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Preliminary: Not to be quoted.

Ronald Meek wrote one of the most perceptive reviews of Piero Sraffa's 1960 classic, Production of Commodities by Means of Commodities.[1]

1. Meek's review article was originally published simultaneously in the Scottish Journal of Political Economy (June 1961) and Science and Society (Spring 1961); it was reprinted, "slightly amended", in Economics and Ideology and Other Essays. Studies in the Development of Economic Thought (London: Chapman and Hall, 1967), pp. 161-78.

The perception started with the title, "Mr. Sraffa's Rehabilitation of Classical Economics" and continued through to the last part, IV. There, Meek was the first to discern the connection between Sraffa's Standard system and commodity and Marx's average industry - "an industry in which the "organic composition of capital" is equal to the "social average"" (p. 176). In particular, Meek considered the roles that they respectively played in a theory of the origin of profits in the capitalist mode of production and the correct meaning to be given to the labour theory of value in the Classical, Marxist tradition. "One very important feature of Sraffa's analysis remains to be commented upon - his implied rehabilitation of the Classical labour theory of value in something very like the form which it assumed in the hands of Marx".[2] While with hindsight we

2. R.L. Meek, Economics and Ideology and Other Essays, p. 175.

now might feel that the emphasis in Meek's account lent too much towards the aspect of relative prices and too little towards the aspect of the origin of profits - non-labour incomes - in the capitalist mode of production, there is no doubt that Meek was far closer to Sraffa's intent than were most reviewers. In the second edition of his Studies in the Labour Theory of Value (1973) and in his last collection of essays, Smith, Marx, and After (1977), Meek emphasises again the Sraffian connection with Marx and how much of the Marxian project can be either redone and/or completed because of Sraffa's contributions. On this particular issue, moreover, his emphasis moved in the correct direction.

In between there have been, of course, many other assessments of Sraffa's work. The most notable include Roncaglia's authoritative evaluation, Sraffa and the Theory of Prices (1978), Steedman's controversial Marx after Sraffa (1977), and the coming of Piero Sraffa to America in A.L. Levine's hands ("This Age of Leontief ... and Who? An Interpretation", Journal of Economic Literature, 1974). Perhaps most significant, because the authors themselves were intimately in contact with Sraffa over many years and acknowledge explicitly that their work and interpretations are based on their discussions with Sraffa as well as on their reading of his work, and, of course, because of their own original contributions, we have Krishna Bharadwaj, the late Maurice Dobb, Eatwell and Garegnani.[3] Joan Robinson also has been an acute and helpful

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3. Garegnani's views are put succintly in the interview which he gave on the occasion of Piero Sraffa's eightieth birthday, "Sraffa's Revival of Marxist Economic Theory", which is reprinted in the New Left Review, 112, November-December 1978, pp. 71-75. "The centrality of [Sraffa's work] is based on three different aspects: 1. his discovery of the

theoretical approach peculiar to the classical economists; 2. his solution to a number of analytical difficulties that were not resolved by Ricardo or Marx; and 3. his critique of marginalist theories" (p. 73, emphasis in the original). It will be obvious that my own assessment owes much to Garegnani's arguments.

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interpreter of Sraffa's work. In addition, she has acknowledged generously in many places the great influence of Sraffa's work on her own. Some of the messages that she takes from it, however, have not been, in recent years anyway, always in accord with those of the authors mentioned above, especially Garegnani. Moreover, her view on the relationship between the analysis in Sraffa's 1960 book and Marx's labour theory of value, as she herself says, is not accepted by Sraffa. "I must insist that this is only my view. Piero has always stuck close to pure unadulterated Marx and regards my amendments with suspicion".[4]

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4. Joan Robinson, Collected Economic Papers V (Oxford: Blackwell, 1979), p. 285, n.2.

We also have the Marxist critics, not so much of Sraffa's himself (though he has not entirely escaped) as of the so-called Neo-Ricardian School. The most important are Rowthorn,[5] Roosevelt[6] and, possibly,

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5. R.E. Rowthorn, "Neo-Classicism, Neo-Ricardianism and Marxism", New Left Review, 86, July-August 1974, pp. 63-87.

6. Frank Roosevelt, "Cambridge Economics as Commodity Fetishism", in

6. (cont.)

Jesse Schwartz (ed.), The Subtle Anatomy of Capitalism (Santa Monica, California: Goodyear, 1977), pp. 412-57.

Shaikh. I say "possibly", because it is doubtful whether Shaikh intends to criticise Sraffa's work as such.[7] It seems an appropriate time, then,

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7. For an illuminating and balanced assessment of these particular issues, see Alfredo Medio, "Neoclassicals, Neo-Ricardians, and Marx," in Jesse Schwartz (ed.), The Subtle Anatomy of Capitalism, pp. 381-411.

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to try and take stock of Sraffa's influence and impact. It is, of course, sad that the untimely death of so loveable a man and fine a scholar as Ronald Meek should be the occasion for me to attempt to do so.

I

Roncaglia has listed Piero Sraffa's published writings to the end of 1976.[8]

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8. Alessandro Roncaglia, Sraffa and the Theory of Prices (New York: Wiley, 1978, translation from the Italian by J.A. Kregel), pp. 151-53.

(Paul Samuelson was disappointed that it went to more than one page!) While it is clear that the 1960 book represents the culmination of his life's work, it is still necessary to view it against the background of his other contributions, especially the 1925 and 1926 papers and the edition (with the late Maurice Dobb) of Ricardo's works and correspondence, and his political philosophy and activities, especially his close associations with Gramsci and Wittgenstein.[9]

9. (cont.)

December 1978, pp. 62-83.

Sraffa came to the writing of Production of Commodities ... steeped in the works of the Classical political economists and Marx and with a thorough knowledge of the writings of Marshall, of Wicksteed and of the continental neoclassicals. He had a deep understanding of what Krishna Bharadwaj has called the "rise to dominance of supply and demand theories" [10] that are associated with Jevons and the early Austrians,

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10. The arguments of this essay have been much influenced by Krishna Bharadwaj's 1976 R.C. Dutt Lectures on Political Economy, Classical Political Economy and Rise to Dominance of Supply and Demand Theories (Calcutta: Orient Longman, 1978). The lectures contain easily the most lucid discussion of the contexts in which the arguments of Sraffa's 1960 book, and contributions generally, are placed, and of the issues with which the book especially is concerned.

Marshall, Walras, Wicksell and Wickstead, not only of what was involved in the analysis itself but also why these movements occurred when they did and what their significance was. Many of his views are only implicit, or are contained in hints in the Preface and the appendices to the 1960 book, especially the appendix on "References to the Literature", pp. 93-5, and in various asides. For example, on p. 9, we are told that "the present context ... contains no reference to market prices" and that "the term 'cost of production' has been avoided ..., as well as the term 'capital' in its quantitative connotation ... because these terms have come to be inseparably linked with the supposition that they stand for quantities that can be measured independently of, and prior to, the determination of the prices of the products."[11] I do believe that his

11. A possible clue as to why Sraffa chose to write his 1960 book in such sparse prose, to give just enough information to allow the reader to establish each propostion, each step of the argument on the way, may be found in the 1938 Keynes-Sraffa edition of Hume's An Abstract of A Treatise of Human Nature 1740 (Cambridge: Cambridge University Press, 1938). Hume wrote in his Preface that "my intentions are to render a larger work more intelligible to ordinary capacities, by abridging it. ... those who are not accustomed to abstract reasoning, are apt to lose the thread of an argument, where it is drawn out at a great length, ... each part fortified with all the arguments, ... illustrated with all the views ... . Such Readers will more readily apprehend a chain of reasoning, that is more simple and concise, where the chief propositions only are linkt on to each other, illustrated by some simple examples, and confirmed by a few of the more forcible arguments. The parts lying nearer together can better be compared, and the connexion be more easily traced from the first principles to the last conclusion". I am indebted to Peter Sallans for bringing this passage to my notice. Bob Dixon suggests that the example of Wittgenstein in the Tractatus may be another major reason.

overall views are not that different from the thesis advanced by the late Maurice Dobb in his last book, Theories of Value and Distribution since Adam Smith (1973), a thesis which Dobb arrived at independently from examining the same evidence, for, as far as I know, Dobb and Sraffa never discussed, at least in detail, either Dobb's 1973 Marshall lectures (which were, in effect, a precis of the central arguments of the book) or the book itself.

In the view of both Dobb and Sraffa, Marshall was the person principally responsible for creating the illusion of a continuous line of development which ran from Smith and Ricardo through Mill to his own work, rather than to Marx's.[12] In the process, the fundamental surplus approach to production, value and distribution was lost and the supply and demand approach took over. Thus, what for Ricardo was a minor chapter at the back of the Principles, Chapter XXX, "On the Influence of Demand and Supply on Prices", was brought to the forefront of the analysis and the Classical concept of the natural price was subsumed in the concept of the long-run normal equilibrium price - and emasculated in the process. The latter itself was argued to be the outcome of the equally important, symmetrical, independent and opposing forces of supply and demand; it was separated from the concepts of market price (associated with a stock supply) and short-run equilibrium prices (associated with flows) by the time periods involved as much, or more, as by whether the forces at work were transitory, unsustained, or random, as opposed to sustained and fundamental, as in the Classical schema. In the process, concepts that

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12. Peter Groenewegen has reminded me that Smith was much more of a supply and demand theorist than Ricardo and that Mill "who is the true progenitor of Marshall followed Smith rather than Ricardo".

were quite alien to Classical thought were introduced, especially the nature of change (in the context of price formation as opposed to that of accumulation, growth and distribution), schedules as opposed to points, a subtle transformation in the meaning and the scope of application of the laws of returns, equilibrium and marginalist notions generally.[13]

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13. On all this it is instructive to read again - or read for the first time - the opening pages of Sraffa's 1926 article, "The Laws of Returns under Competitive Conditions," Economic Journal, XXXVI, December 1926, especially pp. 535-41.

A key shift is that from the notion of long-run positions to long-run equilibrium positions which are quite unclassical in conception (though even Ronald Meek and Joan Robinson have referred at places, and in Classical and Marxian contexts, to long-run equilibrium prices).[14] The point is

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14. For example, "The Marxian labour theory of value does not say... that the equilibrium prices of commodities...," Economics and Ideology, p. 175. "Prices of production correspond to Marshallian normal long-run prices", Collected Economic Papers V, p. 275. In their otherwise superb Classical and Neoclassical Theories of General Equilibrium. Historical Origins and Mathematical Structure (New York: Oxford University Press, 1980), Vivian Walsh and Harvey Gram also get close at times to the same misconception.

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that while supply and demand may have the effect of driving the levels of actual prices towards those of natural prices, the latter _themselves_ are not determined by the forces of supply and demand. While it is Garegnani rather than Sraffa who in a number of places has taken up and forcefully emphasised this point, especially in his debates with Joan Robinson,[15] there seems little doubt that it is one with which

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15. See Pierangelo Garegnani, "On a Change in the Notion of Equilibrium in Recent Work on Value and Distribution. A Comment on Samuelson" in M. Brown, K. Sato and P. Zarembka (eds), _Essays in Modern Capital Theory_ (Amsterdam: North-Holland, 1975), pp. 24-45.
Pierangelo Garegnani, "Notes on Consumption, Investment and Effective Demand, I", _Cambridge Journal of Economics_, 2, December 1978, pp. 335-53.
Pierangelo Garegnani, "Notes on Consumption, Investment and Effective Demand, II", _Cambridge Journal of Economics_, 3, March 1979, pp. 63-82.
Joan Robinson, "Garegnani on Effective Demand," _Cambridge Journal of Economics_, 3, June 1979, pp. 179-80.
Pierangelo Garegnani, "Notes on Consumption, Investment and Effective Demand: A Reply to Joan Robinson," _Cambridge Journal of Economics_, 3, June 1979, pp. 181-87.

Sraffa would fully agree.

II

It is true that much of _Production of Commodities ..._ is concerned with the structure of relative prices (of production) and the influences of different values of the wage (and, then, the rate of profits) on their patterns in a given situation or state of the economy. This has led some commentators to see Piero Sraffa as a latter day Ricardo, as Blaug has said, to see Production of Commodities ... as "the sort of book Ricardo might have written if only he had gone straight to the point without ifs and buts".[16] With this perspective, which is very much a reading

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16. M. Blaug, Economic Theory in Retrospect (London: Heinemann, 2nd ed., 1968), p. 144.

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through neoclassical eyes and emphases, it also has been natural for commentators to interpret the brilliant Sraffian contributions of the Standard system and Standard commodity as the 'solution' to Ricardo's search for an invariable standard and measure of value - a solution that, though successful in one dimension, was also one which showed that in the most important sense, as far as Ricardo was concerned anyway, the search had been one for a Will-O'-The-Wisp.[17]

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17. It is ironical that in the same book, Sraffa shows that the search for a unit in which to measure capital which is independent of distribution and prices, so fundamental for neoclassical tradition, and the search for the invariable standard of value, which Ricardo thought to be so fundamental for his system, are both doomed to failure.

It is always possible in an economic system (of circulating commodities and single product industries anyway) to find a unique Standard commodity which can be used as the measure of value with which to observe the different patterns of prices as we consider different values of a distributive variable. Nevertheless, that Standard commodity is uniquely defined for only one position of the economic system concerned. As soon as we consider another position, i.e., a later or different snap shot, in which either the level and/or composition of output and activity have changed and/or technical advances have been embodied in the processes of production, we have another Standard system and commodity implied, and so no way of making a comparison, between one position and the other, of the magnitudes and distributions of the surpluses involved. Thus, when Ricardo identified two causes of changes in relative natural prices - first, different values of the distributive variable and, secondly, technical advances, so that embodied labour values were changed - yet wished to find a measure of value which would allow unambiguous statements to be made about the size and distribution of the surplus over time, he did not realise that he had set himself an impossible task in trying to solve for the effects of both aspects at the same time. Sraffa's contribution makes this absolutely clear and Roncaglia has put the point very neatly in his contribution to the New Left Review translation of the Italian symposium on "The Unknown Sraffa".[18] Roncaglia adds that

18. Alessandro Roncaglia, "The 'Rediscovery' of Ricardo", New Left Review, 112, November-December 1978, p. 82.

Sraffa's contribution "is ... [one] of utmost theoretical importance [especially] for its bearing on the problem of the relationship between classical economics and Marx". Roncaglia suggests that labour embodiment "preserve[s] a certain meaning" for the second purpose, that of coping with the effects of technical advances over time, but adds "that the problem is in danger of assuming metaphysical or subjectivist dimensions (labour as a 'sacrifice and chore')".

Finally, in so far as we are concerned with the bearing of the Standard system and Standard commodity on Ricardian-type puzzles, we should note the following: While we may say, using the Standard commodity as our yard stick, definite and simple things about relative shares in the Standard system as we consider different values of the exogenous distributive variable, it does not follow that the same things necessarily can be said about shares in the actual system, at least not quantitatively (though we can say simple things about the wage-rate-of-profits relationship of the actual system). Sraffa states all this explicitly on p. 23 but others have not always been as careful and have made stronger claims concerning actual relative shares than either the author or the analysis itself would allow. The point is a relatively simple one, once we remember that in the actual system, as opposed to the Standard system, the actual national income may amount to - command - different amounts of the same Standard commodity as we consider different values of the exogenous distributive variable.[19] It remains therefore to be shown that in general,

19. I am indebted to Byron Brown for bringing home the significance of this point to me.

in the actual system, there is at least a qualitative hostility between the two, i.e., that a higher value of one implies a lower value of the other, even after allowing for the 'change' in the total to be shared.

As a slight digression we also may note that Burmeister has linked Sraffa's result, that there is a unique Standard commodity for each position of the economy, to his argument that Sraffa must assume constant returns to scale in his analysis or it will be confined to dealing with "irrelevant questions".[20] But surely it is relevant to show that a question has been posed to which there is - or may be - no logically rigorous answer - except that there cannot be one.. This, after all, is Arrow and Hahn's major justification for modern general equilibrium theory." [A] long ... line of economists from Adam Smith to the present have sought to show that a decentralized economy motivated by self-interest and guided by price signals would be compatible with a coherent disposition of economic resources that could be regarded ... as superior to a large class of possible alternative dispositions. ... [I]t is important to know not only whether it _is_ true but also whether it _could be_ true ... . In attempting to answer the question "could it be true?", we learn a good deal about why it might not be true."[21] So what is sauce for the goose (geese?) is sauce for ... .

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20. Edwin Burmeister, "The Irrelevance of Sraffa's Analysis without Constant Returns to Scale", _Journal of Economic Literature_, XV, 1977, p. 70.

21. K.J. Arrow and F.H. Hahn, _General Competitive Analysis_ (San Francisco: Holden-Day; Edinburgh: Oliver and Boyd, 1971), pp. vi-vii.

The alternative is to follow Burmeister's own methodology in this context, which is to choose assumptions so as to provide rigorous and precise answers to irrelevant questions.

III

We leave aside the digression and return to the main argument. The interpretation above of the Standard system and Standard commodity is not unreasonable as far as it goes - but it does not go nearly far enough. In adopting it, we tend to forget, what Meek already had explained very clearly and forcefully in his review article of Sraffa's 1960 book, that the Standard system and commodity, and the expression that may be derived from them,

$$r = R\,(1 - w)$$

where r = rate of profits,

R = maximum rate of profits,

and w = the wage measured in terms of the Standard commodity and as a share of the Standard national income,

are related to Marx's concept of the average industry and his theory of the origin of profits in the capitalist mode of production.

I believe this to be the central message which Sraffa wished to get over, that is to say, painlessly to teach modern economists, many of whom are innocent of Marx's writings in detail and are suspicious of, or often hostile to them in general, an important lesson of Marx. Schematically, the line which runs from Ricardo to Marx to Sraffa may be shown as follows.

22. Christopher Gregory has a fine paper which shows that the initial link in this chain is Quesnay. Sraffa himself provides convincing evidence of this view point in Appendix D of his 1960 book, "References to the literature," see, especially, pp. 93-94.

$$(1) \quad r = \frac{\text{Corn as output - corn as capital, i.e., advances of necessaries to labour}}{\text{Corn as capital, i.e., advances of necessaries to labour}} \qquad \text{(Ricardo of the } \underline{\text{Essay}}\text{)}$$

$$(2) \quad 1 + r = \frac{\text{Total labour}}{\text{Labour in necessaries}} \qquad \text{(Ricardo of the } \underline{\text{Principles}}\text{)}$$

In Marx's terms, this becomes:

$$(3) \quad 1 + r = \frac{s + v}{v}$$

and for Marx himself,

$$(4) \quad r = \frac{(s + v) - v}{v + c} = \frac{s + v}{v + c} \cdot \frac{s}{s + v} = R(1 - \frac{v}{s + v}),$$

where $\frac{s + v}{v + c}$ is the maximum rate of profits, R,

s = surplus value

v = variable capital

c = constant capital,

all measured in terms of labour time.

$$(5) \quad R = \frac{s + v}{c}$$ as the wage is paid out of the surplus in Sraffa's formulation, so that

$$(6) \quad r = \frac{s}{c} = \frac{s + v}{c} \; (1 - \frac{v}{s + v})$$

which in Sraffa's analysis becomes

$$(7) \quad r = R(1 - w)$$

rigorously measured in terms of the Standard commodity, as Meek showed long ago.

Nor does the story stop here. Garegnani has pointed out the essential similarity between the Standard system, Standard commodity approach of Sraffa's book and his own approach through the concept of the integrated consumption or wage goods industry. He first introduced this concept in his 1959 Ph.D. dissertation and used it to good effect in his 1970 Review of Economic Studies paper and his, soon to be published, Oxford Economic Papers paper.[23] In the last paper he shows that if w is given - for the purposes of analysis, that is, at the place and point in time where we cut into the system to start the analysis - then r for the whole economy is determined by the labour commanded by the wage goods themselves and the labour commanded by the direct and indirect amounts of labour needed to produce them, using the techniques of production at the time, and taking account of the "time" processes of production. Both approaches serve to "give transparency to a system and render visible what was hidden."[24]

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23. Pierangelo Garegnani, A Problem in the Theory of Distribution from Ricardo to Wicksell, unpublished Ph.D. dissertation, Cambridge, 1959.
Pierangelo Garegnani, "Heteregenous capital, the Production Function and the Theory of Distribution, "Review of Economic Studies, XXXVII (3), pp. 407-36.
Pierangelo Garegnani, "On The Theory of Distribution and Value in Marx and the Classical Economists", mimeographed, Rome, 1977.

24. Sraffa, Production of Commodities ..., p. 23.

They do, of course, contradict Marx's (sometime) view that the rate of profits depends upon all industries, and not just the wage goods industries.[25]

25. See M.C. Howard and J.E. King, The Political Economy of Marx (Essex: Longman Group Ltd., 1975), p. 155 and p. 177, n. 41.

IV

Returning now to Sraffa's discussion of prices, we note again that it is firmly in the Classical tradition in that he is concerned with natural prices. As Eatwell, in his reply to Levine and Burmeister,[26] has pointed out, there are considerable differences between what is taken as the data of the problem for a discussion of prices in the Classical tradition and what is taken as given in the neoclassical tradition. Eatwell lists the two sets as follows:

26. John Eatwell, "The Irrelevance of Returns to Scale in Sraffa's Analysis", Journal of Economic Literature, XV, 1977, pp. 61-67.

"the data of the classical analysis ..., which represent a particular state in the process of development of the economy through time, are ...

(i) the size and composition of output,

(ii) the technique in use,

(iii) the real wage (a "bundle of commodities").

... the analytical core of classical theory" (p. 62).

"The <u>data</u> of neoclassical theory are ...

(i) preferences of the individuals,

(ii) the initial endowment of commodities and/or factors of production,

(iii) the distribution of the initial endowments between individuals, and

(iv) the technology." (p. 65)

We are thus concerned with a snap shot (as Roncaglia has it) of the economy at a moment of time (or, at least, for a particular production period). We ask the question: What is the pattern of natural prices, or prices of production, associated with this given state of affairs? To answer this we impose an, exogenously given, uniform value of w or of r - Sraffa, in the end, settles for r - and then work out the resulting structure of prices and the value of the other, simultaneously determined, distributive variable.

Why do we assume a uniform wage rate or rate of profits? (Hahn has criticised the assumption of the latter, on the grounds that it is empirically and, often, theoretically false.)[27] Because, since Adam Smith

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27. F.H. Hahn, "Revival of Political Economy: The Wrong Issues and the Wrong Argument", <u>Economic Record</u>, 51, September 1975, pp. 360-61.

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at least, the tendency to a uniform rate of profits through capitals relentlessly seeking the most profitable opportunities has been a dominant characteristic of the dynamic processes involved in the development of competitive capitalist economies. (Clifton argues that the process is even more relevant and illuminating today because the mobility of capitals has become greater not less as capitalism itself has developed.)[28] With

28. James A. Clifton, "Competition and the Evolution of the Capitalist Mode of Production", Cambridge Journal of Economics, 1, June 1977, pp. 137-52.

it is associated the Classical notion of the long-run position of the economy, the outcome of sustained and fundamental forces which create those centres of gravity of the system. This is a methodology which has been characteristic of economic analysis until the publication of Hick's Value and Capital in 1939 and the introduction of the method of temporary equilibrium, with "all the difficulties and complications of an analysis where the outcome depends on expectations the assumptions about which can be varied almost indefinitely [so that] the theory becomes barren of definite results"[29] Garegnani has argued this point of view most forcefully,

29. P. Garegnani, "Summary of the Final Discussion", in James A. Mirrlees and N.H. Stern (eds), Models of Economic Growth (London: Macmillan, 1973), p. 365. Milgate argues that the change occurred earlier, in the 1920s, and is to be associated with Hayek as well as with Hicks, Lindahl and Myrdal. See Murray Milgate, "On the Origin of the Notion of "Intertemporal Equilibrium" ", Economica, 46, February 1979, pp. 1-10.

not only in the context of his own critique, together with Sraffa's, of neoclassical analysis but also in his exchanges with Joan Robinson concerning what constitute the most telling thrusts of the critique itself.[30] Garegnani sees "the rise to dominance of supply and demand

30. See the references in n. 15 above.

theories" and the attempt to embody them within the traditional methodology as the chief source of weakness, whereas Joan Robinson has argued that it is the comparison of long-run positions, equilibrium ones in the case of neoclassical analysis, in order to try to illuminate historical processes, which is the fundamental flaw in orthodoxy.[31]

31. See, for example, "History versus Equilibrium", reprinted in Vol. V of her Collected Economic Papers (1979), pp. 48-58.

As the long-run positions in the Classical tradition are not the outcome of the opposing forces of supply and demand, it is not possible to interpret long-run normal prices as the same thing as, or, at least, an evolutionary theoretical improvement upon natural prices. Yet this false identification clouds much of the discussion of the limitations and irrelevancies of the so-called Neo-Ricardian contributions. For example, it runs through the entire structure of Hahn's response to the thesis of two competing roads running out of the Classical tradition, one to Marx, the other to the neoclassicals, which Dobb advanced in 1973.[32] Witness

32. F.H. Hahn, "The Wrong issues and the Wrong Argument".

his remark: [T]here is not a single formal proposition in Sraffa's book which is not also true in a General Equilibrium model constructed on his assumptions" (p. 362), as though mathematical identity necessarily implies the equivalent economic interpretations. As Eatwell (op. cit., p. 66) says, "[While t]here is a superficial resemblance between the classical idea of prices depending on the conditions of production, and the Non-substitution Theorem ... the resemblance is illusory, for the logic of the analysis underlying the two results [is] quite different. The apparent similarity derives from assumptions that eliminate the possibility of substitution [so that] the basis of ... neoclassical theory is assumed away, and neither prices nor the distribution of income can be determined by the relations of demand and supply."

Again, Walsh and Gram[33] show very clearly that while Classical and

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33. Classical and Neoclassical Theories of General Equilibrium (1980).

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neoclassical general equilibrium theory often share the same formal structure, the contexts of the models are entirely different. The former is concerned principally with the dynamic creation, extraction and allocation of the surplus between further accumulation and luxury consumption as a result of the decisions of the accumulating class, i.e., the capitalists. The latter, even when it is set ostensibly in a neoclassical growth model, is concerned with the allocation of an arbitrarily given set of initial endowments between alternative ends by individuals whose class is irrelevant for the formal analysis itself. Since Sraffa is in the former tradition, he is right to take the view that his model is concerned with production of commodities by means of commodities, i.e., with the circular interdependence of production and consumption, as opposed to the "one-way avenue that leads from 'Factors of production' to 'Consumption goods'" (p. 93) which is characteristic of the neoclassical tradition. Viewed in this way, even without the possibilities of substitution in production processes, the economic contexts of the two approaches are entirely different.

In addition, there arises a confusion concerning the nature of the (Classical-Marxian) rate of profits and (neoclassical) rates of return (or interest rates), concepts which, though sharing the same dimension, nevertheless belong to completely different contexts. As Walsh and Gram say so well, "the interest rates ... derived in a [neoclassical] model of the allocation of resources over time, are not ... linked to the concept of surplus, since surplus is not defined in the quantity relations of the model [whereas] the [rate of profits] of classical theory ... arises only when a surplus is defined." It is ironical that they invoke Hahn's plea to avoid "the source of much controversy and muddle" when they add "that we shall insist on a conceptual distinction between the commodity interest rates of neoclassical theory (in which inputs and outputs are differentiated according to delivery dates) and the [rate of profits] of classical theory (which is associated with capitalist relations of production in the allocation of surplus output)"[34]

34. Walsh and Gram, op.cit., p. 236.

Hahn and others like him would do well also to consider the carefully reasoned and well researched arguments of Milgate's recent paper, "On the Origin of the Notion of "Intertemproal Equilibrium"."[35] Milgate

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35. Economica, 46, February 1979, pp. 1-10.

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concludes his discussion: "[T]o represent the development of economic analysis from 1870 ... to the present day as a process of "progressive formalization" is seriously to obscure the fundamental shift to the notion of intertemporal equilibrium. One often hears the claim that modern economic analysis deals with "more complex" questions (that is, "general" as opposed to "special" cases) than did the economics of the nineteenth and early twentieth century ... more correct to say ... that it deals with an entirely different question" (p. 9). In the body of the paper, Milgate plots very clearly the change in the question that occured partly as a response to the difficulties which arose in the attempts to develop a coherent theory of the uniform rate of profits within a long-run framework using supply and demand analysis. This question was dropped and the different questions concerning own rates of return and patterns of intertemporal prices in a temporary equilibrium intertemporal setting took its place. That is to say, Milgate shows convincingly "that the chief impetus towards the formulation of this notion of equilibrium resided in a growing realization ... that if the demand and supply approach to the theory of capital and interest was to be retained something would have to be done to free it from the bounds imposed by its need to work in terms of a "quantity of capital" " (p. 1).

Moreover, it is hardly surprising that Sraffa would reject a supply and demand interpretation, given the arguments of his 1926 paper where he showed that, logically, Marshallian supply and demand analysis was confined to the empirically uninteresting case of an industry in which economies were external to the firms but internal to the industry. While Marshall tried always to confine himself to consideration of notional changes at the intersections, the very drawing of the curves of the schedules themselves implied that the actual position of the economy could be away from them so that Sraffa's 1926 critique would be relevant.[36] Sraffa also argued (in Production of Commodities...)

36. Krishna Bharadwaj, Classical Political Economy and Rise to Dominance of Supply and Demand theories, Lecture two.

that he was dealing with "such properties of an economic system as do not depend on changes in the scale of production or in the proportion of 'factors'" (p.v). In such circumstances the marginal product "just would not be there to be found."

This statement has mystified many. Some have seen it as a denial of maximising behaviour, others as confused, as implying that marginal products, costs and utilities were the hallmark of the neoclassical revolution rather than the unifying principle of the assumption of maximising behavior under constraints, the implications of which Samuelson explored exhaustively in The Foundations. This is the message of Bliss's chapter on marginal products in his 1975 book[37] and it has been a stumbling block to the acceptance

37. Chapter 5, "Marginal Products and Capital", in C.J. Bliss, Capital Theory and the Distribution of Income (Amsterdam: North-Holland, 1975).

of Sraffa's message by many otherwise not unsympathetic to it. That stumbling block now should have been removed once-and-for-all by Sen's recent illuminating comments (in his contribution to the Maurice Dobb memorial issue of the <u>Cambridge Journal of Economics</u>[38]): "[Sraffa's

38. A.K. Sen, "On the Labour Theory of Value: Some Methodological Issues", <u>Cambridge Journal of Economics</u>, 2, June 1978, pp. 175-90.

methodology] can be seen as exploring how much can be said about the <u>inter-relations</u> between prices, distribution and physical quantitative magnitudes using only directly observed data, without making any use of <u>counter-factuals</u>. The use of counter-factuals is an essential part of any 'marginalist' analysis (what <u>would have</u> happened had the facts been different, e.g., if one more unit of labour had been applied?). Neoclassical equilibrium conditions ... use such counter-factual displacements as important features. Sraffa's relations involve no counter-factuals whatever, only observed quantities, and in this 'prelude' to a critique of marginalist theory Sraffa analyses propositions that could be made without using any <u>counter-factual quantities</u>. ... not only are <u>demand</u> equations not used, nor are <u>supply</u> equations -- only the observed configuration of physical quantities." (pp. 180-81, emphasis in original).

Moreover, it seems to me that it <u>is</u> possible to analyse the "laws of motion of capitalist economies" in terms of the system's reproducing and expanding propensities, to discuss the allocation of the surplus between investment and luxury consumption, to allow business people to be ruthless profit seekers and accumulators, without having to give up the Classical framework which Sraffa provides. Indeed it is a starting point of the theories of pricing and investment behaviour which figure prominently in post-Keynesian analysis - for example, Sylos Labini, Wood, Eichner, Harcourt and Kenyon - and it is a combination of Sraffa's and Kalecki's analysis that Joan Robinson, for one, sees as the proper starting point for a relevant analysis of growth, fluctuations and distribution over time. "With the light that Sraffa has thrown on the theory of value and Kalecki on the process of realization of the surplus, we can develop a complete system ... of <u>intelligible</u> Marxism, and ... adapt it to the analysis of contemporary problems of capitalism ..."[39]

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39. Joan Robinson, <u>Collected Economic Papers V</u>, p. 253, emphasis in original.

As is well known, over the years Joan Robinson has come to prefer Kalecki's version of the central propositions of the <u>General Theory</u> ... to Keynes's version because they are placed in the context of Marx's schemes of reproduction and a theory of cyclical growth.

As to the negative aspects of Sraffa's contributions, in so far as <u>some</u> versions of neoclassical analysis <u>are</u> dependent on the concept of marginal products, the logic of their arguments does flounder (outside a one, all-purpose commodity world) on the propositions set out in parenthesis in para 48 of the chapter on reduction to dated quantities of labour[40] and

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40. "(The reduction to dated labour terms has some bearing on the attempts that have been made to find in the 'period of production' an independent measure of the quantity of capital which could be used, without arguing

40. (cont.)

in a circle, for the determination of prices and of the shares in distribution. But the case just considered seems conclusive in showing the impossibility of aggregating the 'periods' belonging to the several quantities of labour into a single magnitude which could be regarded as representing the quantity of capital. The reversals in the direction of the movement of relative prices, in the face of unchanged methods of production, cannot be reconciled with <u>any</u> notion of capital as a measurable quantity independent of distribution and prices)." (p. 38, emphasis in original).

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the related propositions on switches in methods of production of Part III of Sraffa's 1960 book. Moreover, as we have seen, in so far as modern equilibrium analysis <u>is</u> addressed to traditional questions, e.g., an explanation of the rate of profits, it, too, runs into a logical impasse.

V

In this paper I have commented very little on the Marxist critique of Sraffa's work. Partly this is because I have already done this in a review of Steedman's <u>Marx after Sraffa</u>.[41] It does seem to me, though,

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41. <u>Journal of Economic Literature</u>, XVIII, June 1979, pp. 534-36.

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that Sraffa's analysis of price formation is complementary to Marx's analysis, that it can be fitted into Marx's general system with very little trouble, that, in fact, it fits neatly between the Marxist emphasis on the dominance of the sphere of production (and that the social relationships emanating there are of crucial importance), and the wage, profit and price relationships of the sphere of distribution and exchange.[42] That

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42. Much the same conclusion has been drawn by Erik Olin Wright in his recent New Left Review article, "The Value Controversy and Social Research", New Left Review, 116, July-August 1979, pp. 53-82.

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is to say, it is quite consistent with Shaikh's argument that "the struggle for production is the fundamental social practice in all human society; hence the analysis of production is the beginning of Marxist analysis."[43]

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43. Anwar Shaikh, "Marx's Theory of Value and the "Transformation Problem"" in Jesse Schwartz (ed), The Subtle Anatomy of Capitalism, p. 110.

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