Ricardo’s Theory of Money Matters

Maria Cristina Marcuzzo
Annalisa Rosselli

Dans cet exposé on analyse trois reproches adressés communément à la théorie monétaire de Ricardo : la monnaie-marchandise, la neutralité de la monnaie et la conception d’équilibre à long terme. Le premier, que l’identification de la monnaie avec l’or empêche Ricardo de saisir le sens du papier-monnaie et, par conséquent, de comprendre pleinement ses propriétés. Le deuxième, que Ricardo est le champion de la théorie quantitative de la monnaie et qu’il refuse de voir les effets réels des variations dans les variables nominales. Le troisième, que Ricardo porte une attention exclusive aux phénomènes permanents au détriment de l’analyse des phénomènes à court terme. Notre analyse affronte ces reproches et propose une interprétation alternative de la théorie monétaire de Ricardo.

MISUNDERSTANDINGS

According to Hicks [1967], classical monetary theory has two main strands, one represented by Ricardo and the Currency School, who believed in relying at all costs (including deflation and unemployment) on automatic regulation of the quantity of money, the other stream by Thornton and Tooke, who favoured a permissive monetary policy and were prepared to accept a little monetary instability as the price of sustaining the level of economic activity and insulating the domestic economy from fluctuations in the balance of payments.

Clearly this interpretation reflects the general acceptance of the Keynesian approach to monetary theory in those years, when Ricardo “was that able but wrong-headed man” who “shunted the car” of monetary theory on to a wrong line. On the contrary, Thornton is the economist who understood that “money matters”: a monetary economy is governed by uncertainty; in monetary affairs discretion is preferable to rules, since the economy is hardly ever in full equilibrium and the equilibrating forces of market mechanisms are slow or ineffective.

* Respectivement Università de Modène, Dipartimento di Economia Politica, via Berengario, 51 - 41100 Modena, et Università de Firenze, Dipartimento di Scienze Economiche, Via Monteoliveto, 7 - 50123 Firenze.

1. According to Schumpeter (1954, p. 704n.)... in matters of monetary as of general theory, Ricardian teaching is a detour and... it slowed up the advance of analysis, which could have been much quicker and smoother had Thornton’s lead been followed — had Ricardo force not prevailed over Thornton’s insight.” See also Hayek (1978, p. 36): “Although Thornton’s merits have long been overshadowed by the greater fame of Ricardo, it has now come to be recognized that in the field of money the main achievement of the classical period is due to Thornton.”
With the wide acceptance of monetarism and the monetary approach to the balance of payments in the early Seventies, Ricardo's monetary theory had a new lease of life. Ricardo appeared as the champion of the Quantity Theory approach (Mason 1977, p. 477), which had been unwisely discarded on the advent of the Keynesian Revolution. (Humphrey-Keheler 1982, p. 102). In launching their counter-attack against Keynesian economics and the latter's criticism of the quantity theory approach, monetarists insisted on continuity with the classical and Ricardian monetary theory (Keheler 1991, p. 145), which needed to be amended only in so far as to allow for short-run effects of monetary disturbances (Humphrey 1974, p. 13). In fact, the neoclassical re-statement of the quantity theory admits the short-run non-neutrality of money, which — according to this view — Ricardo considered unimportant because of his concern with long-run equilibrium analysis.

In the meanwhile, the so-called "surplus approach" also launched reappraisal of Ricardian economics, but with regard to the theory of value and distribution alone. The implicit message in this literature was that, as far as Ricardo's monetary theory was concerned, there was not much worth recovering from what had been submerged and forgotten since the advent of neoclassical analysis.

The main concern of the surplus approach in interpreting Ricardo's theory was to demonstrate that Classics and Neoclassics had two distinct theories of output determination and value and distribution. Consequently, Ricardo's monetary theory was interpreted mainly with a view to confirming these differences. Thus, it was claimed that in Ricardo causation runs from prices to the quantity of money, while the reverse applies in neoclassical analysis where an entirely different argument is offered to assert the neutrality of money in the long run.

The quantity of money in classical theory was seen as being determined by the value of gold in terms of commodities and by the prices of commodities to be circulated, both being determined by their cost of production, while in neoclassical theory the value of gold and the prices of commodities are determined by the quantity of money. (Green 1982, p. 63; 1992, p. 84).

Moreover, classical theory holds Say's Identity (saving is always identical with investment) while neoclassical theory offers Say's Equality (saving is always brought to equality with investment through variations in the rate of interest). It follows that only in neoclassical analysis is the level of output determined by the theory of supply and demand at the level of full employment, while in classical (Ricardian) analysis the level of output is given by the level of accumulation and cannot be assumed to be brought by market forces to the level corresponding to the full employment of labour. (Garegnani 1983a, pp. 23-8).

However, acceptance of Say's Identity and the consequent assumption of a fixed level of output left Ricardo with no choice when there was a change in the quantity of money. With prices given by costs of production, only if the velocity of circulation is allowed to be variable can effects of changes in the quantity of money on output be ruled out. But this possibility — so the surplus approach argument runs — was perceived by classical economists either as inconsistent with the acceptance of Say's Identity, which implies that every purchase is a sale so that the possibility of hoarding does not arise, or as an ad hoc. Thus Ricardo's monetary theory, when compared with his value and distribution theory, appears either uninteresting or possibly wrong.
The authors of this paper presented a different interpretation of Ricardo’s monetary theory from all those set out above. (Marcuzzo-Rosselli 1991). We maintained that Ricardo’s theory of money merits revaluation, although for reasons that are different from those purported by monetarists, and that it matters as much as his theory of value and distribution. The purpose of this paper is to further substantiate these claims.

INTERPRETATIONS

The main charges brought against Ricardo’s monetary theory are: 1. the commodity-money fallacy; 2. the neutrality of money; 3. the long-period view, i.e. exclusive attention to permanent and general phenomena to the detriment of analysis of short period disturbances. We shall take these in turn.

The commodity money fallacy

One of the reasons why Ricardo’s monetary theory is considered insufficient and outdated lies in the alleged Ricardian identification of money with gold. Ricardo is held responsible for a number of fallacies, and in the first place for basing his monetary theory upon the shaky foundations of a defective value theory, i.e. the labour theory of value. Secondly, he is criticized for basing the determination of money prices both on the quantity of money and on the labour-theory of value, without being aware of their inconsistency. (Laidler 1975, p. 217; Glasner 1985, p. 57; De Vivo 1987, p. 186). Finally, he is accused of not having really understood the change introduced by the suspension of convertibility, which forced the acceptability and the general usage of paper money as means of payments. This latter view ascribes Ricardo’s fault to a commitment to commodity-money, arguing that he was impervious to the idea that a generally accepted means of payments could be something which has no value or can be produced at almost zero costs.

We see this interpretation as a serious misunderstanding, since the role of gold in Ricardo’s theory is not as money, but as the standard of money, i.e. the means to measure the value of money. We argued elsewhere (Marcuzzo-Rosselli, 1991, ch. 3) that Ricardo’s analysis pivots on the distinction between the value of gold and the value of money: while the former obeys the general law of value, namely it is determined by its cost of production, the value of money depends upon its quantity and is measured by the purchasing power of money over gold, which is the standard of money. It is immaterial whether the circulating medium is made up of full-bodied gold coins or of debased coins or paper-money (whether convertible or inconvertible): the value of money is always determined by the quantity of gold bullion that one unit of currency can buy on the domestic and foreign markets, according to the prices of gold and the exchange rate.

1. See for instance Peake (1978, p. 204): "[R’s] failure to distinguish between the abstract unit of account and the concrete forms of money made it impossible for Ricardo to come to grips with paper money as Thornton had."
In fact, the gold content of coins does not necessarily play any role in determination of the value of money. Debased or clipped coins can circulate at the same value as full-weight coins as long as their quantity has not been increased beyond what Ricardo calls its "natural level". (We shall come back to what this meant for Ricardo later on). Therefore, although the gold content of a unit of currency decreases, the value of money may not decrease as the price of gold on principle may not increase. And the value of money depends only upon the quantity of gold bullion which money can buy on the market and not on the number of coins (and of units of currency) necessary to make up a given weight of gold.

It follows that the value of money affects the determination of commodity prices through the money/gold ratio, not the gold/commodities ratio, as can be seen in the following equation:

\[ P_{\text{money/commodities}} = P_{\text{money/gold}} \cdot P_{\text{gold/commodities}} \] (1)

In contrast, attributing the pivotal role to the commodity money not as the measure of value, but as the origin of the value of money, has a different implication altogether, money prices being only relative prices expressed in terms of gold and gold not the standard of money but simply a numéraire. By doing so it becomes impossible to distinguish between a depreciation of the currency — which reflects the ratio of gold to money and depends on the quantity of money — and changes in the value of gold, which reflects the ratio of gold to all commodities. In Ricardo's own words: "If we adopted a currency without a standard ... [the] depreciation could not admit of proof, as it may always be affirmed that commodities had risen in value, and that money had not fallen." (Ricardo 1951, vol. IV, p. 62).

Approaching the point in terms of an open economy (always the framework of Ricardo's theory) does not change the conclusion that the value of gold, namely the relative value of gold in terms of commodities, has no role to play in Ricardo's monetary analysis. It is not the equalization of the purchasing power of gold in terms of commodities that accounts for gold movements. Rather, the mechanism is to be found in the differences between the purchasing power of money over gold, that is to say in the differences between the money prices of gold at home and abroad. Gold, no less than any other commodity, is exchanged for money, not for other goods. It is not a change in the prices of commodities, but rather the discrepancy between the price of gold at home and abroad,

1. Ricardo (1951, vol. I, p. 353): "On the same principle, too, namely, by a limitation of its quantity, a debased coin would circulate at the value it should bear, if it were of the legal weight and fineness, and not at the value of the quantity of metal which it actually contained. In the history of the British coinage, we find, accordingly, that the currency was never depreciated in the same proportion that it was debased: the reason of which was, that it never was increased in quantity, in proportion to its diminished intrinsic value."

2. See Ricardo (1951, vol. I, p. 149): "While gold is exclusively the standard in this country, money will be depreciated, when a pound sterling is not of equal value with 5 dwt. and 3 grs. standard gold, and that, whether gold rises or falls in general value."

3. On the distinction between a standard of money and a numéraire, and why gold was considered by Ricardo a good standard of money, see Marcuzzo-Rosselli, 1994.

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due to a variation in the exchange rate, which signals arbitrage opportunities for gold importers and exporters.

Ricardo had many reasons to assume that the international price of gold — translated into domestic moneys through the exchange rate — was equalized across countries because the gold market was a highly organized market, where arbitrage could be enforced. (Ricardo 1951, vol. III, p.181; 1952, vol. VI, p. 54-55). Of course arbitrage exists for any commodity, as long as there is an organized market for that commodity. The law of one price tells us precisely this: if there is an organized market for a tradeable commodity, then the money price of that commodity is equalized across countries. Once the law of one price is assumed to hold for any tradeable, then the purchasing power of any commodity (gold included) in terms of any other commodity is equalized. The point is, however, that the condition for arbitraging in one commodity — the market signal which activates trading — is not given by the difference in the purchasing power of that commodity over any other, but rather by the difference in its money prices — translated through the exchange rate — across countries. As in equation (1), the money price is the money to commodity ratio, not the commodity to gold ratio.

Ricardo had no reason to assume that the law of one price held for all international traded commodities, nor did his theory require that the purchasing power of gold over all international traded commodities be equalized across countries. (We shall come back to this point in Section 3). What matters here is that, according to Ricardo, in no circumstance was the signal for international gold movements given by its purchasing power in terms of commodities.

Many scholars of Ricardo see the gold/commodities ratio as playing a crucial role in the determination of the aggregate quantity of money. There is certainly enough evidence in Ricardo to show he was firmly persuaded that, whatever the composition of the circulating medium, the quantity of money that should circulate within a given country, ought to be equal to the quantity that would circulate if the entire circulation were made up of gold, but what exactly this quantity is remains unknown.

The point of having a standard is precisely this: the price signal bypasses the need for a quantity target. The quantity of money is the "right" quantity whenever the market price of the standard shows no deviation from the official price, that is to say whenever the purchasing power of the currency over gold is kept constant. Ricardo defined the "right" quantity as the "natural" level, but he did not specify what this level was nor did he try to calculate it from the gold/commodities ratio.

In conclusion, it reveals a profound misunderstanding of Ricardo's thought to attribute him with a simple-minded monetary theory running thus: money is only gold, its value depending on its labour content, the price level being the

2. Ricardo (1951, vol. IV, p. 64): "The issuers of paper money should regulate their issues solely by the price of bullion, and never by the quantity of their paper in circulation. The quantity can never be too great or too little, while it preserves the same value as the standard." See also Ricardo 1951, vol. I, p. 357-8.
ratio between gold and commodities, internationally equalized through international gold movements, and the quantity of money being adjusted so as to conform to the labour theory of value. We believe the correct interpretation of Ricardo’s theory to be that gold is the standard of money, the reciprocal of the market price of gold at home and abroad, namely the quantity of gold purchased by one unit of currency, being the measure of the value of money. If this value is kept constant by variations in the quantity of money — through convertibility of bank notes into gold or control by the monetary authority — the quantity of money is maintained at its “natural level”. The latter, however, is never calculated relating the cost of production of gold to the cost of production of commodities because such a figure — given the number of variables involved — is impossible to obtain.

The neutrality of money

It is common opinion that Ricardo’s theory is representative of the position according to which money is neutral, that is to say, variations in the nominal quantity of money have an effect only on nominal variables and never on real variables. (O’ Brien 1975, p. 164). Some qualify this position, admitting that Ricardo offers some evidence that monetary disturbances can have real effects in the short period. (Humphrey 1990, p. 19).

However, since Ricardo was mainly concerned with long run effects or full equilibrium positions — so the argument runs — this qualification does not make much difference to the theory, which is seen as the Quantity Theory in its most rigid form. (De Vivo 1987, p. 186).

The proposition that money is “neutral” is often supported by the adoption of a quantity theory of some form, but the exact nature of the relationship between neutrality of money and quantity theory has never been clearly explored in the literature. Unfortunately, while there can be little doubt about what the “neutrality” of money actually means, there are many views as to what the quantity theory is about. In fact, the quantity theory implies the neutrality of money, but it implies something else too, such as that there is proportionality between money supply and prices, that prices are entirely determined by the quantity of money, that money supply is exogenous, that the demand for money is stable and demand and supply of money are brought into equilibrium through variations in the price level. (Humphrey 1974; Laidler 1991). Thus, while the proposition about the neutrality of money could on principle be maintained without any commitment to the quantity theory, the converse is not true.

As far as the neutrality of money is concerned, Ricardo undoubtedly held that an increase in the quantity of money would have no permanent effect on production, employment and interest rate. Production and employment are determined by the level of capital accumulation and the interest rate by the rate of profit of the economy. This is a natural consequence of his adherence to Say’s identity and his theory of distribution. However, it is not difficult to find evidence of cases envisaged by Ricardo where monetary disturbances have real effects: distribution effects due to the existence of contracts in money terms and fixed incomes (Ricardo 1951, vol. III, p. 136); alteration in the distribution of property and in the composition of the demand (Ricardo 1951, vol. V, pp. 107-8); variation in relative prices, because of taxes fixed in money terms (Ricardo 1951, vol. I, p. 209) and, in the case of monetary contraction, effects on
employment (Ricardo 1951, vol. III, p. 94). So much is amply recognized in the literature. (Sayers 1953, p. 55; Hicks 1967, p. 161; Hollander 1979, pp. 483-500, Ahiskpor 1985, pp. 18-22). Thus, while we endorse the opinion that Ricardo was perfectly aware that an increase in the quantity of money may have "temporary" effects on the level and the composition of output, we are also inclined towards an interpretation of the distinction between "temporary" and "permanent" forces in Ricardo which is at variance with what is generally found in the literature. We wish to argue here that the emphasis on long run as opposed to short run effects is not due to a lack of understanding of the actual working of a monetary economy, but to the particular role Ricardo assigned to permanent causes, as we shall explain in more detail in the next section.

As for the quantity theory, interpreted as the proposition that necessary and sufficient condition for a change in money prices is a proportional increase in the money supply, certainly Ricardo never thought that any variation in prices necessarily implied a variation in the quantity of money. In other words, while the quantity of money always affects prices, variation in the quantity of money is not a necessary condition for a variation in prices. Price increases may just as well be caused by a decrease in the value of the standard, a rise in wages or tax increases (Ricardo 1951, vol. II, p. 412; vol. III, p. 328; vol. IV, p. 321; vol. VI, p. 233). In fact, Ricardo advocated a policy of reduction in the quantity of money only in case of depreciation measured in terms of the standard, and never in the case of an increase in prices, as we would expect if he held the strict Quantity Theory.

However, Ricardo's position seems less defensible if we look to the sufficient condition for a change in money prices: there is, in fact, overwhelming evidence that in Ricardo any increase in the quantity of money causes a proportional increase in prices. In the literature this is sometimes given as proof of his adherence to the Quantity Theory.

There are two ways to defend Ricardo from this charge, the first deriving from the textual evidence that the proportionality between an increase in the quantity of money and in prices is never said to be strict. (Ricardo 1951, vol. V, p. 35). The second, and more important defence, is offered by Ricardo's explanation of the proportional increase in prices followed by an increase in the quantity of money. This effect is never accounted for with a direct link between the quantity of money and the level of prices but, rather, with the relationship between the quantity of money and the price of gold.

The only proportionality factor to be found in Ricardo is that between the quantity of money and the price of gold, since any increase in the quantity of money above the natural level brings about an exactly equal decrease in its purchasing power in terms of gold. In fact, the increase in the price of gold relative to the Mint Par is constantly used by Ricardo to evaluate the reduction in the quantity of money necessary to bring the price of gold to Par. (See, for instance, Ricardo 1951, vol. III, p. 123).

As a consequence, but only as a consequence of this proportionality, if the relative values of commodities in terms of the standard are assumed to remain constant (see equation (1)), then the monetary prices of commodities vary in proportion with the quantity of money. But if the relative values of commodities in terms of the standard vary, for instance because there is a change in the conditions of production, then the proportionality between variations in prices and variations in the quantity of money disappears.
As evidence of this we can recall Ricardo’s answer in 1823 to charges of being responsible for the 25-30 per cent fall in money prices, as a consequence of the reduction in money supply following the return to convertibility which he had recommended. He contested that the reduction of the money supply he had advocated was only of the order of 3-4 per cent, since at the time this was the deviation of the market price of gold from its Mint price. He further claimed that the fall in money prices was not the consequence of a 25-30 per cent reduction in the money supply, but the result of the unwise policy of the Bank of England which had made heavy purchases of gold before the return to convertibility, thereby increasing the value of gold relatively to commodities and causing an unnecessary deflation. (Ricardo 1951, vol. V, pp. 354-5; pp. 254-5).

Permanent causes and long-period approach

Perhaps the most common charge brought against Ricardo concerns his method, namely his search for permanent causes of economic phenomena. The charge has it that Ricardo’s exclusive concern with full equilibrium or long-run positions shunted him on the wrong line, and that this is where his monetary theory fails to convince. (Hutchinson 1978, pp. 45-9; Laidler 1987, p. 291). The argument is that a good monetary theorist should be able to understand that monetary affairs are rooted in transitory forces such as uncertainty, confidence and expectations, which are better pictured as short period equilibria. Antipathy towards Ricardo’s approach can be taken to the point of claiming, as some contemporary post-Keynesians do, that the approach based on long-period positions (common to Ricardo and neoclassicians) stand in the way of full understanding of the working of a monetary economy.

The first point to clarify is whether the search for permanent causes is to be approached as a search for forces which tend to establish positions prevailing in the long-run, after a sequence of short-period positions during which all the variables involved in the adjustment process are not fully adjusted.

When reference is made to natural or normal values in Ricardo’s theory, a distinction is made between “permanent” and “temporary” causes of economic events. This distinction pertains to the nature of the forces involved and not to the time sequence in which they are assumed to operate, and it therefore cannot be interpreted — although it often is in the literature — as a distinction between long and short-period equilibria.

A permanent cause should be interpreted as a sufficient condition for something to happen: its effects are certain regardless of the time interval necessary for their implementation. Permanent causes are sufficient but not necessary conditions, since the same effects could be brought about by other causes that Ricardo labels as “temporary”: neither necessary nor sufficient. They are not sufficient because either their effects are not certain and may well be offset by the working of more permanent forces or they are not necessary because a given effect cannot be unambiguously imputed to them.

1. Also Roncalli (1994) claims that a long-run position is not defined as an equilibrium established through time.
The value assumed by certain variables, such as prices, rate of profit, wages and the quantity of money, when permanent forces prevail, is called by Ricardo their "natural" value. There is no lack of evidence that this is indeed fundamental to Ricardo's approach. For instance, a change in the conditions of production of a given commodity is a "permanent" cause of a change in its price, which means that the price will certainly change, although not every variation in commodity prices can be imputed to variations in the conditions of production. On the contrary, a change in demand is a "temporary" cause of a change in prices, not because its effect does not last long enough, but because it is not certain. Similarly, when discussing natural wages, Ricardo granted that money wages can be pushed downwards when the supply of labour grows faster than demand, but that if there is at the same time a change in the conditions of production of wage goods, making them more difficult to produce, their money prices rise and the overall effect is an increase, not a decrease, in money wages. The former can be taken as an example of a temporary cause while the latter — an increase in the price of wage goods — is a permanent cause of wage increases. (Rosselli 1985).

It is our contention that the definition of the natural quantity of money in Ricardo is given by analogy with the definition of natural wages and natural prices. Thus the effects of a change in the natural quantity of money should be discussed in terms of the distinction between temporary and permanent causes.

The non-neutrality of money in the short-run as conceived by Ricardo cannot be interpreted as a temporary effect, namely as something which is not going to last. Rather, it should be interpreted as an uncertain effect, because, in the absence of a theory to deny the validity of Say's identity, the level of output is given. Alternatively, the non-neutrality of money should be interpreted as an effect which is offset by others deriving from a permanent cause. It is for this reason that temporary causes cannot be part of the theory: not because their effects are not recognized as part of reality, but because their effects are uncertain and volatile and can be offset by more certain and permanent ones. Again, taking as an example the case of the neutrality of money, Ricardo's position is that the level of output may, and not must, increase following an increase in the quantity of money. The question is, then, not one of measuring "for how long" or "to what extent" an observed consequence follows from a given cause, before deciding whether it is a short or a long-run effect. The question for Ricardo is one of deciding which causes can be made object of a theory, namely of whether from a given cause he can derive consequences which are certain and therefore predictable.

Thus, it seems to us that a case can be made for claiming that Ricardo's distinction between temporary and permanent causes cannot be assimilated to the more familiar distinction between short-run and long-run analysis. While the former pertains to the question of which causes are eligible to become part of a theory, the latter pertains to the question of which effects come sooner or last less than others. On the contrary, if permanent causes are identified with long

1. See Ricardo 1951, vol. III, p. 122-23: "[...] a depreciation of currency may, as far as it is considered as a stimulus to production, be beneficial or otherwise."
run forces, Ricardo’s theory appears — as indeed it often appeared — meaningless.\(^1\)

However, what still needs to be explained is, we believe, the criterion for choice among the different causes. Certainly, we are indebted to the "surplus approach" for a clear distinction of the notions of equilibrium in classical and neoclassical analysis, the former being defined as the equalization of the general rate of profit, while the latter is characterized by the equality of supply and demand in the relevant markets. As exponents of the surplus approach have pointed out, this distinction does not exhaust the differences between the two approaches, since "natural value" in classical analysis does not have the same meaning as "value taken by a given variable in the long-run" nor has "market value" the meaning "of the value the same variable takes in the short-run". In fact, the distinction between natural and market values, unlike the distinction between long and short run, is not "one of degree, relating to the period over which the equilibrating process was supposed to occur." (Garegnani 1983, p. 313).

In the surplus approach, however, the choice of a permanent cause is made dependent on its duration, as if the latter were synonymous with its permanency\(^2\). On the other hand, our interpretation of Ricardo takes permanency as a property independent of the length of time during which causes exercise their influence — although it is certainly true that causes which last longer are more permanent than others — because the definition of a permanent cause is not given by the length of its duration but by its place in the structure of the theory.

COMPARISONS

Once we have cleared up the misunderstandings about Ricardo’s monetary theory, comparison with Thornton’s theory also appears in a different light, and perhaps those self-assured claims that the latter had a "better" and "more" interesting monetary theory than the former should be revised. (Peake 1978; Beaugrand 1981; Hezel 1987). The point at stake is not of course that there are not differences between Thornton and Ricardo, which would be nonsensical, but that their differences were a matter of judgment and policy prescriptions, rather than of theory.

Ricardo and Thornton were on the same side in the Bullion Controversy in so far as they both advocated the return to convertibility. They shared the same view on the working of the Gold Standard, namely as self-regulating monetary regime as far as the quantity of money was concerned, although, neither of them tried to calculate the "right" quantity of money but, rather, relied on a price signal. For both authors the test for an "excessive" quantity of money was given

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1. For a recent example of this position, see Peake (1993, p. 42): "Yet it was typical of Ricardo’s natural style of reasoning that when he thought something should happen, he presumed it would happen, virtually without delay".

2. See, for instance, Garegnani 1983, p. 309, where permanent causes are said to be "non accidental conditions that are likely to emerge through a repetition of the situation".
by the discrepancy between the market and the Mint price of bullion, and — to some extent — by the difference between the market rate and the Par, defined as the ratio between the foreign and domestic official prices of gold or silver.

However, Thornton was persuaded that, self-regulating as it might be, a monetary economy was not immune from confidence crises, and therefore there was the need for an active policy on behalf of a Central Bank. Conversely, Ricardo believed that discretion had to be checked by rules in order to avoid the otherwise inevitable abuse. As we know, in principle Ricardo won and the Bank Charter Act of 1844 was inspired by his ideas, but in practice the Bank of England turned increasingly to Thornton's prescriptions in the course of the XIX century.

It is noteworthy that the different role assigned by the two authors to the Bank of England derived from the same type of criticism of the behaviour of that body, taken to task for its aversion to risk and excessive prudence. The accusation by Thornton that the Bank of England in 1797 acted under panic and suspended convertibility instead of showing nerve and restoring confidence by providing the system with liquidity, is parallel to Ricardo's that the Bank of England acted irresponsibly in 1819 before the return to convertibility, causing general deflation, because it bought gold to increase its reserves, instead of selling it to prevent a rise in its price. But they held different views as to the best remedy to prevent misconduct on the part of the Bank of England. While Ricardo thought that the best remedy was to relieve the Bank of England of the responsibility of issuing notes (Diatkine 1993), Thornton believed in transforming it into an establishment which had, by statute, a commitment towards the public in general. (See Hetzel 1987; Ciocca-Sannucci 1990).

To substantiate our claim that the differences between Thornton and Ricardo were not so much a matter of theory as, rather, of policy prescriptions, let us compare their views on depreciation.

Unlike other contemporaries, both Ricardo and Thornton traced the cause of an increase in the price of gold bullion to depreciation of the exchange: it is because of its effect on the rate of the exchange and not because of an increased demand for all commodities (gold included) that an increase in the quantity of money determines an increase in the price of gold. When there was a great depreciation of the exchange — whatever the cause — it became profitable to export gold. Bullion merchants reacted to the signal of depreciated exchange by buying gold and exporting it; thus the demand for gold increased, and its price also tended to rise.

This was the mechanism which ensured that, in the Gold Standard, the quantity of money was kept at its "natural" level. An excess of money (what Ricardo and Thornton called an "overissue") directly affected the rate of exchange and only indirectly, and "probably by slow degrees" (Thornton 1978, p. 225), commodity prices. If there was convertibility, the profitability of the gold trade caused an outflow of gold, a reduction in the quantity of money and appreciation of the exchange rate. If convertibility was suspended — as happened in Ricardo's and Thornton's times — it caused an increase in the demand for gold and in the

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1. See Thornton (1978, p. 192) : "It is the maintenance of our external exchanges, or, in other words, it is the agreement of the mint price with the bullion price of gold which seems to be the true proof that the circulating paper is not depreciated." See Ricardo (1951, vol. III, p. 175).

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domestic price of gold up to the point where the exportation of gold was no longer profitable.

The same chain of causes and effects follows the depreciation of the exchange in the case of payment of a subsidy or of an import of corn in abnormal circumstances. As we know, however, Ricardo and Thornton differed in their explanation of why — when England was in need of foreign currency-gold and not any other commodity became the preferred means of obtaining it, to pay for a subsidy or for an import of corn, which at the time was called an unfavorable balance of trade.

The question was to explain why a circumstance such as the following occurred:

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\frac{P_{\text{gold}}(1 + \tau_{\text{gold}})}{P^*_i} \leq \frac{P_i(1 + \tau_i)}{P^*_i} \quad i = 1, \ldots, n \quad (2)
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where:

- \( n \) = number of traded commodities other than gold
- \( \tau_{\text{gold}} \) = transaction and transport cost for gold as percentage of the price
- \( \tau_i \) = transaction and transport costs for commodity \( i \) as percentage of the price
- \( P_{\text{gold}} \) = domestic price of gold bullion
- \( P_i \) = domestic price of commodity \( i \)
- \( P^*_i \) = foreign price of gold bullion
- \( P^*_i \) = foreign price of commodity \( i \)

This inequality indicates that, in Ricardo's words, "gold was the cheapest exportable commodity" (Ricardo 1951, vol. III, p. 105), i.e. the cheapest way to acquire a unit of foreign currency.

What the literature sees as a difference in analysis it is to us rather a difference in their assessment of the circumstances. While Ricardo never conceded a point unless it was proved to be logically inconsistent with his theory, Thornton was more concerned with the qualifications required to apply the theory to circumstantial phenomena. The point is, of course, not the difference between the theoretician and the practical man, or between the pure and applied economist. It is rather between faith in economic theory as a quest for generalizations, which may sometimes obscure assessment of the importance of circumstances, and a need to provide an answer to a circumstantial problem, which may sometimes obscure the logic of the theory.

To account for (2), Thornton argued that the prices, \( P^*_i \), English commodities could fetch on the foreign markets might have fallen or that the transport and transaction costs, \( \tau_i \), might have increased because of unrest and political turmoil, while Ricardo's explanation was that an "unfavourable" balance of payments was due to a general increase in domestic prices of English commodities, \( P_i \), because of a depreciation of the currency.

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Thorton saw an overissue as a "permanent" cause of the depreciation of the exchange rate and of gold outflows because, while not every exchange depreciation could be imputed to overissue, whenever there was an excessive quantity of money there was certainly going to be an exchange depreciation. (Thorton 1978, p. 221). Thus, the circumstances of the war or of a bad harvest provided the qualifications in application of the theory.

In contrast, Ricardo was convinced that the sole cause of exchange depreciation was monetary. It was his view of England as "world workshop" which distorted his assessment of the circumstances and confirmed, perhaps unwisely, his faith in the generality of his theory. Or, more likely, Ricardo held strongly that an excess of the quantity of money was a necessary and not only sufficient condition for gold outflows, because Thorton's explanation was inconsistent with Say's Identity. This law does not admit a simultaneous fall of all $P$/ due to a generalized "glut of commodities", and no temporary or accidental circumstances could change that.

CONCLUSIONS

Let us now summarize our arguments in favour of revaluing Ricardo's monetary theory and thus spell out more clearly precisely what we mean by saying that Ricardo's theory of money "matters".

The first reason is that it matters in order to understand what Ricardo's theory is about. Ricardo always applies his analysis to observed variables, which are monetary variables: money prices, money wages, the aggregate value of output in money terms. His aim is to explain what goes on behind changes in those variables and his purpose, therefore, is to decipher market signals. As an example, we can take Ricardo's study of the effects of change in the conditions of corn production on the general rate of profit. It would be very misleading to assume that the "corn model", i.e. a model in which every thing is expressed in real terms, was the framework of Ricardo's theory of distribution, since his analysis makes sense only if all magnitudes are expressed in money terms. (Vianello 1983; Rosselli 1985).

Underlying the Principles there are the assumptions that money is not depreciated and the value of the standard is constant, so that variations in money prices are caused only by changes in the conditions of production or in income distribution. These assumptions are acceptable because, in another part of the theory, the conditions under which they may occur are explained. Money is not depreciated whenever the market price of gold is in line with the Mint price of gold and the market rate of exchange in line with Par. The value of the standard is constant because Ricardo attributes to gold the property of being an "invariable" measure of value. Whatever the merit of the choice made by Ricardo, which is questionable and indeed was questioned by Sraffa (1951, pp. x1-xix), Ricardo's search for an invariable measure of value has undoubtedly always been a search for both a measure of the absolute value of commodities and a good standard of money. Thus, underlying his value and monetary theory there is the same quest for a standard to distinguish different causes of variations in prices. (Marcuzzo-Rosselli 1994).
The second reason why Ricardo's theory of money matters is because it enhances our understanding of the actual working of the Gold Standard. Unlike contemporary models, Ricardo's analysis does not grant this monetary regime the merit of maintaining price stability (Barro 1979, Bordo-Ellison 1985, Fremling 1986). The virtue of keeping the price of the standard of money fixed was not, to Ricardo's way of thinking, to ensure price stability, but to allow the distinction between changes in the value of money and changes in money prices. If the price of the commodity chosen as the standard of money is kept fixed, changes in money prices of commodities can occur only because of changes in the relative value of commodities in terms of the standard. Thus, once the price of the standard is kept fixed, only if the relative value of the standard is constant is price stability ensured.

Ricardo believed that only variations in money prices which had a monetary origin could be avoided, while variations in money prices due to a change 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 or both. But these changes could not be avoided under any monetary regime.

Ricardo also offers a clue to understanding the role of prices during and at the end of the adjustment mechanism in the Gold Standard. In our reconstruction of Ricardo's theory, an increase in the discount activity of the Bank of England immediately affected the exchange rate, because merchants who had access to credit were chiefly engaged in international trade. (Duffy 1982; Davis 1979). This is also supported by the Evidence given to the Bullion Committee by the Continental Merchant: in fact Ricardo commented approvingly on this Evidence, noting that it applied to a fully convertible regime. The increased demand for foreign currency was initially satisfied by the exporters of commodities other than gold, up to the point when depreciation led to gold becoming "the cheapest exportable commodity." The export of gold and consequent contraction of the money supply as gold is taken out of circulation will cease as soon as there is at least one commodity which can replace gold as the "cheapest" exportable commodity. Whenever this happens the difference between the domestic price and the foreign price of gold once again makes it unprofitable to export gold. But Ricardo says nothing about prices of other commodities whether domestic or foreign.

Thus, if we interpret equation (2) as describing the condition under which gold outflows occurred according to Ricardo's theory, we can see that it states only the necessary condition for gold outflows: the latter will come to an end only when the inequality no longer holds. Unlike the adjustment mechanisms envisaged by the specie flow and the monetary approach in contemporary

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1. "An increase of the circulating medium enables persons to make greater advances to foreigners, and more bills are thus brought into the foreign market; this must have the effect of lowering the exchange. Should, on the contrary, a scarcity of money exist here, it would become desirable to realize and accelerate the payment of debts due to this Country; advances now readily made to them would from necessity be curtailed, and the foreigner, who required a bill on this country, would be obliged to pay a higher price for that which was scarce then it were abundant." (Ricardo 1951, vol. III, p. 353).

2. For the alternative view, see Frenkel 1976, pp. 36-7
models of the Gold Standard, Ricardo’s explanation of gold flows does not require the further condition of the equalization of the purchasing power of gold over internationally traded commodities. This is a sufficient condition for the absence of gold outflows although, when added, it does not help clarify the causes of gold movements. In conclusion, Ricardo’s theory does not impose this constraint on description of the way in which the Gold Standard really worked, and thereby appears to account for the empirical evidence better than contemporary models. (Marcuzzo-Rosselli 1987).

Praise is due to Ricardo’s theory of money not for providing an answer to contemporary monetary problems, but for posing questions neglected in modern monetary theory. Whether monetary problems have changed in our times, or whether Ricardo’s questions, by their very nature, can no longer be asked within the modern framework of analysis, is an issue doomed to remain unsettled as, probably, is endorsement of the claim which heads this paper.

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1. The equalization of gold prices of commodities is compatible with both theories of the adjustment mechanism of the Gold Standard, namely the specie-flow theory and the monetary approach, because, like any sufficient condition, it does not unequivocally point towards a unique cause.

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