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# THE CONNECTION BETWEEN SAY'S LAW AND THE THEORY OF THE RATE OF INTEREST IN RICARDO (*)

## I

Why did Ricardo accept "Say's Law", i.e. why did he deny the possibility of "general gluts"? The dominant opinion appears to be that Ricardo (as much as his great opponent Malthus) simply

> took it as a fact that anyone who had saved would have used his savings to employ productive labourers, or would have lent it to others who would have so used it (Garegnani 1978, p. 339).

On this basis, Ricardo took it for granted that saving decisions could be identified with investment decisions (1), to the point of using the term "savings" to mean investment too (Meek 1950-51, p. 156, note ii; Corry 1959, 1962 p. 126; Robbins 1958, p. 248; Schumpeter 1954, p. 641; Tucker 1960, p. 135; Garegnani 1978 cit.; O' Brien 1975, p. 229; Sowell 1974, p. 41). Thus Garegnani has argued

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(*) I thank M. Caminati and professor P. Garegnani for their comments on a first draft of this paper. The usual caveat of course applies as to the opinions and possible mistakes of this final version. The Italian Ministero della Pubblica Istruzione and the Consiglio Nazionale delle Ricerche have given financial support to the research one result of which is this paper.

(1) Ricardo does not distinguish, as we do nowadays, ex-ante savings and ex-ante investment as schedules, or functions, of other variables; but, as will be seen below, he sees clearly that the decisions to abstain from consuming one's entire income, and the decisions to employ productively the money income saved, may be taken by different people - so that the question of whether savings will be invested can arise.

that

> in Ricardo 'Say's law' was not the result of an analysis of the investment-saving process but rather the result of the lack of any such analysis (Garegnani 1978, p. 340),

and, in particular, has denied the existence in Ricardo of any role of the rate of interest in bringing investment to equality with savings (ibid., p. 339).

On the basis of his analysis of the connection between monetary theory and theory of the interest rate in the classical economists, Caminati has reached a different and provocative conclusion. He argues that the classical authors'monetary theory implied the existence of a mechanism bringing the decisions to invest to equality with the decisions to save; and that, in this mechanism, a central role was played by the rate of interest for two connected reasons:first, because of the role of a positive interest rate in preventing savers who did not wish to become themselves entrepreneurs from simply hoarding their saved monetary revenues; second, because of the high sensitivity of investment decisions to the differential between profit rate and interest rate, a sensitivity which was the foundation of the gravitation of the interest rate towards its 'natural' level, and thus guaranteed the positivity of the interest rate and the capacity of decreases of the market interest rate to bring investment decisions to absorb the whole of the available investible funds. His conclusion is that



> the strength of Say's Law in classical economics arose from the same premises supporting the classical analysis of the demand for money and of the relationship between financial flows and real flows (Caminati 1981, p. 102).(2)

One must notice straight away that some doubts as to the historical accuracy of this conclusion are raised by Caminati's own admission, earlier in the article, that the classical economists

> failed to show how the supply and the demand for loans were brought in equilibrium by changes in the rate of interest. In their analysis of accumulation they merely assumed the correspondence between saving and investment decisions. (Caminati 1981, p. 84).

One is led to ask: how can we be certain that the strength of Say's Law in these authors arose from a monetary mechanism which is nowhere made explicit, is left incomplete, and is nowhere connected with the analysis of output? Even as regards Joplin, the one author who - according to Caminati - does see and makes explicit the connection, Caminati himself admits (ibid., p. 85) that Joplin believed Say's Law to hold even when that mechanism, based on the rate of interest, was prevented from working, another mechanism - based on variations in the price level - taking its place in that case.

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(2) As pointed out by Caminati in the Appendix at the end of his article, this interpretation in no way conflicts with the distinction, stressed by Garegnani and others, between the position of Say's Law in the classical and in the marginalist, or neoclassical, frameworks: in the latter, the theory of value is based on mechanisms which also imply the tendency of investment to adapt to savings and, hence, Say's Law (see, e.g. , Garegnani 1978); in the classical approach to value and distribution this is not the case. The classical approach is therefore open to integration with theories of the level of output and employment which do not assume Say's Law, as shown by Marx; see also further down in the text.

Nonetheless, Caminati's thesis is very thought-provo king. The answer to the question: "whether the classical economists realised it or not, did their monetary analyses really implicitly contain a defence of Say's Law?" appears to be of interest for more than one reason.

For the historian of economic thought the interest lies, we would suggest, in the suspicion it would raise that perhaps the "general glut controversies" should be re-examined. It would be spontaneous to ask: could some proof be found that divergencies about monetary theory had an important role in these controversies? (Costabile (1983) argues along these lines as regards Malthus); could not some consciousness of that mechanism be the reason why (as suggested in an unpublished work by Caminati) even authors like Torrens or J. S. Mill, who largely anticipated Marx on the possibility of interruptions of the 'monetary circuit', and derived from this the possibility of economic crises, kept denying the likelihood of persistent general gluts? (3)

Before embarking upon such a vast enquiry, though, one might legitimately ask for some further reassurance about the solidity of the suspicions. In this regard, Camianti's paper is not totally convincing, perhaps because the argument - covering a ground normally discussed in full-length books - is crammed in about eight pages. Some

(3) See Caminati (1978).



links in the reasoning are only hinted at, some assertions remain unsupported by textual evidence. In particular, to prove the presence in the classical economists of the various links of the mechanism bringing investment to equality with savings, Caminati sparingly refers sometimes to one author, sometimes to another, leaving the reader unclear as to how general the acceptance of each of the links was; the suspicion is thus not entirely removed that his own unity of vision might have been forced by the interpreter upon an actually disconnected series of observations.

Thus, there appears to be room for a modest attempt to list in a clearer manner all the elements of the mechanism which, according to this interpretation, could have been used by the classical authors to justify Say's Law, and to check whether they can all be found in a single author: Ricardo being the obvious choice, both in order to allow a contrast with the interpretations referred to in the opening paragraph, and because he is, of the classical adherents to Say's Law, the one with the most consistent theory of value and distribution, so that the possible connections between his approach to value and distribution and Say's Law can be seen at their clearest.

The present paper is the result of such an attempt. I find that it is possible to arrive at a 'rational reconstruction' of a mechanism implicitly supporting Say's Law embedded, so to speak, in Ricardo's analyses, along the lines suggested by Caminati. I do not find, on the other side, evidence that Ricardo ever became conscious of this possible defence of Say's Law. Thus I remain doubtful as to Caminati's conclusion.

But, in my view, the interest of this 'rational reconstruction' lies not only in posing stimulating questions to the historian of economic thought, but also in throwing up the assumptions of the reconstructed mechanism as problems for analysis. I share with other authors (4) the belief that the marginalist, or neoclassical, approach to value, distribution and output is vitiated by radical weaknesses which suggest that it be abandoned; and that the most promising way forward appears to be the integration of the classical approach to value and distribution (as clarified and improved by Sraffa and others) with a theory of output, employment and accumulation <u>not</u> based on Say's Law (e.g. on Keynesian-Kaleckian lines). For this research programme, the possibility of a justification of Say's Law based not on marginalist theory (as is usually the case nowadays) but on Ricardo is obviously a challenge. Clearly, at least one of the assumptions of such a justification must be shown to be untenable, if one is to go on refusing the existence of a spontaneous tendency of decisions to invest to adjust to decisions to save.(5)

(4) See, e.g., Garegnani (1978), Eatwell (1979), Nuti (1971), Ginzburg and Vianello (1973).

(5) Once the marginalist theory of distribution, and with it the idea of a decreasing demand curve for labour, is discarded, the existence of such a tendency, i.e. Say's Law, would anyway not imply a tendency to the full employment of labour. Structural unemployment or Marxian unemployment remain possible.



As will be explained in the last Section of this paper, this destructive task involves extremely vast problems and therefore I limit myself in the present paper to some sketchy considerations to suggest that such a task seems to be far from impossible.

This paper is organised as follows. In Section II, after a discussion of the reasons explicitly advanced by Ricardo in defence of Say's Law (a byproduct of which is the correction of an erroneous opinion by Hollander (1979) on the meaning of effectual demand in some letters of Ricardo to Malthus), Ricardo's analysis of the rate of interest is briefly presented; in Section III it is argued that this analysis implies that the rate of interest does play a role in bringing aggregate demand to equality with aggregate income; in Section IV it is argued that the analysis is not affected in its essentials, for the problem under examination, by replacing Ricardo's assumption of full capacity utilisation with the assumption of normal capacity utilisation; in Section V, the assumptions of the potential justification of Say's Law implicit in Ricardo are listed, in the way of a summary; in Section VI, some indications are given as to where this justification appears to be weak.

## II

The explicit statements in which Ricardo denies the possibility of general gluts are well known, and amount to no more than a re-statement of Adam Smith's basic propositions on the subject. Two of these are well summarised by G. S. L. Tucker as follows:

> first, that human wants are unlimited, their satisfaction being restricted only by the ability to purchase; and secondly, that accumulation from profits constitutes demand for commodities equally with the personal consumption of capitalists, the only difference being that accumulation results in demand for a different kind of commodities, namely wage-goods, materials and equipment (Tucker 1960, p. 123);

to which the absence of hoarding of any relevance, and hence the fact that all income will be spent, must be added as a third basic proposition. The relevant passages in Smith's work are well known and it is unnecessary to quote them here (e.g. Smith 1937, pp. 165, 268, 321, 323). Given the purposes of the present paper, it seems opportune to quote some of the statements by Ricardo:

> Is not this assuming that what is not spent is hoarded. The revenue is in all cases spent, but in one case the objects on which it is expended are consumed, and nothing reproduced in the other those objects form a new capital tending to increased production (Works vol. III, p. 299 : Notes on Bentham, 1810-11).

> It appears to me, that no man would willingly lock up his money, he would endeavour to make it as productive as he could; he would not purchase commodities if he expected a fall of those commodities, but he would be glad to lend his money at interest during the interval that it was necessary for him to keep it (Works, vol. V, p. 399: Evidence before the Committee on the Resumption of Cash Payments, March 4, 1819).



> No mistake can be greater than to suppose that a nation can ever be without wants for commodities of some sort. It may possess too much of one or more commodities....(No) country ever possessed a general glut of all commodities (Works, vol. III, pp. 107-8: Appendix to High Price of Bullion, 4th ed., 1811).

> We agree too that effectual demand consists of two elements, the power and the will to purchase, but I think the will is very seldom wanting where the power exists - for the desire of accumulation will occasion demand just as effectually as a desire to consume (Letter to Malthus, 16 Sept. 1814, Works, vol. VI, p. 133).

> If half as much corn again as usual were produced next year, a great part of it would undoubtedly be wasted, and the same might be said of any commodities which we might be ingenious enough to name - but the real question is this; If money should re tain the same value next year, would any man (if he had it) want the will to spend half as much again as he now does - and if he did want the will, would he feel no inclination to add the increase of his revenue to his capital, and employ it as such. In short I consider the wants and tastes of mankind as unlimited. We all wish to add to our enjoyments or to our power. Consumption adds to our enjoyments, - accumulation to our power, and they equally promote demand (ibid., pp. 134-5).

In his analysis of accumulation and in his controversy with Malthus over the possibility of general gluts, Ricardo does not appear to rely on arguments other than these. As will be argued in the sequel, in other parts of his writings one can find more detailed reasons in support of the statement that all income will be spent, reasons where the rate of interest appears to play an essential role. The fact that Ricardo does not cite them to that purpose in his controversy with Malthus nor in any other occasion is not necessarily a proof that he had not grasped their relevance for the issue of Say's Law; it might also be explained as due to their not being the object of dispute since Malthus agreed that saving meant investment (6) (or, at least, this is how Ricardo understood him(7)); but,

(6) Ricardo, in some letters he wrote to Malthus in July and August 1814, may seem to contradict the identity between income and demand, implied by the three propositions listed at the beginning of this Section. In a letter to Malthus dated July 25, 1814 (Works, vol. VI, p. 114) he wrote: "Effective demand, it appears to me, cannot augment or long continue stationary with a diminishing capital; and your question why if this were true profits rise at the commencement of a war? does not I think bear any connection with the argument, because profits will augment under a diminution of capital and produce, if demand tho' diminished does not diminish so rapidly as Capital and produce". And on August 30: "In America profits are higher than in England and yet I can have no doubt that the proportion of supply to demand is greater in the former country." (ibid., p. 129) The key to an understanding of these passages appears to be contained in the letter Ricardo sent to Malthus on August 11, where he appears to mean by effective demand consumption out of non-wage income: "If every person is determined to live on his revenue or income, without infringing on his capital, the rise of his goods will not be in the same proportion as the rise of labour, and consequently his percentage of profit will be diminished if he values his capital, which he must do, in money at the increased value to which all goods would rise in consequence of the rise of the wages of labour. In such case I shoud say that the effective demand had diminished, because the same quantity of commodities could not be annually consumed. If the same quantity of commodities continued to be consumed then it must be evident that it would be at the expence of capital" (ibid., p. 120). This meaning of "effectual demand" in these letters appears to have escaped Hollander (1979, pp. 503-4). Demand diminishing less rapidly than capital then simply means, in the passage first quoted, that government spending is subtracting from capital (and workers' consumption) some part of the social product via price increases - the latter causing an increase in the rate of profits. In these letters, Ricardo was presumably trying to use "demand" in the sense in which he understood Malthus to be using it. As Malthus's reply on August 19 was very unclear on the meaning of "demand", Ricardo felt the need to bring the matter up for discussion in his next letter of August 28. Malthus replied referring "effectual demand" to total aggregate demand on September 11 - and from that moment on Ricardo does the same.

(7) Not everybody agrees that, as argued by a majority of interpreters (see the beginning of Section I), Malthus, like Ricardo, identified saving decisions and investment decisions. For a dissenting view and a bibliography on the question, see Costabile (1983). The issue falls outside the scope of the present paper: for the purposes of the present discussion, what is relevant is that, whether Malthus meant it or not, this is how Ricardo understood him, and on this point there does not seem to be disagreement among interpreters.



in the light also of Ricardo's incomplete and sometimes contradictory monetary analyses (see below), unless previously unnoticed evidence is brought out by further studies the more plausible interpretation appears to be the first one. Still, as explained in Section I, enquiry into those more detailed reasons may be interesting anyway, and to it we now turn.

First of all, Ricardo is conscious that hoarding is one possible , choice of income perceivers; if they choose not to hoard, there must then be a reason; this is in fact indicated by Ricardo in the passages quoted: it is the possibility of earning profits, or interest, on the income saved, by employing it productively or lending it to someone who will so employ it. This second possibility is admitted by Ricardo to be actually occurring and of great importance. To the second of the quotes just given, one may add the following:

> They [the Edinburgh Reviewers, i.e. Malthus, who had reviewed Ricardo's High Price of Bullion and Reply to Bosanquet] appear to take it for granted that those who live on fixed incomes must consume the whole of their income, and that no part of it can be saved and annually added to capital. But this is very far from being the true state of the case, and I would ask, Do not the stockholders give as great a stimulus to the growth of the national wealth by saving half of their incomes and investing it in the stocks, thereby liberating a capital which will ultimately be employed by those who consume and produce, as would be done if their incomes were depreciated 50 per cent by the issues of bank-notes, and the power of saving were in consequence entirely taken from them, although the Bank should lend to an industrious man an amount of notes equal in value to the diminished

> income of the stockholder? The difference, and the only difference appears to me to be this, that in the one case the interest on the money lent would be paid to the real owner of the property, in the other it would ultimately be paid in the shape of increased dividends or bonuses to the bank proprietors (Appendix to the High Price of Bullion, 1811, Works, vol. III, p. 122).

(This quote is of interest also because it shows that Ricardo identifies the value of the social product and the value of aggregate incomes, and that he clearly sees that to the monetary savings - at least in a situation of constant price level - will correspond a part of the product which remains available for investment expenditure.)

Then Ricardo's belief that ultimately all monetary savings are neither willingly hoarded nor unable to become translated into investments requires a positive answer to two questions:

(i) Is there a guarantee that the rate of interest will be positive? (Otherwise it would be difficult to dismiss the relevance of hoarding, which would no longer appear irrational, as stressed by Caminati (1981, p. 80).)

(ii) Is there a guarantee that savers who do not want to become themselves entrepreneurs will find borrowers-entrepreneurs who will accept and employ productively the money that savers do not spend?

The positive answer to both questions appears to be provided by Ricardo's analysis of the determination of the rate of interest.

Here, again, Ricardo follows in Smith's footsteps: the rate of interest depends on the rate of profits (which



depends on real forces, unaffected in their permanent operations by monetary influences); it is not affected, except temporarily, by changes in the quantity of money; the difference between the rate of profits and the rate of interest is determined by the necessity to compensate the borrower for the 'risk and trouble' he takes upon himself:

> It has been shown incontrovertibly by that able writer, Dr. Adam Smith, that the rate of interest for money is regulated by the rate of profits on that part of capital only which does not consist of circulating medium, and that those profits are not regulated but are wholly independent of the greater or lesser quantity of money which may be employed for the purposes of circulation; that the increase of circulating medium will increase the prices of all commodities, but will not lower the rate of interest (Letter to the Morning Chronicle, Sept. 20, 1809; Works, vol. III, pp. 25-6).

> The rate of interest depended upon the profit that could be made upon the employment of capital; and that again depended upon the wages of labour, which were regulated, in a great measure, by the price of food (Speech on February 18, 1822; Works, vol. V, p. 130).

> The rate of interest, though ultimately and permanently governed by the rate of profit, is however subject to temporary variations from other causes. With every fluctuation in the quantity and value of money, the prices of commodities naturally vary. They vary also, as we have already shown, from the alteration in the proportion of supply to demand, although there should not be either greater facility or difficulty of production. When the market prices of goods fall from an abundant supply, from a diminished demand, or from a rise in the value of money, a manufacturer naturally accumulates an unusual quantity of finished goods, being unwilling to sell them at very depressed prices. To meet his ordinary payments, for which he rised to depend on the sale of his goods, he now endeavours to borrow on credit, and is often obliged to give an increased rate of interest. This, however, is but of temporary duration; for either the manu-

> facturer's expectations were well grounded, and the market price of his commodities rises, or he discovers that there is a permanently diminished demand, and he no longer resists the course of affairs: prices fall, and money and interest regain their real value. If by the discovery of a new mine, by the abuses of banking, or by any other cause, the quantity of money be greatly increased, its ultimate effect is to raise the prices of commodities in proportion to the increased quantity of money; but there is probably always an interval during which some effect is produced on the rate of interest (Principles, ch. XXI; Works, vol. I, pp. 297-8).

As the above quotations show, Ricardo did not alter his position on the connection between the rate of interest and the rate of profits as a consequence of the change his views on the determination of the rate of profits underwent in 1814. Ricardo's theory of profits is still a matter of debate; Sraffa's interpretation (Sraffa 1951), challenged by Hollander (1973, 1975, 1979, 1983), has been - in my opinion convincingly - defended by Tucker (1960), Eatwell (1975), Garegnani (1982, 1983), Langer (1982). But for our purposes all that matters is that Ricardo's change from a Smithian view of the profit rate as determined by the competition of capitals to his later view of the rate of profits as regulated by the difficulty of production and the real wage did not alter the dependence of the profit rate on "real" forces only; thus no need arose to change views at to the relationship between profit and interest. (Ricardo was only disposed to admit very temporary and not very relevant "forced savings"(8) - implying an associa-

(8) See, e.g., Works vol. III, pp. 302, 318-19, 321, 329; IV, pp. 36-37; V, pp. 107, 446; VI, p. 16.



ted increase in the rate of profits - caused by inflationary increases in the quantity of money, and temporary disruptions caused by too fast contractions of the amount of money.(9))

Now, the logic of Smith's explanation of the difference between rate of profits and rate of interest in terms of compensation of the "risk and trouble" of the borrower implies that, if the difference were less than required to that purpose, then very few borrowers would come forth, at least from would-be productive investors; the opposite being the case if the difference were greater. Ricardo clearly spells out the further implication that variations in the rate of interest, by causing variations in the requests for loans, allow the Bank to place the amount of loans it wants to place:

> I do not dispute that if the Bank were to bring a large additional sum of notes into the market, and offer them on loan, but that they would for a time affect the rate of interest. The same effects would follow from the discovery of a hidden treasure of gold or silver coin. If the amount were large, the Bank, or the owner of the treasure, might not be able to lend the notes or the money at four, nor perhaps, above three per cent.; but having done so, neither the notes nor the money would be retained unemployed by the borrowers; they would be sent into every market, and would everywhere raise the prices of commodities, till they were absorbed in the general circulation. It is only during the interval of the issues of the Bank, and their effect on prices, that we should be sensible of an abundance of money; interest would, during that interval, be under its natural level; but as soon as the additional sum of notes or of money became absorbed

(9) See, e.g., Works vol. III p. 94 (quoted below, in Section III); VI, pp. 70-71; and Hollander (1979, pp. 488-97).

> in the general circulation, the rate of interest would be as high, and new loans would be demanded with as much eagerness as before the additional issues (High Price of Bullion, 1811; Works, vol. III, p. 91. See also vol. V, p. 445).

It appears to be implicit in these arguments that, unless the quantity of money is changing, and leaving aside exceptional periods like the end of a war, given the rate of profits there is a permanent or 'natural' level of the rate of interest (e.g. Works, vol. V, p. 222); that only at that level the amount of loans demanded will correspond to the offer of loans; and that it is the discrepancy between the request and the offer of loans which causes the rate of interest to gravitate towards that level.

In the Principles, Ricardo appears to think that even very small deviations of the interest rate from its natural level are sufficient to make the requests for loans become nearly infinite, or nearly zero(10):

> The applications to the Bank for money, then depend on the comparison between the rate of profits that may be made by the employ-

(10) Ricardo had been in the past somewhat surprised that there had not been more inflation than observed: "...it is matter of surprise that our circulation has been confined within such moderate bounds, after knowing the principles which the Bank Directors have avowed as their guide in regulating their issue" (Reply to Bosanquet, 1811, Works, vol. III, p. 221). Here Ricardo seems to attribute this phenomenon to "the disinclination to discount at the Bank which Mr. Bosanquet mentions" (ibid.); from what he later writes in the Principles it would seem that the main mechanism limiting the expansion of loans when Bank Rate was below the market rate were, either a conscious rationing of credit on the part of the Bank (precisely in order to avoid inflation?), or the difculty on the part of the borrowers to borrow beyond a limit set by the value for which "good security" could be offered (Works, vol. I, pp. 363-65; also see ibid., p. 362, and here below, note 13). This last observation introduces a new element potentially in contradiction with the statement in the quotation given in the text, but Ricardo does not discuss this problem.



> ment of it, and the rate at which they are willing to lend it. If they charge less than the market rate of interest, there is no amount of money which they might not lend, if they charge more than that rate, none but spendthrifts and prodigals would be found to borrow of them. We accordingly find that when the market rate of interest exceeds the rate of 5 per cent. at which the Bank uniformly lend, the discount office is besieged with applicants for money; and, on the contrary, when the market rate is even temporarily under 5 per cent., the clerks of that office have no employment (Works, vol. I, p. 364).(11)

As stressed by Caminati (1981), the same mechanism had an important role in Ricardo's acceptance of the Quantity Theory of Money. It has been seen above (12) that the usual way through which, according to Ricardo, an increase in the quantity of notes in circulation would be brought about was through a lowering of the interest rate.

(11) The second sentence in this quotation might be interpreted as referring to a case where the Bank is charging a lower interest rate than the country banks; but the reference in it to "spendthrifts and prodigals" (as well as its coming immediately after a sentence where the comparison is with the rate of profits, not the rate of interest at other banks) militates against this interpretation. In a private communication, C. Panico has reminded us that an increase of discounts, i.e. of bank loans, is not the same as an increase in (productive) investment, since it might be used to get rid of risky promissory notes, or for speculative purchases of commodities whose prices are expected to rise, etc. This is quite true, but does not seem to be what Ricardo was here thinking of. The immediately preceding lines to this quote run as follows: "Whether a bank lent one million, ten millions or a hundred millions, they would not permanently alter the market rate of interest; they would alter only the value of the moneywhich they thus issued. In one case, 10 or 20 times more money might be required to carry on the same business, than what might be required in the other" (Works, vol. I, pp. 363-4). Now, a permanent increase in the price level achieved through a temporary variation in the interest rate appears to require a permanent stimulus (at least indirect) of the increased loans to monetary expenditure, such as neither a decrease of the undiscounted promissory notes / bank loans ratio, nor speculative commodity purchases appear to be able to ensure.

(12) See e.g. Works vol. III, p. 91 (already quoted) and V, p. 445; also see above, note 7.

Further, Ricardo clearly saw the interconnection between this role of the rate of interest and the international price-specie-flow mechanism:

> If the Bank had doubled its circulation, it still would have no permanent effect upon the value of money. If such a thing had taken place, the general level of interest would be restored in less than six months. The country only required, and could only bear, a certain circulation; and when that amount of circulation was afloat, the rate of interest would find its wholesome and natural level (Speech on July 1, 1822; Works, vol. V, pp. 222-3).

The price-specie-flow mechanism thus ensures, in Ricardo's opinion, that ultimately - in a regime of convertibility - the amount of money will be what "the country only required"; the monetary authorities being anyway ultimately compelled to intervene in case the Bank's policy were perturbing the price level, even in a regime of inconvertible paper money, by the adverse exchange thus caused. The situation in which the amount of money has thus been adjusted to what "the country only required" is also the one in which the rate of interest will gravitate to its natural level.



III

Ricardo explicitly discusses only effects on the price level of decreases in the interest rate and increases in the amount of notes issued; but from his own analysis it seems possible to derive that the same mechanism would ensure that effective demand is equal to, and determined by, aggregate income.

This can be shown as follows. Let us assume that the offer of loans is equal to the value of gross income minus consumption expenditure and direct investment expenditure. Let us imagine that, initially, total investment based on borrowed capital was equal to the total offer of loans; and that at a certain moment the propensity to save increases. There will then be a reduction of demand for luxury consumption goods and an increased offer of loans. The excess of the loans offered over the loans accepted will cause a reduction of the interest rate; the increased differential between profit rate and interest rate will cause an increase of borrowing for the purpose of productive investment, until the extra loans are absorbed. The consequent increased demand for investment goods (if not foreseen) will cause an increase of the prices of the latter, a re-distribution of capital among industries (13), and, finally, a total effective demand and a total product

(13) Ricardo knew that "sudden changes in the channels of trade" could cause much disruption, but he seems to have thought this a likely occurrence ony at the commencement or the end of a war, see Works vol. I, p. 265; VIII, p. 277.

as great as before the change in the saving propensity, but with a changed composition.

This is not the place to assess the solidity of this prima facie plausible argument; this will be briefly attempted in the last Section of this paper. Now the problem is whether we are not seeing in Ricardo what is not really there. As we are not claiming that Ricardo himself explicitly formulated the argument, the only question which can be posed is: what are the assumptions of the argument sketched here, and can they be found in Ricardo?

The basic assumptions are 1) that purchasing power in real terms (expendable revenue) equals the value of production, 2) that the part of this purchasing power which is not directly expended is offered as loans, and that this is what the supply of loanable funds consists of; 3) that an opportune flexibility of the rate of interest can ensure that this supply of loanable funds is absorbed; 4) that the market interest rate will be sensitive to a discrepancy between demand and supply of loanable funds.

Of these, thie first, third and fourth have already been met in the quotations given before. Thus, they are present in Ricardo; although their further justification is often quite weak. In one of the most recent studies on the subject, C. Panico (1983) goes in the same direction as Caminati when he argues that Ricardo's observations

> do not amount to a developed analysis of the working of the money market or of the determination of the market interest rate (Panico 1983, p. 28).



It is essentially the concept of a 'supply of loanable funds', and, further, the identification of this supply with the revenue not directly spent, whose presence in Ricardo might be doubted. In fact, the concept is not to be found explicilty in Ricardo, and, what is more, it is clear that Ricardo saw the banking system - in particular the Bank of England - as capable of creating purchasing power independently of personal monetary savings, as shown by his admission of the possibility of "forced savings", and by his concern to deprive the Bank of its power to cause inflation. (14)

But the creation of extra monetary purchasing power does not disturb Say's Law, it simply causes inflation, and perhaps some forced savings. As to a decrease in the quantity of money and hence in loans, Ricardo was strongly against it if it was to be sharp, because the result would be disruption and depression:

> I am well aware that the total failure of paper credit would be attended with the most disastrous consequences to the trade and commerce of the country, and even its sudden limitation would occasion so much ruin and distress, that it would be highly inexpedient to have recourse to it as the means of restoring our currency to its just and equitable value (High Price of Bullion, 1811; Works, vol. III, p. 94),

but believed it to have next to no effect on economic activity if it was slow and gradual (see the quotation above from the Principles, Works, vol. I, pp. 297-8). (15)

(14) See his Plan for the establishment of a National Bank (1824) in Works vol. IV.

(15) See e.g. Works vol. V, p. 416.

Anyway, Ricardo was a strong advocate of a "well regulated" currency, i.e. such that the exchanges were at par and thus there was no variation in the quantity of money; in which case banks, not creating nor destroying any buying power, necessarily act only as middlemen, offering loans to the amount corresponding to the savings deposited with them (16):

> For example 10 men save out of their pecuniary revenue 1000 £ each, which they lend at interest or deposit at their bankers, - the society should therefore be richer by £ 10,000 money, but in all probability it is not £ 1000 richer in money the greatest part has realized itself in goods which are in hands of those who have borrowed the money saved. It makes no difference whether those who saved it lent it themselves or by depositing it with a banker enabled him to do it (Notes on Bentham's Sur les Prix, Works, vol. III, p. 280).

> The whole business, which the whole community can carry on, depends on the quantity of its capital, that is, of its raw material, machinery, food, vessels, & c. employed in production. After a well regulated paper money is established, these can neither be increased nor diminished by the operations of banking. If, then, the State were to issue tha paper money of the country, although it shoud never discount a bill, or lend one shilling to the public, there would be no alteration in the amount of trade; for we should have the same quantity of raw materials, of machinery, food and ships; and it is probable, too, that the same amount of mooney might be lent, not always at 5 per cent. indeed, a rate fixed by law, when that might be under the market rate, but at 6, 7 or 8 per cent., the result of the fair competition in the market between the lenders and the borrowers (Principles, ch. XXVII; Works, vol. I, p. 365).

> A Bank has fulfilled all its useful functions when it has substituted paper in the circulation for gold; when it has enabled us to carry on our commerce with a cheap currency, and to employ

(16) See e.g. Works vol. I, p. 363; IV, p. 277; V, p. 436, 437; and the quotations to be given shortly in the text.



> the valuable one which it supplants productively: provided it fulfils this object it is of little impportance at what rate of interest it lends its money (On Protection to Agriculture, 1822; Works, vol. IV, pp. 233-4). (17)

(17) The last sentence of this passage must be understood keeping in mind what has been said above in note 10. If the Bank keeps the amount of notes in circulation unaltered, in spite of keeping its rate of interest below the natural level, it must mean that credit is being rationed and the loans supplied are exactly the same amount as if the Bank rate were at the natural level.

IV

The reasoning above assumes full (in the sense of maximum) utilisation of productive capacity. That Ricardo made this assumption is crystal-clear from the numerous passages where he insists: a) that increases in the quantity of money do not increase production (even forced savings increase only the share of investment in the given total product); b) that increases of production in one industry can only be obtained by subtracting capital from other industries. Particularly interesting is the following passage:

> But can Mr. Blake's proposition, that with the same capital by means of increased exertion and industry, the increased quantity of commodities, required by Gov.t, can be produced without occasioning any diminished supply of commodities in any other quarter? If industry be encouraged in one department, it is discouraged in another. Wages are always advanced to the workmen before the commodity is produced - the means of employing workmen are not increased at any rate in the first instance. If more warlike stores be produced more capital must be employed in that line whether the same labourers do more work or new labourers are employed, for the very wages which pay them for their work constitute a part of the capital of the master. How is his capital to be augmented but at the expense of some other persons? - how can the same identical commodities be paid to two persons at the same time for wages?
>
> There appears to us this sort of contradiction in Mr. Blake's statement. The gunsmith, the army clothier, the gunpowder manufacturer are all to produce an increased quantity of commodities - they are to have an increased quantity of capital to enable them to do so and yet this additional quantity is to be found without influencing the production of any other commodity (Unfinished Review of Blake's Observations, Works, vol. IV, p. 356).



Does this assumption derive from the other elements of Ricardo's analysis? Let us remember that our discussion so far has concentrated on showing that Ricardo had reasons to believe that saving is spending and hence that, if one leaves aside errors in the adaptation of the composition of production to the composition of demand and disruptions caused by exceptional events, all that is produced is sold without difficulty (at cost-covering prices, i.e. at prices of production).

In discussing this thesis, Ricardo and the other classical economists generally focused their attention on the possible utilisation of the goods produced; the controversy being on whether there were motives which would justify buying them. Ricardo argues that there will be such motives:(18) those goods which are not bought to be consumed unproductively are bought to be consumed productively. His implicit reasoning appears to go on from this as follows. The latter kind of goods are only bought to be fully utilised: an entrepreneur would be stupid to buy productive goods which he thinks of utilising less than fully, it would be more convenient to buy fewer goods; the resulting production is all sold (apart from the abovementioned imperfect adaptations of supply composition to demand) so no obstacle arises on that side; hence the full capacity utilisation assumption is legitimate.

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(18) See above, note 13.

If this was Ricardo's reasoning (and the alternative would seem to be that there was little reasoning on his part on the question), then it is not very convincing. Ricardo appears to ignore that normally of all goods there are at any time inventories, which can be run down in times of high demand, thus allowing an increase in the supply of circulating capital to industries even in the very short period, without a need for any other industry to step down production. The implications of this had been seen by Thornton, who had derived from them an opinion close to that of Hume on the effect of increases of the quantity of money on the level of activity:

> For industry is excited, strictly speaking, not by paper, but by that stock which the paper affords the means of purchasing. Money of every kind is an order for goods. It is so considered by the labourer when he receives it, and is almost instantly turned into money's worth. It is merely the instrument by which the purchasable stock of the country is distributed with convenience and advantage among the several members of the community.
>
> It may be said, however, and not untruly, that an encreased issue of paper tends to produce a more brisk demand for the existing goods, and a somewhat more prompt consumption of them; that the more prompt consumption supposes a diminution of the ordinary stock, and the application of that part of it, which is consumed, to the purpose of giving life to fresh industry; that the fresh industry thus excited will be the means of gradually creating additional stock, which will serve to replace the stock by which the industry has been supported; and that the new circulating medium will, in this manner, create for itself much new employment (Thornton 1939, p. 237).

Ricardo's quotation given above, criticising Blake, suggests that there may have been two reasons behind his surprising inability to grasp this point (in spite of his having read Thornton). The first is, simply, Ricardo's



limited experience of economic life, restricted essentially to the stock exchange (19); he must have been particularly ignorant of the functioning of manufactures (20) and thus of the role of inventories. One further reason was perhaps the following. Ricardo gives particular importance to the impossibility of increasing the amount of wage goods in a short period of time. He may have been influenced here by his conception of the real wage as consisting, for the greatest part, of agricultural commodities, of which, it is true, it is not easy to conceive of a rapid increase in the amounts produced, owing to the yearly productive cycle. Ricardo does not see, though, that it would be essentially the demand for non-agricultural wage goods, i.e. for the least strictly necessary for subsistence, which would increase. Either the same workers work longer hours, earn more, and clearly are not going to spend the bulk of the extra revenue on corn; or previously unemployed workers get a job, but since they must have been consuming at least the strict necessaries for subsistence even when unemployed, then their demand for strict necessaries will simply substitute for the decreased demand of the relatives, or of the public institutions, by whom they were previously

(19) See Works vol. V, p. 385: "...but I am not engaged in trade, and it does not come much within my knowledge"; also ibid., p. 345. Yet in one place at least (IV, p. 348) Ricardo admits of different degrees of utilisation of machinery.

(20) See Sayers (1953, p. 48), who stresses Ricardo's excessive optimism as to the quickness of price and quantity adjustments to changes in the quantity of money, and attributes it to Ricardo's lack of knowledge of the realities of industry. Sayers notices an inconsistency between this optimism and "Ricardo's continual complaints of the distributional evils of a variation in the value of money": this is a further indication of the incompleteness of Ricardo's monetary analyses.

assisted. The increased demand for wage goods, being directed essentially towards industrial goods, can be satisfied via the inventory mechanism outlined by Thornton.

(As a digression, one may notice the even more striking fact that J. S. Mill, in his Essays on Some Unsettled Questions..., though conscious of the inventory mechanism described by Thornton, was unable to see its implications for the question of the effects of increases in the quantity of money on production. He restricted himself to the case of additional money coming from abroad as remittances, thus not considering the very relevant possibility of endogenous money creation; he then applied the price-specie--flow mechanism, and forgot that his own admission of an initial stimulus to production owing to the money inflow implied an increase of the amounts of goods to be exchanged internally, so that no outflow of gold - or a smaller one than the original inflow - would be necessary to bring money prices to the old level (21).)

Still, the substitution of "normal" to "full" capacity utilisation and the introduction of inventories do not undermine Ricardo's possible justification of the belief that saving is spending, in spite of showing he was wrong

(21) "If every commodity on an average remained unsold for a length of time equal to that required for its production, it is obvious that, at any one time, no more than half the productive capital of the country would be really performing the functions of capital... This, or something like it, is however the habitual state, at every instant, of a very large proportion of all the capitalists in the world. The number of producers, or dealers, who turn over their capital, as the expression is, in the shortest possible time, is very small.....every dealer keeps a stock in trade, to be ready for a possible sudden demand, though he probably may not be able to dispose of it for an indefinite period... An additional customer, to most dealers, is equivalent ./.



in refusing influences of variations in the quantity of money on production. In fact, if on one side capital is utilised less intensely than Ricardo thought, on the other side this is no reason to buy less than before - simply, in comparison with Ricardo's maximum utilisation, "normal" utilisation means a different "technology" (in inverted commas because inventories are not normally introduced in the specification of technology - but they should).

./. to an increase of their productive capital.....if we suppose that the commodity, unless bought by him, would not have found a purchaser for a year after, then all which a capital of that value can enable men to produce during a year, is clear gain - gain to the dealer, or producer, and to the labourers whom he will employ, and thus (if no one sustains a corresponding loss) gain to the nation. The aggregate produce of the country for the succeding year is, therefore, increased... It follows from these premises, that the arrival of a new unproductive consumer (living on his own means) in any place, be that place a village, a town, or an entire country, is beneficial to that place, if it causes to any of the dealers of the place any of the advantages above enumerated, without withdrawing an equal advantage of the same kind from any other dealer of the same place....(But) It will be seen that it does; and nothing will then remain but a comparison of the amounts.

"It is obvious to all who reflect (and was shown in the paper which precedes this) that the remittances topersons who expand their income in foreign countries are, after a slight passage of the precious metals, defrayed in commodities: and that the result commonly is an increase of exports and a diminution of imports, until the latter fall short of the former by the amount of the remittances. The arrival, therefore, of the strangers (say from England), while it creates at Paris a market for commodities equivalent in value to their funds, displaces in the market other commodities to an equal value... It must, therefore, be a matter of mere accident, if by arriving in a place, the new unproductive consumer causes any net advantage to its industry, of the kind which we are now examining" (J. S. Mill 1844, pp. 267-71).

V

Ricardo's possible justification of the 'saving is spending' thesis and hence of Say's Law, as reconstructed in the preceding paragraphs, appears then to rest on the following propositions:

1. Purchasing power in real terms in each period (effective demand) equals the value of production: the power to purchase cannot be insufficient, the question remaining only concerns the will to purchase (J. S. Mill, 1965, pp. 570-2).

2. Hoarding (though a possibility) is in practice irrelevant (apart from exceptional circumstances): whatever purchasing power is not directly expended on consumption or on direct investment is either lent to someone else who will so use it, or deposited into banks.

3. Banks, in their turn, transfer the purchasing power thus bestowed upon them to other people (who will use it). If there is a "well regulated currency", banks will act as no more than middlemen without creating or destroying buying power.

4. Borrowing for productive investment purposes is very sensitive to the difference between the rate of profits and the rate of interest.

5. The rate of profits is given, so that variations in the rate of interest cause variations in the opposite direction of the difference between the rate of profits and the rate of interest.



6. The rate of interest varies according to the competition between borrowers and lenders.

7. There is a given level of the difference between rate of profits and rate of interest, at which in the long period the borrowers' demand for loans is horizontal: if interest falls below this 'natural' level, borrowing tends to increase enormously, if interest goes above it, borrowing for investment purposes tends to fall to zero (and only prodigals are left to borrow). Therefore, the spontaneous working of the credit market, if the currency is well regulated, tends to establish equality between offer and request for loans at the 'natural' rate of interest.

8. In each period, the maximum (or alternatively the 'normal') amount of product obtainable in the economy is given (by existing productive capacity).

9. Investment goods are only bought to be utilised at the maximum (or alternatively at the 'normal') rate of utilisation and will be so utilised unless it is discovered that effective demand is insufficient.

10. Changes in the channels of trade of a limited amount or of limited speed do not prevent the full utilisation of capacity, as there is a sufficiently quick adaptation of supply composition.

From these ten propositions, which I believe I have shown are all to be found in Ricardo's writings, the conclusion follows that, apart from disruptions caused by sudden changes in the channels of trade or by sudden credit contractions, effective demand will not be insufficient to buy the entire aggregate full capacity production: Say's Law.

## VI

It is not the purpose of the present paper to assess critically each of the ten propositions listed above. It is easy to see that such a task is so vast as to be probably beyond the possibilities of any single person — at least in the present, still initial stage of development of the non-marginalist research programme referred to in Section I.

In fact, apart perhaps from the last three (and still, proposition 10 will be seen to be affected by what will be said below), all these propositions appear to be highly contentious, and to involve hotly debated fields of economic theory. An assessment of the quantity theory of money is necessarily involved in the possible criticisms of proposition 2 (liquidity preference), 3 (endogeneity of the amount of money), 6 (liquidity trap, etc.). Propositions 4 and 7 require, for an assessment, a discussion of the theory of aggregate investment, one of the fields of economic theory where uncertainty and confusion appear to be greatest in the present period (but see further down for some minimal considerations on this topic). And proposition 5 takes us to the heart of the theory of distribution: on it, it is perhaps easier to say something.

Both neoclassical economists, e.g. Wicksell, and a critical disciple of Ricardo like Marx who did not accept Say's Law, would have found little to object to proposition 5. In spite of this, it no doubt is a very weak point of the argument. The reasons adduced by Wicksell, and



by Ricardo and Marx, would of course have been different and accordingly different is the criticism. In the case of neoclassical theory, the criticism is directed against the supply-and-demand mechanism which, according to this theory, simultaneously determines the rate of profits and the real wage: the critique of the neoclassical treatment of capital appears to undermine that mechanism, so that the forces determining distribution must be sought elsewhere and proposition 5 cannot be accepted until a new theory of distribution is provided. If we then turn to Ricardo and Marx, the reason for the acceptance of proposition 5 is that, when discussing the determination of prices and of income distribution, they took the real wage and the conditions of production as given. The forces which kept the profit rate constant were actually keeping the real wage constant: the constancy of the rate of profits followed. Now, it does not seem that the forces discussed by the classical authors to explain the real wage would in fact be generally capable of keeping the real wage constant in the face of a change in the rate of interest - - at least, if one has in mind periods of time of the length usually considered when discussing phases of trade cycles. As very briefly suggested by Sraffa (1960, p. 33) and at somewhat greater length by Dobb (1973, p. 271) and Garegnani (1979), Tooke's idea that a decrease in the interest rate will decrease prices (and hence, in the face of a given money wage, the rate of profits) has prima facie plausibility. What is known about price formation in industrial economies suggests that, even without the actual entry and price-cutting competition of new entrepreneurs, it is probable that the already existing entrepreneurs will be induced by a reduction of costs due to cheaper credit to effect entry-preventing price reductions (perhaps not openly in the form of price reductions but e.g. special discounts, more favourable terms for hire-purchases, etc.). It is not clear, in fact, why the generally accepted thesis, that cost reductions due, e.g., to techincal progress or cheaper energy or imports, will be passed onto prices, should not also apply to cost reductions due to lower interest cha rges. As for increases in the rate of interest, it seems even easier to argue that the common inc rease in costs will induce an increase in prices together with a much-increased pressure on trade unions to accept money wage increases lower than the sum of the increase in prices and in labour productivity.

Neither the Malthusian population mechanism, nor Marx's cycle of the reserve army of labour, offer reasons to argue that such an effect of the interest rate on income distribution is implausible. They might be set in motion by such a re-distribution of income; but their effects would be felt only after a considerable time. No doubt, the classical economists' vision of the forces determining the real wage is not reducible to a few simple mechanisms (Garegnani 1983b); but the presence of institutional, political etc. elements among the relevant factors would seem, if anything, to strengthen our argument. As noticed e.g.



by Nuti (1971), "after Keynes we have to recognize that wage bargaining determines money wages, while the real wage rate is determined by the behaviour of the price level" (p. 32).Thus, there appears to be very little reason to expect money wages to decrease with the price level, if the latter were to decrease owing to a decrease in the rate of interest. Besides, the relative bargaining strength of the two sides in the money wage bargain would be affected by whatever causes made possible or necessary the monetary authorities' intervention directed to altering the rate of interest. But if, when the rate of interest moves, the rate of profits follows, proposition 5 does not hold and the mechanism supporting Say's Law breaks down.

Another point worth mentioning relates to proposition 1. In a growing economy there are problems with this universally accepted proposition. As argued at greater length by the present writer in another paper (Petri 1982), the famous MV=PT formula implies that, if P and V are given and T is growing, M must grow too, otherwise demand would be insufficient. The accounting identity between total product and total income is not sufficient to guarantee that monetary purchasing power will be sufficient. Before buying, one must have sold (as Marx would have put it, value must be realized before it can be used to buy other things), and if the product is growing, in order to sell it all at unchanging money prices either the same amount of money must circulate faster, or some extra money must come in from somewhere. Ricardo does not discuss this problem, but his arguments in defence of the quantity theory of money and on the price-specie-flow mechanism would appear to suggest that he would have analysed it as follows: all that would happen in a growing economy is a decrease in prices , and this would be soon stopped and reversed by an inflow of bullion: the price-specie-flow mechanism would ensure that M increases as requested by the increase in output. But does Ricardo have the right to assume that this process will not affect the level of output? As he himself admits (see the quotation from ch. XXI of the Principles in Section II), the decrease in prices would only come about after an increase in inventories beyond their normal level; therefore the downward phase of an inventory cycle would be set up, with possible further repercussions on investment in fixed capital, if this depends on aggregate demand or on its variations. In marginalist theory, the assumed existence of real forces tending to equate the demand for capital to its supply (and hence investment to savings, see Garegnani (1978)) made it possible to argue that such phenomena - whose possibility would not be denied - would not disturb the tendency of the economy to gravitate around a full-capacity-utilisation path (in marginalist theory this would also be a full employment path). The denial of the existence of such forces, implied by the critique of marginalist capital theory, leaves us with what experience shows, i.e. the strong influence of



expected demand on investment, which opens the way to all kinds of multiplier-accelerator cycles. Furthermore, even admitting a dependence of investment on the differential between rate of profits and rate of interest, the dependence of expected profitability on expected demand (via the influence of the latter on the expected degree of capacity utilisation) makes the differential between the rate of interest and the expected rate of profits depend itself on expected demand, even if the real wage were given.

Sketchy and incomplete as they are, these observations appear to support Garegnani's "lack of analysis" thesis (see above, Section I) in this sense: a more developed analysis, of the forces affecting income distribution and aggregate expenditure, than the classical authors were able to elaborate, makes any hope to rehabilitate Say' Law (without relying on the marginalist "real" forces) appear exceedingly remote.

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