The Sraffian schools

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After briefly recalling Sraffa’s own contribution, the article surveys the ensuing debate, concerning both the critique of the marginalist theory, the revival of the classical approach, and the analytical contributions on specific aspects of Sraffa’s 1960 book. Three lines of research for a modern reconstruction of the classical approach are then illustrated: Pasinetti’s ‘Ricardian’ reconstruction, Garegnani’s ‘Marxian’ reconstruction, and Syllos Labini’s ‘Smithian’ reconstruction. Finally, an assessment of these three research lines is provided, together with some suggestions for their integration.

I Introduction

This article aims to provide an overview of the research work stemming from Piero Sraffa’s seminal contribution to economic analysis. Sraffa aimed, in his writings, at ‘shunting the car of economic science’ back from the dominating marginalist tradition to the classical approach (see Section II). After the publication of Sraffa’s 1960 book, a growing number of economists contributed to the different aspects of Sraffa’s cultural project: the critique of various aspects of marginalist theory (see Section III); the reconstruction of the classical conceptual framework (see Section IV); the analysis of the relationship between relative prices and income distribution (see Section V).

These contributions share a common foundation and a common aim – the reconstruction of the classical approach and the critique of the marginalist one – but they also display some differences concerning the lines of research along which to develop the reconstruction of political economy suggested by Sraffa. Here we will concentrate attention on three main lines of research: the ‘Ricardian’ proposal of reconstruction of classical political economy as developed mainly in Pasinetti’s writings (see Section VI); Garegnani’s


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'Marxian' proposal (see Section VII); Sylos Labini's 'Smithian' proposal (see Section VIII). A tentative evaluation of the three lines of research is presented in Section IX.

Two warnings are in order from the outset. First, the reference to Smith, Ricardo and Marx for identifying the three lines of research is simply an expository device, which holds good for some aspects but not for others. Secondly, the differences – which should not be exaggerated – mainly concern the expected progress along different lines of research within a substantially common paradigm, that of the classical approach. Thus the different lines of research should not be crystallized into competing 'schools'. The title of the present paper, which might suggest this idea, aims in fact at countering the opposite misunderstanding, which is more widespread and more dangerous: the idea that there is a monolith, the 'Sraffian school', characterized by complete identity of views on the side of its adherents. The following pages point to the wealth of contributions springing from within the lines of research christened in turn, and always reductively, 'Sraffian' or 'neo-Ricardian school'.

II Piero Sraffa's contribution

As already noted, Sraffa aims at a complete turnaround of economic science, rejecting the dominant marginalist approach and proposing in its place the classical economists' approach. The first step in this direction is his critique of the Marshallian approach, which dominated academic teaching both in Italy and in Anglo-Saxon countries (Sraffa 1925; 1926; 1930). The second step is the critical edition of Ricardo's writings (Ricardo 1951-55), where the set of concepts and the analytical scheme constituting the foundation of classical political economy are reproposed, cleared from the misinterpretations superimposed in nearly a century of marginalism. The third step is represented by Sraffa's 1960 analysis of the relationship between relative prices and income distribution. This analysis provides, at the same time, the basis for an internal logical critique of traditional marginalist theories of value and distribution, and the solution to certain problems left unsolved by classical theorists, providing more solid ground for the reconstruction of classical political economy.

For a more detailed account of Sraffa's intellectual biography and of his main contribution, let me refer to other writings (Roncaglia 1975; 1983a; 1983b). We will consider in Section III the critique of marginalist theory stemming from Sraffa's work, while in Section IV we will sketch Sraffa's reconstruction of the classical approach. In this section we will consider the approach underlying Sraffa's 1960 book.

In analogy to classical economists, Sraffa centres his analysis on the relationships which under 'normal' conditions connect the different sectors, or industries, which characterize an economy where the division of labour
prevails, and where the production process yields a surplus product over the replacement of the required means of production and means of subsistence. Since within each sector the product does not correspond to the required means of production (inclusive of the means of subsistence for the workers employed in that sector), each sector taken in isolation is unable to subsist: it has to obtain from other sectors its own means of production in exchange for a part at least of its own product. Thus a network of necessary exchange relations is established. As Sraffa shows, in a capitalist economy the exchange relations connecting the different sectors are intertwined with the distribution of the surplus between the social classes of workers, capitalists and landlords. The intersection of these two issues constitutes what within the classical tradition is called the problem of value.

In this respect it may be useful to stress the particular meaning which the notion of 'value' is implicitly given in Sraffian analysis. 'Value' does not express the relevance of a given good for economic subjects (as in the marginalist tradition, where 'value' is connected to utility), nor does it have a justnaturalistic meaning ('just price'), nor does it refer to optimal states of the economy (as it does when interpreted as the result of the constrained maximization of some objective function). The 'value' of the commodities stems from the relations connecting the different sectors and social classes within a capitalist economy; i.e., 'value' relations express at the same time both the productive interdependence of the various sectors composing the economy, and a basic characteristic of capitalist economies, namely the freedom of movement of financial capital in the search for the most productive employment, which is expressed in the simplest analytical form by the assumption of a uniform rate of profits.

In this context, Sraffa tackles an analytical difficulty left unsolved by classical economists: when commodities are at the same time products and means of production, the price of each commodity cannot be determined independently of the prices of the other commodities, nor independently of the distribution of the surplus between wages and profits. The whole set of productive inter-relationships connecting the different sectors has to be considered, jointly with income distribution: which is precisely the line of enquiry followed by Sraffa in his 1960 book.

III The critique of the marginalist theory

Sraffa stresses in the Preface to his 1960 book that his analysis of the relationship between prices and distributive variables does not require the assumption of constant returns to scale. This point is essential for an understanding of the nature of the analytical relationships he considers, and specifically of the notion of prices of production. Moreover, this is in agreement with Sraffa's critiques in his 1925 and 1926 articles of the Marshallian
attempts to found the determination of equilibrium prices and quantities on
‘laws of returns to scale’.

However, Sraffa adds that ‘as a temporary working hypothesis’, ‘whoever
is used to reason in terms of equilibrium between supply and demand
may ... assume that the reasoning is limited to the case of constant returns
to scale industries’ (Sraffa 1960: v). In this way, Sraffa’s analysis of the
relationship between relative prices and income distribution can be con-
sidered as part of a marginalist model of general economic equilibrium, in
which given endowments of factors of production are compatible with the
final demand of economic agents. Thus, thanks to the formal analogy to
a specific case of marginalist analysis, Sraffa’s analysis can be used as the
basis for a logical internal critique of traditional marginalist theories of
value and distribution.

The traditional marginalist approach conceives the problem of value as
referring to the determination of ‘equilibrium’ prices and quantities, that is,
such as to ensure the equality between supply and demand, and hence
stemming from the confrontation of the initial endowments of productive
resources and the preferences of economic subjects. (This ‘vision’ of the
economy remains unchanged when from pure exchange models we go on to
models considering both exchange and production, so that the relationship
between given endowments and preferences is mediated by productive
activity, side by side with exchange and consumption activities; nor does it
change when productive endowments include produced means of production
side by side with given productive resources.)

Confronted with the problem of value thus defined, traditional marginal-
ist theories had as their central tenet the thesis that an economic system
where perfect competition prevails and which is not subject to repeated
exogenous disturbances tends to an equilibrium position endowed with char-
acteristics of optimality, in the sense that it is not possible to improve the
position of any economic agent without worsening the position of some
other agent. In particular, traditional marginalist theories maintain that
under perfect competition the real wage moves towards a level which ensures
the equality between supply and demand of labour, that is full employment.
Among the automatic equilibrating mechanisms bringing the economy
towards full employment, traditional marginalist theories stressed the
flexibility of the capital-labour ratio: if the real wage falls under the pres-
sure of unemployment, firms will find it more profitable to utilize pro-
ductive techniques employing more workers and less capital, so that the
capital-labour ratio falls, and a given endowment of ‘capital’ is compatible
with the employment of an increasing number of workers, up to full
employment.

This thesis took different forms in authors belonging to different streams
of the traditional marginalist approach. Garegnani (1960) examines some
of these theories, bringing out explicitly the criticisms which in Sraffa
are formulated in their most essential terms. In this context we may point out that Sraffa’s critique is more general than that developed by Joan Robinson (1953), which directly refers to the aggregate notion of capital, used in the so-called aggregate production function. Sraffa’s critique of marginalist theories refers more generally to the very idea that the ‘prices’ of ‘factors of production’ (identified with capital and labour) are determined by supply and demand forces, that is, indirectly, by the comparison of resource endowments and consumers’ final preferences.

Sraffa concentrates attention on the fact that ‘capital’ is a set of produced means of production, the prices of which change in a nonunivocal way when income distribution changes, so that it is impossible to state a priori whether a real wage reduction provokes a reduction in the use of ‘capital’ compared to labour. For the analytical details of the debate the reader is referred to, for example, Harcourt (1972); here we only note that Sraffa’s critique hits at an idea which is vital for the marginalist tradition: the idea of a self-regulating market, and the conception of economics as the science which concentrates on studying the market’s equilibratory mechanisms (i.e., the working of the ‘invisible hand’ of the market).

As is well known, Sraffa’s book only purports to ‘serve as the basis’ for a critique of the marginalist tradition. As already noted, simultaneously to Sraffa and following similar lines of enquiry, Garagiani (1960) puts forward a direct critique of some of the main theoretical contributions in the marginalist tradition.

The publication of Sraffa’s book was followed by a lively debate. A first skirmish (Harrod 1961; Sraffa 1962) clarifies that the possibility of measuring capital once the rate of profits is given, does not constitute a reply to Sraffa’s strictures, since these refer to the necessity to measure capital independently of income distribution between wages and profits (a point which Garagiani (1960) stresses as well).

A second clash begins with Samuelson’s (1962) attempt to depict the aggregate production function as a ‘parable’ not betraying the essential characteristics of an economic system; and by Levhari’s (1965) attempt to show that the problems raised by Sraffa (such as the possibility of ‘reswitching of techniques’) refer to the single industry, and not to the economic system as a whole. These propositions are immediately refuted: Samuelson’s by Garagiani (1970a) and by Spaventa (1968); Levhari’s by Pasinetti (1966) and others; Samuelson (1966) and Levhari with Samuelson (1966) end up by recognizing the errors in their ideas. (This notwithstanding, in following years some rearguard fights on these points still take place, without however adding to the results of the debate: see, for example, Gallaway and Shukla, 1974 and Garagiani, 1976; Burmeister, 1977; 1979 and Pasinetti, 1979a; 1979b). The debate then turns to the – still open – issue of the relevance of the Sraffian critiques for the foundations of the marginalist approach, involving the characterization of this approach: see,
for example, Bliss, 1970; Garegnani, 1970b; 1979; 1985; Roncaglia, 1975; Hahn, 1982; Donzelli, 1986. In the same period, Sraffa's analysis provided
the foundations for basic criticisms of specific varieties or of specific aspects
of the marginalist approach.

Among the critiques of specific varieties of the marginalist approach,
let us recall those proposed by Steedman of the value and distribution
theory as originally proposed by Jevons (Steedman, 1972) and by Wicksteed
(Steedman, 1985c). We may also recall Pasinetti's (1969) critiques of Solow's
(1963; 1967) use of the Fisherian notion of the rate of return, which Solow
considers as 'the central notion of capital theory', since it is assumed as an
index of the 'quantity of capital' which can be defined independently of the
rate of profits, so that it can be used for explaining the latter (for the debate
originated by Pasinetti's critiques, see especially Solow, 1970 and Pasinetti,

Among the critiques of specific aspects of the marginalist approach,
let us recall the critiques of the Heckscher-Ohlin-Samuelson theory of inter-
national trade. According to this theory, each country tends to specialize in
the production of those commodities which require relatively larger quanti-
ties of those factors which are relatively more abundant in that country. This
theory was criticized independently by Parrinello (1970) and by Metcalfe and
Steedman (1972; 1973); these critiques were then developed in a long series
of articles, sometimes attempting as well to build a 'neo-Ricardian' theory
of international trade (see, for example, the essays collected in Steedman,
1977b; 1979a; 1979b). Also, some commonplaces in marginalist theory were
criticized by Steedman, referring to the theory of consumers' choices in
Steedman (1980b) and in Parrinello (1982a); to the theory of technical
progress in Steedman (1985a); to the theory of fiscal incidence in Steedman
(1985b).

Finally, we have to recall the critiques of the 'neoclassical synthesis',
specifically of Modigliani's (1944; 1963) attempt to set up a theory of income
and employment retaining the basic principles of the marginalist tradition,
while opening the door to the use of fiscal and monetary Keynesian policies.
These criticisms, sketched by Garegnani (1964–65), have been developed in
Roncaglia and Tonveronachi (1978; 1985) and in Roncaglia (1985b).

As we can see, the critique of the marginalist tradition originated by
Sraffa's work reached important results, on a much wider front than is
often recognized. Marginalist theoreticians were pushed into concentrating
their efforts into two fields: that of intertemporal or temporary general
equilibrium models, so general as to be sterile as guidance for the inter-
pretation of economic reality (in the sense that any event can be justified
ex post facto, within these models, by assigning a particular set of values
to the parameters, or by aptly changing these parameters); and that of
disequilibrium models, requiring ad hoc assumptions on the adjustment
mechanisms in order to obtain determinate results, and which often
surreptitiously repose analyses of final equilibria and of the adjustment process which are only valid in a 'one commodity world', that is, when an aggregate notion of capital is utilized. (For a systematic critical analysis of general equilibrium neoclassical models, see Donzelli, 1986).

The growing remoteness of such analyses from real world issues opens the door to the revival of an approach alternative to the marginalist one: the classical approach strengthened by the assimilation of Keynes's ideas (as proposed, for instance, by Kregel, 1976 or by Tonveronachi, 1983). The development of such an alternative has probably been delayed by the requirements of intellectual efforts for the critique of the marginalist approach. Pursuing such a critique is still necessary; but its impact would be strengthened by the availability of a fully fledged alternative approach. The development of such an alternative approach raises various issues, referring to its conceptual framework, to specific analytical issues, to methodological choices. These issues will be considered in the following sections.

IV The rediscovery of the classical approach

Together with the critique of the marginalist theory, Sraffa reposes the classical economists' approach, freed from the misunderstandings superimposed in decades of marginalist interpretations.

Sraffa's work for the critical edition of Ricardo's Works (Ricardo 1951–55) begins in 1930, and goes on for more than a quarter of a century, interacting with the work on Production of commodities by means of commodities. Sraffa's celebrated philological rigour is not pursued as an end in itself, but is the tool for bringing to the fore the very foundations of classical political economy. Because of this, the debate beginning in the 1970s on the Sraffian reconstruction of the history of economic thought is also part of the wider debate on the lines of development of economic science.

Central to the classical approach as resurrected by Sraffa is the notion of the surplus, defined as that part of the product remaining once the initial means of production and means of subsistence for employed workers have been reconstituted. Given the wage (in terms of some commodity standard), and once the problem of rent is set aside thanks to the theory of differential rent, profits emerge as a residual magnitude; the rate of profits can then be determined as a ratio between profits and capital advanced.

Here we meet a problem, which is at the centre of Ricardo's efforts and which will be solved only with Sraffa's 1960 book: in order to determine the rate of profits as a ratio between profits and capital advanced, these two magnitudes must be expressed in homogeneous terms. This happens when profits and capital advanced are different quantities of the same commodity, 'corn'; or when they are expressed in value terms, as is necessary as soon
as we recognize that the economy contains more than one 'basic' commodity. Here, Ricardo's attempt to measure product and means of production by means of a labour-contained theory of value contradicts the notion of competition as logically implying a uniform rate of profits, as Ricardo himself recognizes. Also to be discarded is the 'adding-up of components price theory' attributed to Smith. This latter theory determines prices on the basis of the 'normal' values of distributive variables; but these prices cannot be used for determining the value of the surplus and of capital advanced, and hence the 'normal' value of the rate of profits, since this would imply circular reasoning. The solution proposed by Sraffa (1960) consists in the simultaneous determination of relative prices and a 'residual' distributive variable (wage rate or rate of profits), once the technology corresponding to a given set of activity levels and the 'exogenous' distributive variables are given.

The theory of relative prices, it should be stressed, plays in the Classical approach a subordinate role, instrumental to the theory of income distribution, which points to the conflicting interests of the social classes, and which provides the foundation for their analyses of the accumulation process.

Alfred Marshall (1961: Appendix i) had already tried to deny the existence of a classical approach to political economy distinct from the marginalist one. Marshall conceived the Ricardian analysis as one of the two pillars of the 'modern' theory of value and distribution. More specifically, the classical theory of rent provided the pillar referring to the analysis of costs, or supply curves, through a generalization of the principle of the decreasing marginal productivity of land. The 'modern' theory, according to Marshall, completes the theoretical edifice with the second pillar, namely the analysis of demand curves based on the principle of decreasing marginal utility.

In a subtler way, Jacob Hollander (1904; 1910) tells the story of Ricardo's gradual retreat from a labour theory of value towards a theory of prices based on costs of production, which is considered open to the marginalist developments connected to the principle of decreasing marginal productivity. Marshall's views and those of Jacob Hollander are subject to devastating criticisms in Sraffa (1951). To these views Sraffa counterposes the interpretation of the classical approach based on the notion of the surplus.

The reconstruction of the history of economic thought based on a clear-cut distinction between the classical and the marginalist approach, which begins with Sraffa's edition of Ricardo's *Works*, is then developed in a long stream of writings. Among these, let us recall Garegnani (1960), stressing the different analytical structure of the two approaches; Maurice Dobb's (1973) synthesis; Krishna Bharadwaj's writings discussing the transition stage from the classical to the marginalist approach (Bharadwaj 1978a; 1978b); Groenewegen's 1984 paper on the relationships between Sraffa's 1960 book and the classical economists. This line of research flourishes in
Italy in the 1960s and 1970s: let us recall Claudio Napoleon's writings in *Rivista Trimestrale* since 1962, and Napoleon (1973); for a 'Sraffian' critique of Napoleon's views on the Sraffa-Marx relationship, see Ginzburg (1971). A number of papers (by Jesurum, Meldolesi and Vianello) are collected in Sylos Labini (1973). Sraffa's influence can be perceived also in a number of introductions to the volumes of the series of *Classics of Political Economy* (ISEDI publishers: see, for example, Brusco, 1976; Ginzburg, 1976; Parrinello, 1976; Rivetti, 1975; Ridolfi, 1973; Roncaglia, 1972; Vianello, 1976), and in some volumes of the series *Great Economists* (Etas Libri publishers: for example, Gilibert, 1977; Lippi, 1976; Roncaglia, 1977). Let us also recall Sylos Labini (1954; 1977) on the classical theory of development and market forms. Numerous authors tackle the issue of the relationship between Marx and the classical school, in the light of Sraffa's analytical results; let us recall at least Garegnani (1981; 1984) and Steedman (1977); and for a wider bibliography see Roncaglia (1978: Appendix II).

In opposition to this wide stream of literature (which embraces a variety of views, though on the common basis of the recognition of the central role of the surplus for the classical school, and of the distinction between the classical and marginalist approaches), some marginalist historians of economic thought reproposed the thesis of a continuity of the two approaches. This thesis has a twin implication: first, to deny the existence of a specific classical 'vision' of the economy; secondly, to depict classical economists once again as simple forerunners, rough and approximate in their analyses, of marginalist theorists. Thus the debate in the history of economic thought appears as an important element of the general debate opposing 'Sraffian' and 'marginalist' economists: an element at least as relevant as the strictly analytical one (namely, the capital theory debate discussed above). In this respect, let us recall Samuel Hollander's (1973a; 1973b; 1975; 1977; 1979) writings on Classical economists and the replies they provoked, both on a specific aspect (Ricardo's corn model: see Eatwell, 1975a and Garegnani, 1982; in turn criticized by Peach, 1984), and on the more general picture of Ricardo as a 'marginalist' economist (Roncaglia, 1982). A subler attempt at reproposing as common to classical and marginalist economists 'at least' a view of value and distribution where the condition of equality between demand and supply of capital and labour determines the equilibrium values for wage rate and rate of profits, is developed in different but substantially similar ways by Casarosa (1974; 1978; 1982); Hicks and Hollander (1977); Caravale and Tosato (1980). It can be maintained, however, that these interpretations too are based on a misreading of Ricardo (see Roncaglia, 1982: 347–50 and 373; Rosselli, 1985; and, along partially different lines, Pasinetti, 1982).

The debate, still under way, on the reconstruction of the history of economic thought thus plays a central role, and constitutes an integral part of the reconstruction of classical political economy started by Sraffa.
V The analytical contributions stemming from Sraffa

Parallel to the critiques of traditional marginalist theories and to the reappraisal of classical political economy, the publication of Sraffa's book was followed by researches refining and developing his analysis of the relationship connecting relative prices to income distribution.

Before surveying these developments, we will briefly recall the line of enquiry followed by Sraffa in *Production of commodities by means of commodities*. The first step consists in considering a subsistence economy, 'which produces just enough to maintain itself', and in which 'commodities are produced by separate industries and are exchanged for one another on the market held' at the end of the production period. In such a system, '... there is a unique set of exchange-values which if adopted by the market restores the original distribution of the products and makes it possible for the process to be repeated; such values spring directly from the methods of production' (Sraffa, 1960: 3).

The second step consists in considering an economic system capable of producing a surplus. In this case, as Sraffa shows, 'the distribution of the surplus must be determined through the same mechanism and at the same time as are the prices of commodities' (1960: 6). If the wage rate can be higher than the subsistence minimum, relative prices and one of the two distributive variables (wage rate or rate of profits) can be determined jointly, once the technology and the second distributive variable are given; the higher the wage rate, the lower the rate of profits.

The third step consists in providing 'the key to the movement of relative prices consequent upon a change in the wage'. As classical economists and Marx already knew, it 'lies in the inequality of the proportions in which labour and means of production are employed in the various industries'. In fact, 'if this proportion were the same in all industries no price-changes could ensue', while 'it is impossible for prices to remain unchanged when there is inequality of "proportions:"' (1960: 12–13).

Sraffa builds also an analytical tool, the 'standard commodity', which shows in a clear-cut way the boundaries within which a solution can be given to the Ricardian problem of the invariable standard of value (since the standard commodity constitutes an invariant measuring rod for exchange values with respect to changes in income distribution, but not to changes in the techniques in use). The analysis of production prices is completed by considering the case of joint production and, within this category, of fixed capital; and the case in which there are scarce, nonreproducible means of production, such as land. The book concludes with a chapter on the choice among economically alternative methods of production, when the rate of profits changes; and with some appendixes, amongst them the 'References to the literature' where Sraffa explicitly declares his connection to the classical tradition.
The first writings on Sraffa’s book, leaving aside a long stream of reviews (some of which raise important issues), concern the translation of his analysis into mathematical terms: Newman (1962) deals with the first part of the book, Manara (1968) with the second part (namely the case of joint production). On these aspects, more recent writings are Pasinetti (1975) and Abraham-Frois and Berrebi (1976). Sylos Labini (1969) suggests that the assumption of a set of sectoral profit rates be substituted for Sraffa’s assumption of a uniform rate of profits; this suggestion is taken up in a long stream of articles, among which we may recall Parrinello (1982b) and Steedman (1984). (On this, as on the other issues considered in this section, bibliographical references can be found in Roncaglia (1978; Appendix II) listing the main writings on the different aspects of Sraffa’s analysis published up to 1977).

A problem raised by Newman, concerning the possibility of nonpositive prices for nonbasic commodities, is tackled in an exchange of letters between Sraffa and Newman (published in Bharadwaj 1970) and in some other writings (such as Zaghini, 1967a; see also Roncaglia, 1978: 62–3, for an interpretation of the economic meaning of the mathematical reasoning). The distinction between basic and nonbasic commodities is widely debated, up to the point of considering its applicability to planning problems (for a short survey and evaluation of this debate, see Roncaglia, 1985a; which also provides an evaluation of the relevance of Sraffa’s analysis for applied economics).

A number of writings focus on the standard commodity: the mathematical specification of its properties, some attempts at generalizing it, and especially the possible use of that tool for solving the problem of the transformation of labour values into production prices (to which we shall return in Section VII), or in general for solving problems left unsolved within Marx’s theory of value.

In the 1970s attention shifts from the first to the second and the third part of Sraffa’s book. A mathematical treatment of joint production is given by Schefold (1971), who in a series of articles then develops specific aspects, mainly concerning the choice of techniques and technical change (Schefold, 1976; 1977; 1978; 1979; 1980). Schefold’s writings are important not only for their analytical results, but also for the idea that Sraffa’s analysis provides a better basis than traditional theory for the analysis of important practical issues (such as technical change, the energy issue and the ecological issue).

The treatment of both fixed capital and rent is developed and discussed in a long stream of articles. (A number of articles on fixed capital are collected in Salvadori, 1981; on rent, let us recall at least Quadrio Curzio, 1967; Montani, 1972; Abraham-Frois and Berrebi 1980).

The subsystems method, presented by Sraffa in a short appendix to his book, also received immediate attention (Harcourt and Massaro,
1964; Zaghini, 1967b; and especially Pasinetti, 1973). As reconstructed by Pasinetti in terms of vertically integrated sectors, it came recently to be used as a tool for empirical analyses of productive inter-relations within the economy (Momigliano and Siniscalco, 1982; 1984).

On the choice of techniques, apart from the debate raised by Levhari (1965) (already mentioned in Section III), let us recall Bharadwaj (1970), showing that the maximum number of points of 'switch of techniques' is equal to the number of basic commodities in the system.

A debate on the interpretation and the limits of Sraffa's analysis started in the late 1970s, revolving on the choice of techniques, especially with reference to the case of joint production. (For a survey of this debate and of other analytical issues related to joint production, see Salvadori and Steedman, 1988). Steedman, 1980a (also Salvadori, 1979a) showed that the assumption of constant returns to scale is necessary for the treatment of the choice of techniques presented in the third part of Sraffa, 1960 (contra, see Garegnani 1985: 42); also, in the case of joint production difficulties appear for the identification of the cost minimizing technology (Salvadori, 1979b; 1982; and independently Bidard, 1984). These results, especially the latter, bring Salvadori (1979b; introduction to 1981; 1982: 297; and especially 1985) to suggest a blending of Sraffa's and von Neumann's approaches, and a generalization of the 'equations approach' into a 'weak inequalities approach'. This debate is still open, and is crucial for the interpretation of Sraffa's analytical contribution. Here we will only suggest that Sraffa's (1960: Part III) analysis of the choice of techniques, while a decisive tool for the critique of traditional marginalist theories of value and distribution, should not necessarily be interpreted as providing the foundation for the analysis of technical choice.

VI The 'Ricardian' reconstruction: Pasinetti

When the attempts at reconstructing classical political economy go beyond the limits which Sraffa imposes on his book, and try to tackle the issues connected with the development of the economy over time, there is no unique path of research which can be logically deduced from Sraffa's analytical results; there is rather a multiplicity of lines of enquiry which can be actively explored and confronted. In this and the following sections we will try to locate the distinguishing characteristics of three main lines of research along which different groups of economists try to proceed with the reconstruction of the classical approach which Sraffa started.

A first line of enquiry is that proposed in a number of writings by Pasinetti, culminating in his 1981 volume on Structural change and economic growth, subtitled A theoretical essay on the dynamics of the wealth of nations.

Notwithstanding the reference to Adam Smith’s magnum opus in the
subtitle, Pasinetti’s main reference is to Ricardian analysis. On methodological grounds, Pasinetti follows the principles of logical deduction, leaving to historical references a purely illustrative role: in analogy to Ricardo and in direct opposition to Smith’s predilection for historical generalizations as opposed to the analysis through models. Furthermore, Ricardo’s ‘model’ is the subject of Pasinetti’s well-known 1960 article, which can be considered as the starting point (from a logical point of view, if not from the point of view of the factual development of his ideas) for the development of Pasinetti’s 1965 growth model, which also incorporates Pasinetti’s 1962 formulation of the post-Keynesian theory of distribution, connecting income distribution between wages and profits to the level of investments, once the saving propensities of workers and capitalists and the ‘natural’ growth rates are given. Subsequently, the development of the notion of vertically integrated sectors (Pasinetti, 1973) constitutes a decisive analytical step for moving on from the Sraffian analysis of the relationship between relative prices and income distribution to the analysis of economic growth. Lectures on the theories of production (Pasinetti, 1975) can then also be considered as a reinterpretation of the history of economic thought, especially recent history (Sraffa, Leontief and von Neumann). This set of writings contributes to providing the basis for a specific view of the nature and role of economic science: a view which is not opposed to that implicit in Sraffa’s writings, but which cannot be identified with, or logically deduced from, the latter.

A number of economists, especially Italians, side with Pasinetti in developing this line of enquiry. Let us recall the reappraisal of the history of economic thought proposed by Quadrio Curzio and Scorzieri (1984), opposing the classical and marginalist approaches by referring to the distinction between the ‘basic notion of reproducibility’ and the ‘basic notion of scarcity’; Baldone (1974) and Varri (1974) discussing Sraffa’s analysis of fixed capital as a premise for the analysis of growth; and Marzi-Varri (1977) utilizing (perhaps in a too cavalier way) the wage-profit frontier for the analysis of technical change. As already noted, Pasinetti (1981) represents a synthesis of this line of research; hence we will refer to it in discussing the nature and limits of this line of enquiry.

Pasinetti’s purpose is ‘to build a unifying theory behind all the new contributions to economics’ (1981: 19): Kalecki and Keynes, the theory of the firm, Leontief and Sraffa, cycle theory, the Harrod-Domar model and the post-Keynesian distribution theory. Such a unifying theory is to be found ‘not in the caprice and scarcity of Nature, but in the progress and ingenuity of Man’, namely, not in the marginalist approach interpreted as the scarcity view, but in the classical approach interpreted as the reproducibility view (1981: 23). (While we referred to this distinction earlier in this paper, we have also discussed its limits in Roncaglia, 1978: 5–6 and 125–30).

Proceeding from this basis Pasinetti aims to develop ‘a theory which
remains neutral with respect to the institutional organization of society', concentrating attention on 'the "primary and natural" features' of the economic system, by which he means 'the conditions under which it may grow and take advantage of exploiting all its potential possibilities' (1981: 25). A model of nonproportional growth based on the full employment assumption is utilized for identifying such conditions, interpreted as 'necessary requirements for equilibrium growth' (1981: 25). Specifically, in any vertically integrated sector the 'natural' rate of profit - which differs from sector to sector - must be such as to ensure an amount of profits equal to the 'equilibrium' value of investments, that is, to the amount of investments required for expanding productive capacity at a rate equal to the rate of population growth plus the rate of increase of per capita demand for each consumption good' (1981: 130). The structure of demand changes over time following 'Engel's law'. Pasinetti claims that thereby he can avoid any reference to subjective elements such as utility maps and consumers' preferences. The increase in per capita income and demand corresponds in equilibrium to the increase in per capita product due to technical progress (which can proceed at different speeds in different sectors).

In this context the notion of equilibrium assumes a normative meaning, linked as it is to the assumption of full utilization of the available labour force and productive capacity; the 'dynamic' equilibrium corresponds to the conditions allowing for continuous full employment over time. In other terms, Pasinetti's analysis focuses on what should happen for ensuring full employment, not on the actual behaviour of an economic system necessarily tied to specific institutions.

From this viewpoint the relationship of the short and long period is discussed: 'the very nature of the process of long run growth requires a structural dynamics which leads to difficulties in the short run'. Hence the methodological suggestion '... of singling out first the fundamental structural dynamics which must take place and then of trying to facilitate them' (Pasinetti 1981: 243-4): a suggestion which tends to affirm the priority of the normative analysis.

All this is not intended to deny the possibility and the usefulness of a direct analysis of short period issues, and of the - nonoptimal - way of working of concrete economies; various hints in Pasinetti's 1981 book, particularly the four final chapters, point in this direction. But compared to the long-run 'normative' analysis, such hints are undoubtedly far less developed: they are relegated to a second stage of analysis, subsequent to that decisive first stage which is the object of systematic analysis in Pasinetti's work.

Pasinetti's (1981) analysis of international economic relations points out a central aspect where Pasinetti's view of the functioning of modern economies differs from that of the classical economists: the nature of the wealth of nations. Pasinetti argues that 'trade' (i.e., the Ricardian principle of the exploitation of comparative advantages among different
countries) is 'a secondary source of international gain', while 'the primary source' is given by 'international learning' of technical knowledge. Hence the distinction hinted at above:

In a pre-industrial society, wealth is mainly a stock of material goods—something that people have inherited from the past or have appropriated from 'nature'. . . . But the wealth of an industrial nation is something quite different, or rather it is something deeper. It is not so much the material goods that people have; it is the technical knowledge on how to make them . . . If, in the pre-industrial world, the main way for a country to increase its wealth was to dominate and exploit its neighbours, today it has become to emulate them and do better (Pasinetti, 1981: 275–6).

VII The 'Marxian' reconstruction: Garegnani

Some economists pursue the reconstruction of classical political economy started by Sraffa by bringing to the fore, within the classical approach reposed by Sraffa, Marx's vision. As Garegnani (1981: 113) states, 'a revival of the Classical economists' theoretical approach cannot ... take place but starting from the highest point of development which such an approach received in the past: the point which was reached with Marx'.

Naturally the Marx thus reposed is a specific Marx: not necessarily a travesty, as many 'orthodox' Marxists maintained (e.g., Medio, 1972); but certainly a Marx in which some elements are placed in the forefront, while others—though undoubtedly present in his writings, such as materialistic dialectic—are played down. Also, Sraffa's analytical contribution could not leave untouched Marx's 'vision' (in the wider sense of the term).

For example, the use of Sraffian analytical tools shows that the Marxian 'law of the falling rate of profit' is devoid of general validity (see Steedman 1977: Chapter 9; the problem is discussed in a number of articles collected in Scelpioni and Zenezini, 1978). Furthermore, contrary to what a number of authors maintained (Meek 1961; Medio 1972; Eatwell 1975b), the standard commodity does not constitute an analytical tool capable of connecting the world of labour values to the world of production prices (see Roncaglia, 1978: 76–9). The widely debated problem of the 'transformation of labour values into production prices' (for a history of which see, for example, Vicarelli, 1975), is substantially solved, in the light of Sraffa's analytical results, by concluding that the results reached in terms of labour values are generally not confirmed by an analysis in terms of production prices (see particularly Steedman, 1977).

There were lengthy discussions on the precise measure in which this renewed Marx ('Marx after Sraffa', following the happy title of Steedman's (1977) iconoclastic book) corresponds to the original Marx (for a bibliography of this debate, see Roncaglia, 1978: Appendix II). At one extreme there are those, like Colletti (1968: 431), maintaining that 'Sraffa made a
bonfire of Marx’s analysis’. Among the various forms which this thesis took, a central element seems to be the idea that leaving aside dialectical materialism means leaving aside a central aspect of Marxian thought – commodity fetishism.

To the contrary, many economists, and prominently Garegnani (1981; 1984), maintain that the differences between Sraffa’s and Marx’s analyses are not substantial. We are confronted rather with the development of one and the same paradigm, since Marx retains intact the analytical structure of classical economists centred on the notion of the surplus, which was then taken up by Sraffa with greater analytical rigour. In fact, the ‘return to Marx’ is precisely the road which Sraffa had in mind for the reconstruction of political economy. Marx’s exploitation is considered as a fact of reality, as shown by the fact that the surplus generated in the productive process is at least partly appropriated, as profits and rents, by social classes different from the workers. Besides, the antagonistic relation between wages and profits – expressing on the plane of income distribution the class conflict opposing capitalists and workers – is said to be brought to the fore, with greatest clearness, by an analytical tool developed by Sraffa, the standard commodity. In fact, when the standard commodity is used as the numeraire for measuring the wage rate, we get a negative linear relationship between wage rate and rate of profits. These foundations are considered sufficient for the central aspect of Marx’s thought: ‘the contingent nature of capitalism is demonstrated by Marx on the basis of an analytical nucleus consisting in what he often calls “the internal nexus of bourgeois economic relations”, that is, basically, the antagonistic relation between wages and profits’ (Garegnani 1981: 112).

The analytical core common to classical economists, to Marx and Sraffa, is located by Garegnani (see in particular the essays collected in Garegnani 1981; 1984; 1985) in the set of relations connecting production prices and distributive variables analysed in Sraffa (1960). More precisely:

the surplus theories have ... a core which is isolated from the rest of the analysis because the wage, the social product and the technical conditions of production appear there as already determined. It is in this ‘core’ that we find the determination of the shares other than wages as a residual: a determination which ... will also entail the determination of the relative values of commodities. Further, as a natural extension of this, we shall find in the ‘core’ an analysis of the relations between, on the one hand, the real wage, the social product and the technical conditions of production (the independent variables) and, on the other hand, the shares other than wages constituting the surplus, and the relative prices (the dependent variables) (Garegnani 1984: 296).

Two notes of caution are to be stressed. First, side by side with the relations considered internal to the core, the variables (both dependent and independent ones) can also be connected by other relations, which ‘were left to be studied outside the “core”’ (Garegnani 1984: 297). Secondly, the ‘core’
is substantially unchanged when the profit rate replaces the wage as the independent distributive variable determined outside the core (Garegnani 1984: 321-2; the importance of this substitution is stressed in Roncaglia, 1975 and 1986).

The dominant role attributed to the 'analytical core' which Marx shares with classical economists and Sraffa influences the line of enquiry followed in the reconstruction of political economy. The 'core' is taken as the foundation on which to rely in developing the analysis in different directions, corresponding to the elements considered as exogenous data in Sraffa's book (income distribution, production and employment levels, technology).

However, the analysis of the relations internal to the core and of those external to it are said to constitute 'distinct logical stages' (Garegnani, 1984: 297): the nature of the analysis is substantially different in the two cases. Garegnani (1985: 35-7) characterizes in a clear-cut way this difference, pointing to a 'separation between two fields of analysis: a field where general quantitative relations of sufficiently definite form can be postulated', i.e., the 'core'; 'and a field where relations in the economy are so complex and variable according to circumstances, as not to allow for general quantitative relations of sufficiently definite form', i.e., the rest of economic theory; 'the relations pertaining to this second field had . . . to be studied in their multiplicity and diversity according to circumstances'.

Differently from Pasinetti, Garegnani and his followers thus seem to interpret the analytical core common to Sraffa and classical economists not as a set of formal relations to be extended in 'more general' models, but rather as a set of causal relations constituting a necessary reference point for any attempt at analysing other aspects of economic life. More precisely, central relevance is attributed to the causal chain going from the wage rate, determined by historicosocial conditions, (or alternatively by a profit rate determined by conventional and institutional factors explaining the interest rate), to relative prices and the second distributive variable, on the basis of a given technology.

Another idea repeatedly defended by Garegnani concerns the 'gravitation of market prices around natural prices'. This idea raised a wide debate, which will be considered below in Section IX. In fact the metaphor of gravitation, both imperfect and suggestive as are all metaphors, seems to be used by Garegnani mainly for stressing the relative 'stability' and 'persistence' of the elements (techniques in use, distribution) which directly determine 'natural' prices. Once given this meaning, the idea of gravitation appears as connected to the idea of a 'dominance' of the 'analytical core' over all other aspects of economic enquiry, which characterizes Garegnani's views: both in his interpretation of the connection between Sraffa and classical economists and Marx, and in his view of the line of research to be followed for the reconstruction of political economy initiated by Sraffa.
VIII The 'Smithian' reconstruction: Sylos Labini

A line of research for the reconstruction of classical political economy different from those examined in the previous sections has been developed in a number of writings by Paolo Sylos Labini (see especially Sylos Labini 1954; 1956; 1972; 1974; 1977; 1983; 1984). This line of research is characterized by the central role attributed to market forms, which are relatively overlooked by classical economists, in their interaction with the division of labour and the process of accumulation. This means bringing to the centre of the analysis a causal chain which draws from Smith more than from Ricardo or Marx: the causal chain going from changes in the division of labour (or, more specifically, from technical change) to changes in market forms and hence in the speed of accumulation, and from these elements - together with aspects concerning public policy and the political-institutional setting - to income distribution.

More generally, Smith's vision of a development process characterized by both positive and negative elements, but fundamentally positive, and conditioned by institutional reformism (from the abolition of customs and tariffs to free elementary education), is reproposed on various accounts by Sylos Labini. (See, for example, the characterization of the negative effects of the division of labour in Book V of the Wealth of Nations, side by side with that of the positive effects in Book I; and, for a similar position, see Sylos Labini (1974) and his proposal of a 'labour army'). The 'Smithian' vision is reproposed by Sylos Labini as an alternative - even as opposed - to the traditional Marxist vision of a progressive deterioration of capitalism (law of increasing misery, proletarization, tendency to a falling rate of profits) up to the inevitable breakdown and the unavoidable revolutionary outcome. (The counterposition is evident in Sylos Labini's writings on social classes (1974) and on underdevelopment (1983); for a direct critique of the Marxian vision, see Sylos Labini, 1984: 44-66).

From this point of view, Sraffa's contribution can be characterized exactly as in Section II above: as a critique of the marginalist tradition; as a reconstruction of the classical conceptual apparatus; as a solution of the analytical problem constituting a central pillar of the classical theoretical construction, namely the relationship between relative prices and income distribution. Such a problem constitutes a vital analytical issue, for the construction of a theoretical system based on the notion of the surplus; however it did not constitute for classical economists, and should not constitute today, the main objective of economic enquiry. Such an objective should rather be located in the 'wealth of nations' and the factors determining its development over time and in different countries, especially the distribution of income and wealth among different groups of economic agents.

Sraffa's contribution is thus decisive for the vitality of the cultural project...
of reconstruction of classical political economy. However, it should also be recognized that in order to repropose an interpretation of the behaviour of the economic systems in which we live it is not sufficient to 'build over' Sraffa's (1960) analysis: neither in the sense of widening a basic formal model, nor in the sense of gradually extending an analytic nucleus of causal relations. As a consequence, the attempt to reconstruct classical political economy is, at least in certain aspects, independent of Sraffa's contribution.

For instance Sylos Labini (1957) revives the classical conception of market forms, based on the difficulty of entry of new firms into a sector rather than on the number of firms present in that sector, and analyses the factors determining the 'barriers to entry' facing new firms. Such factors determine a deviation of the sectoral profit rate from the 'competitive' profit rate prevailing under free competition, i.e., in the case of unrestrained freedom of entry. Such an analysis of market forms is clearly compatible with the idea of a tendency to a uniform rate of profits in the case of free competition in all sectors of the economy, and it is thus compatible with Sraffa's analysis: in comparison to the assumption of a uniform rate of profits, the introduction of noncompetitive market forms can be considered as a second approximation. But the objective of the analysis (namely, to locate the factors determining the size of the barriers to entry into the different sectors of the economy) can be pursued independently of an analysis of relative prices under competition such as the one conducted by Sraffa (1960). At the same time, the analysis of barriers to entry should not be limited to the determination of the sectoral differentials in profit rates, which represent the formal link between the analysis of market forms and that of the relationship between relative prices and income distribution; it also throws light on issues such as the pace of accumulation and technical change, inflation and employment (especially when the nature of the barriers to entry is different in the various sectors of the economy: see Sylos Labini, 1957; 1972; 1984).

The connection between the different lines of research contributing to the reconstruction of classical political economy (and in particular the connection between two lines of enquiry such as the one on the relationship between relative prices and income distribution, and the one on market forms) must be found in the reference to a common conceptual framework: the representation of the economy as a circular process, centred on the notion of the surplus. Within this common conceptual framework various analytical issues can be identified, obviously connected but which are better dealt with if subjected to separate analysis (though without losing sight - 'in the back of our minds', as Keynes said - of their interconnections).

The analytical separability of the different issues (proposed for example, in Roncaglia, 1978: Chapter 7, as a possible interpretation of the methodology implicit in Sraffa, 1960) opens the way to the use of different analytical
levels for dealing with different analytical issues. This idea is widespread in modern science, with the exception of economics, where the dominant marginalist tradition favoured the idea that all problems should be dealt with through a unique method, namely constrained maximization (or minimization) (as Samuelson, 1947:3, notes). For instance, in the study of intelligence, the analysis of the interaction between symbols in the human mind is conducted at 'a different analytical level' from the analysis of the interaction of neurons in the human brain (Hofstadter, 1979); but obviously the two analyses cannot belong to the same corpus if linked to two conflicting interpretations of human intelligence.

This short lapse into methodology is necessary for understanding how to solve, within the 'Smithian' approach, the problem of the relationship of what Garegnani (see Section VII above) calls 'the core' of classical political economy, and 'the rest of economic theory'. When different analytical levels are used in dealing with different issues, the problem of formal consistency with the core cannot even be raised. Nor is it possible to state that the core constitutes a 'logically prior' stage in comparison to the 'logically subsequent' stages consisting in the treatment of all other issues. Moreover, as already said, the relations 'within the core' do not necessarily constitute a privileged point of departure for the study of different economic issues (from technical change to accumulation). However, a 'conceptual', not a formal, consistency is required between the different theories developed in interpreting different aspects of economic reality, if such theories have to represent parts of a common corpus (or of the same 'research programme', using Lakatos' (1970) terminology). The relevance attributed to this kind of consistency implies a central role for the analysis of the conceptual framework of any theory, and hence for the debates in the history of economic thought. Conceptual consistency constitutes the main 'safety valve' against possible abuses of the idea of 'different analytical levels'. Here we find reasons for attributing a particularly important role to the set of analytical relations usually included in the field of the 'theory of value': it is within this field that the differences between different conceptions of the way of functioning of the economy most clearly appear, and can be expressed with the greatest precision. Clearly, from this point of view Sraffa's (1960) analytical contribution continues to play a central role also within what we have here indicated as the 'Smithian' reconstruction of classical political economy.

IX A first evaluation of the three lines of enquiry

What has been said in the preceding pages does not imply basic contradictions between the three lines of enquiry - 'Ricardian', 'Marxian' and 'Smithian' - proposed for the reconstruction of classical political economy started by Sraffa. However it cannot be denied that there are various differences. This section is concerned with some difficulties arising within
the 'Ricardian' and 'Marxian' lines of enquiry, when interpreted as autonomous and counterposed to the 'Smithian' one.

Let us begin with the 'Ricardian' analysis developed in particular by Pasinetti. As we saw above (Section VI) it is, at least in a first and fundamental stage, a normative analysis directed to determining the conditions of continuous full employment (or, in general, of a predetermined employment dynamic), in the presence of exogenous changes in labour forces, technology, consumers' tastes. Pasinetti's 'normative' analysis thus opposes the traditional marginalist view according to which market economies automatically tend to full employment. Within the marginalist tradition, full employment equilibrium is a position towards which the economy actually moves. Vice versa, the conditions of economic growth under continuous full employment analysed by Pasinetti are not automatically realized by market forces, but constitute targets for policy interventions.

However, Pasinetti's model has also limits from this point of view (see Shapiro (1984) and Pasinetti's (1984) reply). First, side by side with the assumption of full employment, decisive elements are determined from outside the model, such as, in particular, the parameters determining the pace of technical change. Secondly, even if we accept the point of view of the 'full employment planner', we still lack the second point of reference necessary to the planner's activity, namely an analysis of the tendencies of actual economic systems, when unhindered by intervention. It is precisely this latter kind of analysis which, in our opinion, constitutes the essence of political economy properly conceived. According to Pasinetti this kind of analysis represents a second stage, only hinted at in his work, logically subsequent to the analysis of what he considers to be the 'natural' properties of an economy, namely the conditions of growth under persistent full employment.

Concentrating the analysis on the potentialities of growth may tend to obscure some aspects which are decisive for an understanding of the path actually followed by the economy. Let us briefly recall three such aspects: market forms, monetary and financial elements, the relationship between long and short run issues.

First aspect: market forms can differ from sector to sector and can be modified, within each sector, by the very process of development. As we saw above (Section VIII), some economists attribute to market forms a decisive influence on the actual tendencies of development of different economic systems. However, the analysis of vertically integrated sectors leaves on a secondary plane the possible differences in market forms in the various industries which are then recombined in varying proportions between hypothetical vertically integrated sectors. In consequence each vertically integrated sector has different market forms inside it; so that strategic behavioural differences between different sectors, which may influence the shape of economic development, are heavily obscured.
The second aspect consists in the limited and largely passive role played by monetary and financial factors in Pasinetti's (1981: Chapter 8) analysis. These factors are, in fact, relegated to that second stage of research which should follow the analysis of the 'natural' properties of an economic system. This is a logical corollary of the line of enquiry privileged by Pasinetti: in his analysis the potentialities of development are defined by 'real' factors such as the growth of population; the pace of productivity and the choices of final consumers; while monetary factors do not play any role on this account. Vice versa, the relevance of these latter factors in determining the actual path of economic development is rightly stressed by economists within the Keynesian tradition.

The third aspect consists in the link between short and long run problems. As we saw above (Section VI), in Pasinetti's analysis the former stem from the latter. However the opposite procedure - namely considering long run problems as stemming from short run ones - appears, at least in some cases, as more appropriate to the analysis of the evolution of actual economic systems. This holds especially for the employment issue, which is the central objective of Pasinetti's analysis: 'Keynesian' short run unemployment, due to short run insufficiency of effective demand, implies underutilization of available productive capacity, and thus influences negatively investments intended to enlarge productive capacity; as a consequence, the latter may maintain an insufficient pace to balance the growth of population and technical progress (see Roncaglia 1985b: Section 6). Technical change itself, which in Pasinetti's analysis is considered as an exogenous factor, and which contributes to determining the potential full employment path, is, in fact, influenced by the actual path of production and investment: so that the potential full employment path cannot be defined independently of the actual path.

The assumption of continuous full employment which is the central pillar of Pasinetti's analysis, also constitutes the premise for the idea recalled above (see Section VI) according to which the international learning of technical knowledge constitutes the primary source of advantages stemming from international economic relations. These latter, in fact, also influence the degree of utilization of available productive capacity and the pace of accumulation in the different countries: it is only the assumption of continuous full employment which allows us to neglect these aspects, and to concentrate attention uniquely on the evolution of technical knowledge. Once this is recognized, the contrast perceived by Pasinetti between his own notion of wealth of nations and the traditional one falls. Undeniably, the classical notion attributes a central role to technical knowledge in explaining the wealth of nations (think, for example, of the Smithian analysis of the division of labour). At the same time, side by side with the stage reached by technical knowledge one has to keep in view, precisely as classical economists used to do, the 'material' aspect of the wealth of nations as well,
namely the actual path of production, once the possibility of a difference between such a path and the potential full employment one is recognized.

In other terms, the notion of the wealth of nations proposed by Pasinetti, in so far as it concentrates attention exclusively on technical knowledge, is connected to the normative orientation of his analysis, where full employment is assumed; on the contrary, the classical (Smithian) notion of wealth of nations recognizes the relevance of technical knowledge side by side with other elements determining the actual path of development of economic systems.

Of course, these remarks do not deny the usefulness of a 'normative' analysis, such as that developed by Pasinetti. Rather, they point to the desirability that, side by side with such analysis, and not as a second and logically subsequent stage, a central role be given to analyses of actual economic events.

Let us now proceed to examine the second line of enquiry illustrated above (Section VII), namely the 'Marxian' one developed in particular by Garegnani. Here we will leave aside, as not relevant to our purposes, the philological issue concerning the correctness of Garegnani's interpretation of Marx. We will rather concentrate attention on two related aspects, decisive for this line of enquiry: the notion of 'the core of the surplus theories', and the notion of the 'gravitation of market prices around natural prices'.

This latter thesis has been the object of a long debate. Some economists (such as Parrinello, 1977) stress that, in fact, natural prices do not remain unchanged over the time span necessary to the completion of the gravitation process of market prices towards natural prices; the 'natural position' may or may not be reached depending on the pace of change of the elements determining the natural prices, on the one side, and on the speed of the adjustment of market to natural prices, on the other side. Additional difficulties arise when it is admitted that the path followed by market prices influences the elements (techniques in use, income distribution) determining natural prices. Other economists (see, for example, Medio, 1978; Arena, 1981; Benetti, 1981; Cartelier, 1981; Steedman, 1984; Boggio, 1985) stress that gravitation requires strict formal conditions, through analyses where market prices are treated as theoretical variables determined by supply and demand conditions, and where supply and/or demand respond to divergences between market and natural prices. In this way gravitation is considered as a theory on the determination of market prices and of their path over time. But such a notion cannot be attributed either to classical economists or to Sraffa: for them, market prices represent the exchange ratios actually observable in reality, influenced by a multiplicity of factors, both systematic and nonsystematic ones, while natural prices indicate the theoretical variable expressing the action of systematic factors alone (on this see Roncaglia, 1977: Chapter 8). From this viewpoint the relationship
between natural and market prices can be expressed simply pointing to the nonsystematic nature of the differences between market and natural prices.

Garegnani seems to add two other elements: 1) the idea, already hinted at, that the elements determining natural prices are 'persistent' that is, relatively stable, so that the speed of movement of natural prices, due to exogenous changes in the factors determining them, is significantly lower than the speed of movement of market prices in their process of competitive adjustment towards natural prices; 2) the idea, which is a corollary of the first, that natural prices, and hence their determinants, are (or can be considered) independent of short period movements in market prices. Thus, according to this view, 'persistence' means not simply that the mode of action of the forces regulating the process of economic reproduction is persistent and systematic; but also that their quantitative values should be relatively stable – i.e., relatively to the speed of adjustment of market to natural prices. However, the 'strong' characterization of the idea of 'persistence' implicit in Garegnani's notion of gravitation is hit by the critiques against the two elements recalled above, which were raised in the debate on gravitation. (In that debate two aspects were sometimes confused: first, whether these ideas faithfully represent the classical economists' views; secondly – what is relevant here – whether they reflect contemporary economic conditions).

Together with this 'strong' notion of gravitation, Garegnani's line of enquiry is characterized by the central role attributed to the 'analytical core of the surplus theories'. As we saw above (Section VII), Garegnani attributes logical priority to the 'analytical core', in the sense that only within it is it possible to identify 'general quantitative relations of sufficiently definite form' connecting economic variables. When pushed to its extreme limits, this distinction between the 'analytical core' and the rest of economic analysis tends to coincide with the distinction between economic theory and political economy as proposed by Lunghini (1975) in his interpretation of Sraffa: a distinction by which Lunghini wants to show how limited the scope of constructive logical reasoning is in the economic field.

We can thus understand how the idea of a logical priority and theoretical supremacy of the 'analytical core' may constitute an obstacle to the analysis of issues such as technical change, or the link connecting division of labour, market forms and income distribution.

What has been said in Section VIII might suggest that we replace 'gravitation' with another metaphor, that of the 'photograph' presented in Roncaglia (1978) as an aid in interpreting Sraffa's analysis. Such a metaphor is used to suggest a 'weaker' notion of natural prices, interpreted as the theoretical outcome of the action of certain forces 'isolated in vacuo', since they are considered as those influencing exchange ratios in a systematic way (while giving up any attempt at proving that the selection of such forces is
the correct one, since such an attempt is considered as methodologically unwarranted. Such an interpretation of Sraffa's analytical contribution may seem more restricted than the one based on the 'strong' notion of gravitation and on the attribution to the 'analytical core' of a central and logically prior role; but in fact it is more helpful in overcoming the barrier between the 'general quantitative relations of sufficiently definite form' and 'the rest of economic theory'. As suggested in Section VIII, different theories may coexist within a common process of theoretical reconstruction, once the possibility of 'different analytical levels' is recognized for the analysis of different aspects of the functioning of economic systems. Attributing less rigid a meaning to the centrality of the 'analytical core' means rejecting the idea of its supremacy and necessary logical priority; but we can recognize all the same that the classical problem of value plays a central role in the theoretical debate, as a 'touchstone' for distinguishing different economic 'visions'.

Once again it may be useful to stress that these remarks refer to specific aspects of Garegnani's contribution, and not to the central idea of a very strict link between Sraffa and classical economists, nor to the objective of a reconstruction of classical political economy as an alternative to the marginalist approach.

Let us summarize the results of our reasoning. We saw, in the preceding sections, that there are different lines of enquiry which, stemming more or less directly from Sraffa's contributions, tend to a reconstruction of classical political economy. However, this does not imply that such lines of enquiry are mutually exclusive. Following the 'Smithian' line of enquiry in admitting the possible coexistence of different analytical levels, we may find useful elements for the reconstruction of classical political economy in each of the different lines of enquiry discussed above, provided of course that we recognize the limits of each. Thus, for instance, Pasinetti's analysis can be recognized as the analysis of a specific issue, rather than as a 'general model' of the functioning of an economy; this allows us to recognize the difference between the notion of 'natural values' in Pasinetti's analysis and in the classical tradition. Analogously, many aspects of Garegnani's contributions are useful for the reconstruction of political economy, provided his thesis of a supremacy of the relations analysed within the 'core' in comparison to those external to it is abandoned. At the same time, the 'Smithian' line of enquiry cannot but gain in clarity and analytical robustness by a stronger attention on its links with the classical surplus approach revived by Sraffa.

Here we cannot try to sketch the setting which could emerge from a critical synthesis of the different lines of enquiry stemming from Sraffa's contribution. It is clear, in any case, that while the reconstruction of classical political economy can be said to be well under way, much work still remains to be done (also because economists analyse a continuously changing reality,
requiring a continuous adaptation in the theoretical apparatus itself). It is precisely for this reason that economic research today, and in particular within the revival of the classical approach, far from going through a crisis, is a lively and fascinating enterprise.

X References

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