Sraffa versus Ricardo. The historical irrelevance of the 'corn-profit' model

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Sraffa's interpretation of Ricardo's theory of the profit rate in the *Essay on Profits* (Ricardo, 1815) has so far been widely accepted, and not only by the so-called 'neo-Ricardian' or 'Sraffian' school. It has been suggested, however, that while this interpretation is simple and suggestive, it is more of a projection on Ricardo's work of ideas developed in Sraffa's *Production of Commodities by Means of Commodities* (1960) than a careful exegesis of the Ricardian system itself. Perhaps the most well-known expositor of this view to date is Samuel Hollander (1973, 1975, 1979). Unfortunately, Hollander's point is part of an attempt on his part to build another comprehensive interpretation of Ricardo, probably at least as ahistorical as Sraffa's, from the point of view of neoclassical economics. [1]

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1. An estimation of the 'merits' and/or 'demerits' of S. Hollander's analysis goes beyond the purpose of this article. On the whole, it is true that this analysis 'will stimulate a reassessment of the "orthodox" interpretations, and this can only help the cause of scholarship' (Peach, 1981, p. 247). But Hollander's interpretation is nevertheless established on a very 'narrow basis'. I thus agree with K. Tribe's opinion (Tribe, 1981, p. 463), especially when he argues that 'one of the most general reasons for the study of the history of economics is to establish the unevenness and incommensurability of diverse theoretical systems, the resistance of such systems to uniform principles of coherence, the heterogeneity of the manner of setting up and solving various problems. Hollander's approach on the other hand results in the steady obliteration of difference, and promotes the view that neo-classicism is a truth to which all other theoretical systems merely tend'.

This essay tries to map out a way to preserve Hollander's point about the invalidity of Sraffa's analysis but also rejecting his 'neoclassical' reading by choosing the following route : instead of reading Ricardo with modern eyes one should try to locate the Ricardo-Malthus encounter in the context of an emerging clash between Ricardo's natural price notion versus Malthus's demand and supply framework. Once one sees this as the context of Ricardo's statements it will be clear that Sraffa's model not only is at variance with the inner logic of Ricardo's 1813-15 texts but also represents a misreading of the dialectic of the Ricardo-Malthus correspondence from which it draws some of its crucial evidence. It would appear that Sraffa took over some of Malthus's misunderstanding of Ricardo's approach to prices.

1. Ricardo's correspondence (1813-15) : a first view

Ricardo's early conception of the variation in the profit rate is to be found in two oft quoted letters from 1813 and 1814. The first one is addressed to Malthus and underlines the effects of the war upon income distribution. It states that despite capital accumulation, the increased rate of profit is only due 'to improvements of agriculture both here and abroad' and 'new facilities in the production of food' (17 August 1813, in Ricardo (1951-5) vol. 6, pp. 94–5). Several months later, Ricardo clarified the terms of the outstanding dispute in a second letter (to Hutches Trower, 8 March 1814, ibid., pp. 103-5). The starting-point seems identical for both protagonists.

> Interest rises only when the means of employment for Capital bears a greater proportion than before to the Capital itself, and falls when the Capital bears a greater proportion to the arena, as Mr Malthus has called it, for its employment. (ibid., p. 103)

In other words, the profit and interest rates depend, on the one side, on the amount of *money* capital invested in production and, on the other side, on the *real* capital (labour and means of production) commanded by the sum advanced (and which can also be defined by the amount of commodities it can produce). These two elements are called by Malthus 'supply' and 'demand' of capital, terms about which Ricardo does not agree.[2] This disagreement about terminology is of course meaningful, and the dispute runs precisely on the problem which lies behind it. Put succinctly, Ricardo does not think that it is possible to produce too many commodities, except by accident : thus, fluctuations in the market prices cannot influence profits in the long run. If capital is scarce with respect to the means of employing it (following Malthus's words which Ricardo will soon give up), i.e. if commodities could be produced (or produced in greater amounts) because of the demand for them, the only way for increasing the quantity of capital is to make its constituting elements, e.g. food, cheaper. The sums of money released in this way can, *ceteris paribus*, be employed to increase real capital ; profits will in any case be increased.

> I contend that the arena for the employment of new Capital cannot increase in any country in the same or greater proportion than the Capital itself, unless there be improvements in husbandry — or new facilities be offered for the introduction of food from foreign countries ; — that in short it is the profits of the farmer which regulate the profits of all other trades — and as the profits of the farmer must necessarily decrease with every augmentation of Capital employed on the land, provided no improvements be at the same time made in hus-

2. As writes Malthus (6 July 1814, in Ricardo (1951-5), vol. 6, pp.111-12) : 'In short all will in my opinion depend upon the state of capital compared with the demand for it. This will be the prime mover, and it is this which will determine the profits which a capital employed in agriculture shall yield, whether the land be naturally rich or naturally poor, much worked or little worked. The demand for capital depends, not upon the abundance of *present* produce, but upon the demand for the future products of capital, or the power of producing something by means of capital which shall be more in demand than the produce actually employed'. To this formulation, taken up by Malthus in his *Principles*, Ricardo objects (*Notes on Malthus*, ibid., vol. 2, p. 331) : (a) that 'the temptation to increase capital does not arise from the demand for its products, for that never fails', and (b) that 'what Mr. Malthus calls a demand for capital I call high profits — capital is not bought and sold, it is borrowed at interest, and a great interest is given when profits are high. Mr. Malthus'language appears to me in this instance 'new and unusual"'.

> bandry, all other profits must diminish and therefore the rate of interest must fall. (ibid., pp. 103-4)

It is thus sufficient to set forth the principle of diminishing returns on land as far as capital accumulation goes on to be led to the following : increased difficulty in the production of food induces a fall in the over-all profits through a fall in the profits of the farmer. Let us examine what happens in agriculture. Assuming an unchanged real wage rate, increased difficulty in the production of (agricultural) wage goods causes a rise in their prices, a general increase of (nominal) wages and decrease in the profits of the farmer.

> The capitalist 'who may find it necessary to employ a hundred days labour instead of fifty in order to produce a certain quantity of corn' [Malthus's example] cannot retain the same share for himself unless the labourers who are employed for a hundred days will be satisfied with the same quantity of corn for their subsistence that the labourers employed for fifty had before. If you suppose the price of corn doubled, the capital to be employed estimated in money will probably be also doubled — or at any rate will be greatly augmented and if his monied income is to arise from the sale of the corn which remains to him after defraying the charges of production how is it possible to conceive that the rate of his profits will not be diminished ? (to Malthus, 25 July 1814, ibid., pp. 114-15)

The same mechanism will take place everywhere in the economy. Thus, it is not in fact the falling profit of the farmer which induces a perequation in all other trades, but rather the monetary wage increase. The context of the different statements is never ambiguous, nor is the connection made by Ricardo between the two seemingly conflicting formulations. 'It is by the rise of the price of corn that all other profits are regulated to agricultural profits' (to Malthus, 17 March 1815, ibid., p. 194).

To this opinion, Malthus answers quite ironically (5 August 1814, ibid., p. 117).

> If the nominal price of corn be doubled, and the nominal amount of capital employed, be not quite doubled which you seem to allow be the case, instead of saying 'how it is possible to conceive that the rate of profits will not be diminished' I should say how is it possible to conceive that it should not be increased?

The objection is well grounded indeed. It points out strikingly that important questions concerning the variations in the profit rate remained unsettled : (1) why should the farmer's profit rate fall? The money capital is greater for the same physical product, but the price of this product is rising; (2) why should the profit rate decrease in the other activities? Money wages are rising, but in accordance with the adding-up theory of value that Ricardo was accepting at that time ('the prices of all commodities must increase if the price of corn be increased' (25 June 1814, ibid., p. 114), the prices of *all* commodities increase : thus, there is no reason why the profit rate should fall; (3) does not the above argument apply to agricultural prices also? They first rise because of an increased difficulty of production (the amount of wages and profits paid at their natural rates are greater than before), but should they not increase a second time, following the rise of the money wages?

We know how Ricardo settled the question by substituting a 'deductive' theory of value (based on the 'difficulty of production' bound to the only labour spent in the production processes of commodities) for the Smithian 'adding-up' one, and by a qualified acceptance of Malthus's theory of rent. He can then assert that when money wages rise following an increased difficulty in the production of food, the profit rate in all trades must fall (the prices of all commodities other than agricultural ones being constant) and that the same happens in agriculture because of the existence and increase of rents. This was stated in the *Essay on Profits*.

2. Ricardo's correspondence : a second view

Before examining the 1815 pamphlet, I should like to go back to the controversy of the previous year. This will, I think, make it possible to understand the post-*Essay* dispute better.

At first sight, the controversy seems to centre on the relevance of 'Mill's law'. It seems to Ricardo that the demand for commodities depends on those very circumstances that act on producction. Income and production go *pari passu* and each factor affecting the latter also lessens the former (to Malthus, 26 June 1814, ibid., p. 108). Malthus's answer (6 July 1814, ibid., pp. 109-12) is important and characteristic of his approach. I must therefore quote it at length before commenting on it. The dissension between the two authors will then appear in a different and hopefully more suggestive light.

> You observe that in the case supposed [of restrictions on corn's importations], there would be less production and less demand with the *same* capital ; but surely there would be *much less capital*. There would be a smaller quantity both of corn, and of all other commodities, and every monied accumulation would command less labour and less product. The question then seems to be whether production or demand would decrease the fastest ? and . . . in my opinion the dearness of labour would have more effect in diminishing capital than in diminishing revenue.

'I can by no means agree with you in thinking that every thing which diminishes produce, tends to diminish the power of paying for the commodities wanted.' Thus far, the objection bears on Mill's (or Say's) law, with the following indication : the increased price of corn would induce a decrease in the real capital and in that way a disequilibrium between the (unchanged) demand and the (diminished) supply of commodities, all other things being the same.

Malthus goes on emphasizing the fact that the profit rate depends on the state of demand and supply for 'in this question that great element of effective demand ... must always have great influence. I think you overlook it too much.' The

> rate of production, or more definitely speaking, the proportion of production to the consumption necessary to such production, seems to be determined by the quantity of accumulated capital compared with the demand for the product of capital, and not by the mere difficulty and expense of procuring corn.

Having already taken into account the effects of restrictions on corn's importation, the author is now to meet the second case evoked by Ricardo : an increased difficulty in the production of food.

> If it is necessary to employ a hundred days labour instead of fifty, in order to produce a certain quantity of corn, there seems to be no reason whatever that the person who possesses an accumulation sufficient to make the necessary advances should have a less remuneration for his capital. The effects of a great difficulty in procuring corn would in my opinion be, a diminution of capital, a diminution of produce, and a diminution in the *real* wages of labour, or their price in corn ; but not a diminution of profits ; although unquestionably low profits might accompany a great difficulty of procuring corn, if at the same time ... there was a great abundance of capital. In short all will in my opinion depend upon the state of capital compared with the demand for it.

The effect mentioned by Ricardo is thus considered as unusual, and only associated with a situation where there exists a 'great abundance' of capitals competing with each other in search of one of the many fields of investment left and satisfying themselves with a diminished rate of profit.

This letter, however, states the two ways by which demand and supply can influence the profit rate, by distinguishing demand and supply of *commodities* from those of *capital*.

The working of demand and supply of commodities remains here quite implicit. But it is very well known. It is analysed by the protagonists in the same manner. A change on the side of demand, not (or not immediately) followed by the reaction of supply, induces price changes which themselves induce variations in the sectoral rates of profits. Capital migrations will then restore the uniformity of the profit rate by provoking changes on the supply side. But opinions of course differ as for ulterior specifications.

The working of the demand and supply of capital is a more intricate problem, which is really the focus of the dissensions. In contradiction with the previous case, which only allows for the disturbance due to demand, everything being the same, the present case deals with the effects induced by changes on the supply side, with initial unchanged demand. We must here distinguish the two Ricardian situations of a rise in the price of corn due to restrictions on importation and a rise induced by an increased difficulty of production (this latter sometimes follows from the former). If Ricardo thinks they lead to an identical result (fall in the profit rate for a given real wage rate), Malthus argues in quite a different way :

1. Restrictions on importations at first cause a rise in the price of food, which acts on *all activities*, and the disequilibria thus induced are cancelled by the working out of a *price adjustment.* The rise in the price of corn induces an increase in money wages, and capitals engaged in the production process are suddenly reduced in real terms. Supply of commodities thus decreases, while the demand for them is, by hypothesis, to remain unchanged or to diminish in a lower proportion. Following Malthus's theory of value, prices of commodities increase, maintaining the profit rate at its previous level, or even at a higher one. [3]
2. As regards an increased difficulty in the production of food, it only has a real effect on *one activity* (agriculture), disequilibria

3. 'If the capitalist in the Cotton or Woolen manufacture be obliged to pay more for the labour which he employs, owing to restrictions upon importation, he will not be able to work up the same quantity of goods with his capital ; the goods will in consequence rise in price, and his profits, from the general scarcity of capital, will be increased' (letter to Ricardo, 5 August 1814, in Ricardo (1951-5), vol. 6, p. 117).

> being at first cancelled by a *quantity adjustment*. As a matter of fact, an increased difficulty of production on land does not immediately alter prices, demand and supply of agricultural products being unchanged. The profit rate on land only is affected and, as a consequence, the farmer withdraws part of his capital from that activity, inducing a fall in supply of agricultural commodities. But two phenomena are to occur simultaneously, which are at variance with the previous tendency. First, an excess supply of labour arises, and a new equilibrium state is reached only through a decrease in the real wages. Second, this fall of real wages lessens the demand for agricultural products and thus tempers the rise in agricultural prices due to a depletion of supply. On balance, a new equilibrium position is to prevail, Malthus says, with a lower real (but the same nominal) wage rate, so that the initial profit rate is not affected, neither on land nor in all other trades.

We can of course imagine other analytical cases. It remains that the views of the two authors are at variance with each other. The dispute *apparently* centres on the part played by demand and supply, in the perspective of the acceptance or the rejection of Mill's law. A common analytical framework seems to exist, within which the discussion is embedded. As a consequence, the particular views expressed by the two authors seem at last to consist in a matter of personal (more or less grounded) opinion about the permanence of the acting economic forces. When Malthus again objects that

> in stating the cause of high profits you seem to me to consider almost exclusively the expense of production, without attending sufficiently to the price of produce, and greatly to underrate the wants and tastes of mankind in affecting prices, and consequently in affecting the means of profitably employing capital. (9 October 1814, ibid., p. 141)

Ricardo simply answers that he does not think to underrate these factors which 'frequently occasion large profits on *particular* commodities for *short* periods' (23 October 1814, ibid., p. 147; my italics).

The basic question is not clarified after the publication of the *Essay on Profits*. In 1817, Ricardo is still writing that

> It appears to me that one great cause of our difference in opinion, on the subjects we have so often discussed, is that you have always in your mind the immediate and temporary effects of particular changes — whereas I put these immediate and temporary effects quite aside, and fix my whole attention on the permanent state of things which will result from them. (1951-5, vol. 7, p. 120)

It is still a matter of personal and subjective judgment ('Perhaps you estimate these temporary effects too highly, whilst I am too much disposed to undervalue them'). But there is a shift in 1818 when the true motive of the dispute eventually arises : 'I confess it fills me with astonishment to find that you think ... that *natural price*, as well as *market price*, is determined by the demand and supply' (30 January 1818, ibid., p. 250). Ricardo is now perfectly aware of being in opposition, as a defender of the natural price theory, to the economists who claim that a concept of a normal price determined independently of demand and supply is irrelevant or even meaningless.

> In saying this do you mean to deny that facility of production will lower natural price and difficulty of production raise it ? ... I may be so foolishly partial to my own doctrine, that I may be blind to its absurdity. I know the strong disposition of every man to deceive himself in his eagerness to prove a favourite theory, yet I cannot help viewing this question as a truth which admits a demonstration and I am full of wonder that it should admit of a doubt. If indeed this fundamental doctrine of mine were proved false I admit that my whole theory falls with it. (ibid., pp. 250-1)

3. Sraffa's interpretation

Sraffa's well-known interpretation of the early Ricardian theory of profits (Sraffa, 1951, section 4) is illustrated by the simple scheme of the 'corn-profit model', in which one agricultural product (called 'corn' or 'wheat') is the only basic commodity. The rate of profit is thus independent of the methods of production prevailing in any other trade and of the price system itself. Ricardo, Sraffa says, would have supported this theory in some lost paper of 1814, during a conversation with Malthus and in the famous Table of the pamphlet.[4] He would also have given up his views (and simultaneously adhered to the labour theory of value) under the attacks of Malthus after the *Essay* was published.[5] This summary of Sraffa's position is sufficient for our purpose and obviously sets an important problem to the historian of economic thought : is such a retrospective interpretation sufficiently well grounded, that is, could it be supported not only by the relevant texts but also by the analysis of the inner logic of the 1813-15 dispute, such as has just been attempted ? To answer this question, we must first sum up Sraffa's arguments which proceeds from two sources :

1. From the correspondence of these years :

   (a) letters from Ricardo : assertion that the profits of the farmer regulate the profits of all other trades (to Trower, 8 March 1814) ; and a sentence which states that 'the rate of profits and of interest must depend on the proportion of production to the consumption necessary to such production' (to Malthus, 26 June 1814) ;

   (b) letters from Malthus : the proposition that 'in no case of production, is the produce exactly of the same nature as the capital advanced. Consequently we can never properly refer to a material rate of produce ... [It] is not the particular profits or the rate

4. 'Although this argument is never stated by Ricardo in any of his extant letters and papers, he must have formulated it either in his lost "papers on the profits of Capital" of March 1814 or in conversation' (Sraffa, 1951, p.xxxi).

5. In the *Principles*, 'it was now labour, instead of corn, that appeared on both sides of the account — in modern terms, both as input and output : as a result, the rate of profits was no longer determined by the ratio of the corn produced to the corn used up in production, but, instead, by the ratio of the total labour of the country to the labour required to produce the necessaries for that labour' (Sraffa, 1951, p. xxxii). A corollary of Sraffa's thesis is the unimportance of the theory of price as regards profits before 1817. The two previous sections sufficiently prove that it is not the case, and I do not examine this point further in this paper.

of produce upon the land which determines the general profits of stock and the interest of money' (to Ricardo, 5 August 1814) ; a critique of the *Essay*'s table (to Ricardo, 12 March 1815 and to Horner, 14 March 1815) and precisely of the 'corn' expression of circulating capital, whereas this capital also includes 'tea sugar clothes ecc. ecc. used by [the] labourers'.

2. From the pamphlet itself : Sraffa's sole evidence here is an excerpt from the table in which all numerical examples are quantities of 'corn'. Following the author, this suggests that 'both capital and the "neat produce" are expressed in corn, and thus the profit per cent is calculated without need to mention price' (Sraffa, 1951, p. xxxii). I can even add to this a second argument : a footnote in the *Essay* resumes the question under examination in the terms of the letter to Trower quoted above : 'I am only desirous of proving that the profits on agricultural capital cannot materially vary, without occasioning a similar variation in the profits on capital, employed on manufactures and commerce' (1951-5, vol. 4, p. 12).

I shall start with the arguments related to the pamphlet. Those excerpted from the correspondence are considered in the following section.

There is a striking feature in the first half of the *Essay*, where the famous table appears : corn is only a *numéraire* by means of which different kinds of capitals are estimated. This has already been noted by many commentators, and is unquestionable. Ricardo always makes it clear that capital is 'estimated in quarters of wheat' and includes fixed as well as circulating capital (see for example ibid., p. 10, and the footnote, pp. 15-16). What should be emphasized here is that this reasoning in *real terms* forms the first step in the argumentation : Ricardo is interested in showing that, as far as cultivation of land goes on, rents rise at the expense of profits. We can call this the *real effect* of the extension of cultivation. But then follows a second step to take into account a *price effect*, i.e. the variation in relative prices to the advantage of agriculture, and particularly, again, to landlords. The price effect thus *strengthens* the real effect, and acts in the same way.

> Not only is the situation of the landlord improved ... by obtaining an increased quantity of the produce of the land, but also by the increased exchangeable value of that quantity. If his rent be increased from fourteen to twenty-eight quarters, it would be more than doubled, because he would be able to command more than double the quantity of commodities, in exchange for the twenty-eight quarters. (ibid., p. 20)

'It follows then, that the interest of the landlord is always opposed to the interest of every other class in community' (ibid., p. 21). I shall show that Malthus's objection to the pamphlet does not relate to a supposed 'com-profit model' but precisely to this dissociation between the two effects he thinks irrelevant.

It remains, then, to come back to the expression of the *Essay* which restates the terms of Ricardo's letters to Trower. The context shows unambiguously that it must be accepted in the broad sense of a fall of the general profit rate due to the rise in the price of food, and not to the decrease in the profits upon the land : 'general profits on capital, can only be raised by a fall in exchangeable value of food' (ibid., p. 22).

> A fall of a price of com, in consequence of improvements in agriculture or of importation ; will lower the exchangeable value of com only — the price of no other commodity will be affected. If, then, the price of labour falls, which it must do when the price of com is lowered, the real profits of all descriptions must rise ; and no person will be so materially benefited as the manufacturing and commercial part of society. (ibid., pp. 35-6)

4. The grounds of an opinion

Sraffa's first argument excerpted from Ricardo's letters relies, however, on the literal interpretation that the profits of the farmer regulate all other profits. We should notice here that Malthus's objection is mentioned in the *same* letter to Trower and is related by Ricardo himself.

> To this proposition Mr. Malthus does not agree. He thinks that the arena for the employment of Capital may increase, and consequently profits and interests may rise, altho' there should be no new facilities, either by importation, or improved tillage, for the production of food ; — that the profits of the farmer no more regulate the profits of all other trades, than the profits of other trades regulate the profits of the farmer, and consequently if new markets are discovered, in which we can obtain a greater quantity of foreign commodities in exchange for our commodities, than before the discovery of such markets, profits will increase and interest will rise . . . A cheaper mode of obtaining food will undoubtedly increase profits says Mr. Malthus but there are *many other circumstances* which may also increase profits with an increase of Capital. The discovery of *a new market* where there will be *a great demand* for our manufactures is one. (1951-5, vol. 6, pp. 104-5 ; my italics)

According to Ricardo, Malthus's objection is not directed to the supposed physical homogeneity of capital and product in one activity, but rather (and more logically) to the point at issue on the preceding years : the part played by demand and supply in the determination of prices and the profit rate. Malthus claims that a discovery of new markets, i.e. an increase in demand, will induce a rise in the profit rate. As a matter of fact, the price of those commodities the demand for which is increased will rise. Migrations of capital from other activities towards those sectors where prices (and profit rates) first rise will induce a supply shortage in these activities, and thus similarly a rise of prices and the rate of profits, until a new equilibrium is reached.

Against this, Ricardo not only argues that excess demands or supplies are temporary and cannot raise the sectoral profit rates in a permanent way above their 'normal' level determined by the difficulty of production on the land, but also that migration of capital does not take place easily, especially if capital is invested in agriculture, where it is absolutely necessary to satisfy an incompressible demand. The context of the letter to Trower and the correspondence with Malthus supports this interpretation. I shall add that this line of theoretical analysis is taken up again in the *Essay* (pp. 24-5) with the terms of the letter to Trower recurring, and in the *Principles* (Ch. 6). The basic difficulty remains the incompatibility of the two approaches, i.e. the natural price 'problématique' and the approach which is grounded on the symmetric working of demand and supply.

As far as the second piece of evidence (namely that the rate of profit 'must depend on the proportion of production to the consumption necessary to such production') is concerned, it is by no means relevant. This definition relates to the 'produce rate' only from which the rate of profit can be known. If this expression had been specific to the 'corn-profit model', it would have been very surprising to find it currently employed by Malthus himself (see the letter to Ricardo quoted above, 6 July 1814, in which the context shows that this produce rate is expressed in value terms and not in physical ones).

The evidence quoted by Sraffa from Malthus's letters seems to be more decisive. I shall first come back to the objection addressed to Ricardo's table, and examine Sraffa's own assertion that

> the feature of calculating the advances of the farmer in corn is singled out by Malthus as 'the fault of Mr. Ricardo's table'; since circulating capital did not consist only of corn, but included 'tea sugar cloaths ecc. for the labourers'; so that *a rise in the relative price of corn would 'afford a greater surplus from the land'*. (1951, p. xxxii, n. 4; my italics)

The last sentence simply means that Malthus's remark, again, has not much to do with the supposed homogeneity of capital and product in agriculture; but rather with the dissociation which Ricardo has made between a real and a price effect. Malthus's very acceptable objection is that the price effect does not strengthen the real one, but is not even an autonomous effect. The distortion of relative prices structure to the advantage of agriculture does not simply favour the landlord, but also the farmer, who gets the non-agricultural items of his capital from the other activities in exchange for *a lower quantity of corn*. Consequently, the figures of the table, showing the different quantities invested on the land 'estimated in quarters of wheat', cannot remain unchanged when cultivation is extended to land of a worse quality. Ricardo's calculations are thus faulty, and the compared evolution of rent and profit rates is greatly affected. To sum up, *in 1815 Malthus only repeats what he had said before, and points out again the analytical difficulty which induced Ricardo to give up the Smithian adding-up theory of value*. It is thus by no means certain that an increased difficulty of production induces a higher amount of capital with respect to the product. Indeed, the evolution of the profit rate in agriculture is *indeterminate*.[6]

Sraffa's thesis seems further supported by the second quotation excerpted from Malthus's letters (to Ricardo, 5 July 1814) :

> In no case of production, is the produce exactly of the same nature as the capital advanced. Consequently we can never properly refer to a material rate of produce ... [It] is not the particular profits or rate of produce upon land which determines the general profits of stock and the interest of money.

We can, however, interpret this sentence in a different manner from Sraffa's, and at the same time explain the probable origin of the 'corn-profit model' which, it must be said, lies either here or nowhere else in the writings of that time.

First of all, note that Sraffa neglects to quote two sentences of Malthus, which are to be found between the first two (refutation of the idea of a physical rate of return) and the last one in the passage I have just quoted. The last sentence thus appears as a logical conclusion of the previous ones, and the truncated passage results in that way a critique of

6. 'Pray think once more on the effect of a rise in the relative price of corn, upon the whole surplus derived from land already in cultivation. It appears to me I confess, as clear as possible that it must be increased. The expenses estimated in Corn will be less, owing to the power of purchasing with a less quantity of corn, the same quantity of fixed capital, and of the circulating capital' (Malthus to Ricardo, 12 March 1815, in Ricardo (1951-5), vol. 6, p. 185).

Ricardo's supposed thesis, which it is not if we restate it unabridged. One missing sentence is the following : 'The more I reflect on the subject, the more firmly I feel convinced, that it is the state of capital, or the general profits of stock and interest of money, which determines the particular profit upon the land.' Here, Malthus not only mentions the interconnection of the different sectors in the determination of the profit rate but also and more fundamentally all his thesis that this rate is determined by the 'state of capital', i.e. the 'quantity of capital' compared with 'the means of employing it'. Clearly this is a restatement of the demand and supply theory, once again.

The other missing sentence, which we quote here in italics, argues in a similar way. 'Consequently', Malthus writes, 'we can never properly refer to a material rate of produce, *independent of demand, and of the abundance or scarcity of capital.*' We must conclude again that Malthus's critique does not test the logical coherence of his adversary's views, which is never the case in this controversy, but consists in reading Ricardo's writings through Malthusian spectacles. This remark is important if we recall the long period of reciprocal misconception between the two authors.

Another important point can be emphasized. It is striking that a very specific theory like the 'corn-profit model', the occurrence of which would have been rather surprising in that time (remember the Physiocrats on whom discredit was thrown, especially by Smith), reaches us in such an indirect way, and that absolutely no writing of Ricardo remains to attest it. It is also disconcerting that the arguments excerpted from the correspondence, which mainly consist in a remark made by Malthus and written *by Ricardo* to Trower, has not brought about a clear restatement of the supposed theory, just as Ricardo usually did every time one of his principles was questioned. Unless it is assumed, of course, that all the papers or letters in which such a clarification was made have been lost, just as the leaves of the 1814 *Notes* and the words of the conversation with Malthus (Sraffa's references) have been blown away by the wind... Last but not least, it is also surprising to note that the only indications which support Sraffa's thesis, related or not by Ricardo, *proceed from Malthus.*

My conclusion is then an obvious one. If indeed such a corn-profit model was really formulated, it took shape, for a brief period of time, in Malthus's fancy. This theory, to suppose again it really was formulated before Sraffa, only results from the incapacity of Ricardo's opponent to grasp correctly the natural price approach he was fighting against. To Malthus, imbued with demand and supply theory, the idea of a normal price determined independently of demand and basically different from a market price was inconceivable (just as the determination of the natural price by the interaction of demand and supply was not acceptable to Ricardo). Ricardo's refusal to take demand into account appears to him *as a simple refusal to consider prices themselves*, the two concepts being closely associated in his mind. All this could but induce him to impute to Ricardo the purpose of arguing in *physical terms* only. The fact that Sraffa's evidence is all bound to the discussion of the demand and supply principle in price and profit determination corroborates our interpretation. In a letter quoted above (9 October 1814), Malthus blames Ricardo for not considering the working of demand on prices and writes :

> The profits of stock, or the means of employing capital advantageously may be said to be accurately equal to the price of produce, *minus* the expense of production. And consequently whenever the price of produce keeps a head of the price of production the profits of stock must rise . . . It is not the *quantity* of produce compared with the expense of production that determines profits (which I think is your proposition) but the exchangeable value or money price of that produce, compared with the money expense of production. (1951-5, vol. 6, pp. 140-1)

To which Ricardo unambiguously replies :

> You say 'that I seem to think that the state of production from the land, compared with the means necessary to make it produce, is almost the sole cause which regulates the profits of stock, and the means of advantageously employing capital'.

> This is a correct statement of my opinion, *and not as you have said in another part of your letter, and which essentially differs from it*, 'that it is the quantity of produce compared with the expense of production, that determines profits' (23 October 1814, ibid., p. 244 ; my italics).[7]

Sraffian economists see themselves as the modern heralds of the anti-Neoclassical fight. It is thus ironical that their conception of the Ricardian theory in part falls into the trap set by Malthus's misconception.[8]

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7. Among the Sraffian literature, the work of N. De Vecchi (1976) is a kind of exception : the book has a careful analysis of the Ricardo-Malthus debate. It is thus surprising to read the author's desperate attempts to make Ricardo and Sraffa agree with each other.

8. As a matter of fact, Sraffa is more artful. 'It should perhaps be stated', he argues (1960, p. 93), 'that it was only when the Standard system and the distinction between basics and non-basics had emerged in the course of the present investigation that the above interpretation of Ricardo's theory suggested itself as a natural consequence.'

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