sraffa

We owe to Sraffa the explanation of the difficulties involved in Ricardo's quest for an invariable measure of value. Ricardo was looking for a measure of the difficulty of production of commodities, which he called their absolute value. However, as Ricardo was well aware, there is no solution to the problem of finding a commodity such that any variation in its relative price against any other commodity would only signal a change in the conditions of production for the latter commodity.

If commodities were produced with the same conditions of production as the commodity chosen as the measure of their value - provided that the conditions of production of the standard do not change - changes in the relative value of the commodities being measured would always indicate a change in their conditions of production. (This is the special case where there is a unique capital/labour ratio in all sectors and where, as we all know, the labour theory of value applies and the choice of the standard of value is not controversial. The standard is a commodity that requires "at all times, and under all circumstances, precisely the same quantity of labour to obtain it". (Ricardo 1951, p.27n.)).

On the contrary, since commodities are normally produced with different compositions of labour and means of productions, an observed change in the relative value of the commodity being measured could never be uniquely attributed to a change in its conditions of production, since a change in the rate of profit, or in the wage rate would also alter its relative value. Thus, there is no way to distinguish between the two sources of variations in relative prices.

We also owe to Sraffa a way out of the impasse. He made the suggestion that the invariable measure of value was not devised by Ricardo merely to measure the change in the conditions of production of each individual commodity but, in fact, was instrumental to another and more important purpose. Indeed, the aim was the solution of what Ricardo believed to be the "principal" problem of political economy, i.e. to determine "the proportions in which the whole produce is divided between landlords, capitalists, and labourers, and which are not essentially connected with the doctrine of value" (Ricardo 1952, p.194).

According to Sraffa, Ricardo's search for an invariable measure of value was meant to solve an aggregation problem, i.e. how to measure the overall product of the economy so that its magnitude would not vary with variations in the distribution of the product (Sraffa 1951, pp. lviii-xl.). According to Sraffa, Ricardo's ultimate choice of the commodity to be used as standard reinforces this interpretation.

It is well known that, having considered different possibilities, Ricardo states that the best measure of value would be a commodity produced under conditions which are a "just mean" (Ricardo 1951, pp. 45-46) between two extremes. Consider, for instance, the following passage:

"The two extremes appear to be these: one, where the commodity is produced without delay, and by labour only, without the intervention of capital; the other where it is result of a great quantity of fixed capital, contains very little labour, and is not produced without considerable delay."

(Ricardo 1952, p. 193).

Two justifications - not always clearly distinguished - were given by Ricardo for his choice.

Knowing that a commodity can be a standard of value only for the commodities produced with the same conditions of production as the standard, he justified his choice by affirming that most commodities are indeed produced with average conditions. The "average commodity" is therefore a good standard of value for the majority of commodities.

The other justification rests on the assumption that the condition of being "the just mean between two extremes" implies that an increase in the rate of profit is perfectly offset by a corresponding reduction in wages and vice versa. In several passages it even seems that this property is employed by Ricardo as the definition of the "just mean". So when, for instance, there is a rise in wages, the price of the "average commodity" does not change, whereas the price of one class of commodities would increase and the price of the other class of commodities would decrease, relatively to the standard.

We can take Sraffa's interpretation of Ricardo's search for an invariable measure of value as the solution to an aggregation problem even further. We may conjecture that in fact Ricardo wanted the
"average commodity" to be such that changes in the relative prices of commodities, due to a change in distribution, in aggregate would cancel out. Given technology, the aggregate value of commodities could then be accurately measured, since a change in distribution would leave the value of commodities unaffected in the aggregate. In Sraffa's words: "If measured in such a standard, the average price of all commodities, and their aggregate value, would remain unaffected by a rise or fall of wage". (Sraffa 1951, pp. xlv-xlvi).

In his search for one commodity whose value was invariable, Ricardo was pursuing two goals or, rather, was endeavouring to give one single answer to two quite distinct questions: the search for a standard to ascertain the constancy both of the value of a single commodity and of the whole product.

2. The standard of money and the invariable measure of value

Another function Ricardo assigned to the invariable measure of value is that of being a standard of money. The standard of money is a measure of the value of money which is defined as the purchasing power of a unit of currency over the standard. If the price of the commodity chosen as the standard of money is kept fixed, changes in the money prices of commodities can occur only because of changes in the relative value of commodities in terms of the standard. Thus, if the price of the standard is kept fixed and the relative value of the standard is constant, price stability is ensured.

However, for Ricardo the function of the standard of money was not to ensure price stability, but to allow the distinction between changes in the value of money and changes in money prices. In fact, Ricardo's belief was that when the stability of the purchasing power of money over the standard was achieved through the adoption of a suitable monetary régime, variations in money prices which had a monetary origin could be avoided.

On the contrary, variations in money prices due to changes in the relative value of the standard in terms of commodities could not be prevented, as having their origin in a change in the conditions of production or in taxation. Only if the standard were an invariable measure of value would changes in money prices signal exclusively such changes in money prices as had their origin in a change in the conditions of production or in taxation. These changes in prices could not be avoided under any monetary régime. In conclusion, only an invariable measure of value could be a good standard of money because only in this case is any change in money prices an unambiguous signal of a change either in the value of money or in the values of commodities.

In Marcuzzo-Rosselli (1991) we analysed the functions of gold as standard of money independently of its function as standard of value. However, we pointed out that in Ricardo gold was expected to perform the function of standard of money because it was conceived to be a commodity whose value is "tolerably fixed". (Ricardo 1951a, p. 65n).

Since we know that it is impossible to find a commodity which is invariable in absolute value, how can we retain the function Ricardo assigned to the standard of money?

Clearly, there are only two possibilities. Either the function of the standard of money can be specified without any reference to an invariable measure of absolute value, or the function of the standard of money is meaningless without it. In the latter case, i.e. when we maintain the link with the standard of value, we are still faced with two alternatives. Either the function of standard of money is also flawed because of the impossible requirement of finding an invariant measure of value; or the performance of the standard of money can be assured by giving a different meaning to the characteristic of the commodity chosen as standard of money of having invariable value.

First, we shall consider the argument in favour of breaching the link between the function of the standard of money and that of an invariable measure of value.

In asking "what sort of invariability is required by the function of standard of money", Deleplace answers that "all we need is a commodity invariant in money price, i.e. a commodity whose market price may stay constant even if there is a change in conditions of production and distribution" (Deleplace 1994). It is our contention that this definition does not help us to find out the requirements of a standard of money. No more, indeed, than the definition of a commodity whose price is set equal to one helps us to justify the choice of a given numéraire.

Deleplace's definition of invariability is a necessary, not sufficient condition for an efficient commodity standard régime. A commodity standard régime requires mechanisms to keep the price of the standard fixed. These mechanisms may be rules for the monetary authorities to obey or market behaviour to be implemented; but in both cases it is because of these mechanisms that the invariability of the money price of the standard is ensured.
The virtue of an efficient commodity standard régime is that deviations of the market price from the official price of the standard should be prevented, as Deleplace points out, both "on the side of money" and "on the side of the standard". But while "on the side of money" this is ensured by the rules of creation of the money supply, "on the side of the standard" this can be ensured only by the choice of a commodity whose market conditions are fairly stable. If the supply and/or demand conditions of the commodity chosen as the standard are volatile, continuous adjustments in the entire structure of money prices are necessary. The standard of money must be a commodity in which "sources of disturbances" deriving from the characteristics of the commodity chosen are, as far as possible, absent. This explains the reasons for Ricardo's attempt to postulate that "gold is invariable in value".

Let us now turn to examine the possibility that the invariability of the value of the standard be guaranteed by a new definition of invariability of the standard of value.

3. The standard commodity

Sraffa solved the problem of finding out the conditions in which a commodity can be a standard of value by adopting the strategy of tackling separately the two possible causes of variations in relative prices: changes in technology and changes in income distribution. If relative prices are proportional to their labour content, the standard commodity must be a commodity which is produced with the same quantity of labour, so that it can measure any change in technology occurring in the production of all other commodities. This condition may be weakened into that of being produced in conditions of production which vary according to a known path, i.e. "in a way which could be exactly followed" (Bidard 1992, p. 8).

If the same technological conditions are assumed to prevail, relative prices may still vary because of changes in distribution. In the latter case the standard commodity must be conceived so that this particular cause of variation is absent.

The choice of the most suitable commodity as numéraire of the system is dictated, in the former case, by the labour theory of value and, in the latter case, by the knowledge that relative prices are not independent of the proportion in which labour is combined with the means of production at each stage of production. In fact, the choice of the standard can be given meaning only with respect to the theory of prices adopted. (This is an important point made by Schefold (1986)). Indeed, the invariability of the standard is defined as the property which exempts a particular commodity from the laws which govern price variations. It is obvious that this property has nothing to do with the constancy of the price of the numéraire which is always equal to one, whatever commodity is chosen as numéraire. Nor is the invariability of the standard commodity affected by the fact that, with another numéraire, its price will in general vary.

Sraffa's standard commodity is a development of Ricardo's theory in two respects.

Firstly, Ricardo's assumption is maintained that variations in prices following a change in distribution are caused by commodities being normally produced with different proportions of labour and capital. Thus, when there is a rise in the rate of profit, the price of commodities produced with a high ratio of capital to labour must increase, or when there is a fall in the rate of profit - decrease in order to restore the equality of the rate of profit in each sector. (Clearly this holds only if the value of the means of production could be assumed to remain constant). The question then is to ascertain under which conditions a commodity would not undergo a variation in price.

Ricardo's answer to this question - the "average commodity", as "medium between two extremes" - was translated by Sraffa into the standard commodity, which satisfies the conditions known in the literature as that of "balancing" proportion and "recurrence", respectively (Schefold, 1986). The former requires that changes in wages perfectly offset any change in the rate of profit. The latter condition is that an identical proportion between labour and means of production recurs at each stage of production.

Sraffa found out that the necessary condition for any given commodity to satisfy the "balancing" proportion and the "recurrence" requirements is that it be produced with the same proportions between labour and means of production as the means of production themselves. Unlike Ricardo's idea of a commodity produced with an "average" ratio between labour and capital, Sraffa's requirement is an acknowledgment of the difficulties involved in the measurement of capital.

When the standard commodity is chosen as numéraire, since the standard commodity need not change its price in relation to its means of production, any observed change in the relative price of commodities is solely accounted for by the proportions of capital and labour with which the commodity placed at the numerator is produced.
Furthermore, the standard commodity is a development of Ricardo’s theory in another respect, i.e. as solution to an aggregation problem. This is investigated by Sraffa through the standard system.

In the standard system the ratio between the net product and the means of production is constant. Consequently, within the standard system it becomes possible to compare different distributions of income independently of changes in relative prices due to variations either in the rate of profit or in the rate of wages.

The same property applies to the actual system when the standard commodity is adopted as numéraire, although in this case the ratio between the net product and the means of production is not constant: the essential point is that the relationship between the rate of profit and the wage, in terms of the standard commodity, is the same.

When the standard commodity is used as numéraire we can investigate the relationship between the rate of profit and the wage as if in a "vacuum" (Sraffa 1960, p. 18), i.e. without any disturbance deriving from changes in relative prices. It follows that the standard commodity can be employed as a "useful although not a necessary" (Kurz-Salvadori 1993, p. 117) tool to study the effects of changes in distribution in a system of commodity prices determined by the conditions of production.

To the extent that it solves the aggregation problem involved in changes in distribution, Sraffa's standard commodity also provides an answer to Ricardo's quest for an invariable measure of value, although confined to the effects of changes in distribution with unchanged technology (Kurz-Salvadori, 1992). It does so because it abandons Ricardo's more ambitious purpose, namely, that of measuring changes in the conditions of production or in the absolute value of commodities. This amounts to abandoning the very idea of a commodity of invariable value.

4. The standard commodity as the commodity standard

In spite of its limited scope it is natural to turn to the standard commodity to see whether it would be a suitable candidate to perform the function of standard of money. Clearly, this is a thought experiment which is performed without addressing the question as to whether a composite commodity is eligible to become a commodity standard whose money price is fixed in a convertible régime. Furthermore, we are assuming away any complication arising from joint production related to the existence and uniqueness of the standard commodity.

As for the condition that the commodity standard should be produced with unvarying technology, it is immediately apparent that the standard commodity does not fulfill the requirement. Since the standard commodity is a basket of the basic commodities of the economic system, every change in the conditions of production of any one of them is reflected in its composition.

However, if we assume that the technology does not vary, we can inquire whether the property of the standard commodity of being invariant with respect to changes in distribution is relevant to the function of standard of money.

A promising starting point is a suggestion Sraffa made regarding an implication of Ricardo's average commodity, i.e. leaving the price level constant. This suggests that the average commodity could be a standard whose purchasing power in terms of all commodities would not change with any change in distribution.

However, the condition that a good standard of money be a commodity which keeps constant "the average price of all commodities" when there is a change in distribution is obviously a stronger condition than the requirement of being exempted from variations in price. The standard commodity itself has a price equal to one when it is used as numéraire of a system of prices, but its price varies if the numéraire chosen is the net product of the actual system. (With the exception of the very special case in which conditions of production are such that the relationship between the wage rate and the profit rate turns out to be linear (See Flaschel, 1986)). The requirement for the standard that the average price of commodities be kept constant entails that variations in relative prices of the commodities used to construct the price index cancel out.

We can see that the standard commodity does not satisfy the condition of keeping constant the average price of commodities. This would require the weights to be proportional to the product of the standard system. But there is no reason whatsoever why this should be so in any actual system.

Thus, Sraffa's standard commodity can be used to solve Ricardo's problem of measuring the effects of a change in distribution. Unfortunately, it cannot be employed to ascertain the change in the relative value of any single commodity, nor to prevent changes in the price level deriving from changes in distribution.
5. The gold standard without the invariable measure

If neither gold nor the standard commodity can be shown to fulfill the conditions of an invariable measure of value we have to see on what grounds the superiority of a commodity standard regime can be justified.

In Marcuzzo-Rosselli (1991) we demonstrated that the working of the gold standard can be studied without assuming that gold is a commodity with an invariable value, in the sense Ricardo took it. The adjustment mechanisms of the quantity of money require only that the price of gold be fixed, because the equilibrium quantity of money need not be determined. Only in an interpretation of Ricardo's theory in which the equilibrium quantity of money must be known is the determination of the value of gold necessary. The adjustment mechanisms, which are based on convertibility and gold flows, are defined in terms solely of the money price of gold and the market rate of exchange. However, we also pointed out that Ricardo's theory of the gold standard entails the need to justify the preference accorded to gold.

The suggestion is sometimes made in the literature that the idea of absolute value can be abandoned in favour of the idea that gold has a constant relative value in terms of commodities.

As we demonstrated in Marcuzzo-Rosselli (1991), the assumption that gold is constant in absolute value is weaker than the assumption that it is constant in relative value. In fact, the assumption that gold is a commodity whose purchasing power in terms of commodities is constant adds nothing to our understanding of how the gold standard really worked. This assumption, characterizing most contemporary models of the gold standard, leads to the false prediction that the gold standard guarantees price stability and has, in fact, been amply disproved by the history of the gold standard itself. In reality, as Cooper has recently reminded us, the structural flaw of a gold standard system was precisely the opposite, i.e. "a secular decline in the price level, because of the insufficient rate of growth of the world supply of gold". (Cooper 1992, p. 2127).

At the other extreme, as we saw when dealing with Deleplace's definition of invariability, if we assume away any link between the standard of money and the standard of value we collapse the function of the latter into that of a simple numéraire. In this case, we are able to predict the direction of gold movements, and to define the relevant stopping rules for gold flows, without assuming the condition of equality of purchasing power parity of gold in terms of commodities at home and abroad. Furthermore, we are able to distinguish between monetary and real causes of price variations, which we cannot do when the standard is assumed to have a constant relative value in terms of commodities, because here a change in the value of money is not the same thing as a change in the general price level. However, it will no longer be true that a change in the relative value of commodities in terms of the standard is due to a change in the conditions of production of commodities alone. By choosing any numéraire we can constrain the behaviour of the monetary authorities by providing them with an unambiguous rule, i.e. that of being governed only by the price of gold, but the possibility of a source of price instability is introduced.

In particular, any increase in money prices may be the consequence of an improvement in the conditions of production of the standard. In this case, if general inflation is to be avoided, a reduction in the official price of the standard is necessary. (However, this will not be accompanied by an appreciation of the exchange if the standard is internationally adopted as the standard of money, since any improvement in the conditions of production of the standard equally affects all the currencies which are on the same standard).

Conversely, a fall in money prices may be the consequence of an improvement in the conditions of production of all other commodities and if general deflation is to be avoided this would in turn require an increase in the money price of the standard.

Conclusions

We should like to make two concluding remarks.

Firstly, the question of what is a good standard of money can be bypassed by stating that, empirically, price variability would be approximately the same with many different standards. While the theoretical question of a good standard would remain unanswered, for practical purposes a commodity or a basket of commodities whose price variations were shown to be "average", could satisfactorily perform the function of the standard, as far as the question of measuring the value of the currency is concerned.

Secondly, the price of the standard can provide the monetary authorities with a fixed rule for behaviour, but if the monetary policy implied by adherence to the standard turns out to be unsustainable, discretion becomes imperative. Thus, if the unwanted consequences of
a monetary policy guided solely by adherence to the standard are to be avoided, an activist monetary policy is required. Under a commodity standard régime this would require continuous changes in the official price of the standard and in the exchange, i.e. the de facto abandonment of a fixed price for the standard.

Therefore in the absence of the assumption that the standard is an invariable measure of value or of a theory which tells us which commodity to choose as standard, the virtues of having a monetary standard vanish and the price to pay in order to constrain the behaviour of the monetary authorities becomes indeed high.

Université de Modena
Université de Firenze

REFERENCES


