BULLETIN OF POLITICAL ECONOMY
15:2 (2021): 163-184

Pierangelo Garegnani and the revival of the 'submerged and forgotten' surplus approach

GARY MONGIOVI*

Abstract: Garegnani stressed that the theory of distribution is the foundation stone of all economic analysis and he focused on the existence, within the history of economic analysis, of two alternative approaches to the theory of value and distribution, namely the classical and marginalist ones. The upshot of Garegnani's work is that economic science had been driven off course not by Ricardo's classical approach but by Jevons, Marshall and Walras and that getting the discipline back on the right track requires the rediscovery and reactivation of the classical surplus approach that was abandoned in the mid-19th century. In this paper, some of the issues addressed by Garegnani to reactivate this approach will be discussed. They are the analytical method of the surplus approach, the relation between prices and outputs, and the implications of the phenomena of capital reversing and reswitching of techniques. Finally, some considerations on Garegnani's interpretation of the labour theory of value and his analysis of exploitation will be advanced.

Keywords: Surplus approach, prices and output, capital theory, labour theory of value

JEL classification: B12, B13, B41, B51.

THE CLASSICAL SURPLUS APPROACH: A SUBMERGED AND FORGOTTEN THEORY

When I was completing my doctoral studies at the New School for Social Research in the 1980s, Pierangelo Garegnani was a frequent visiting scholar in the Economics Department. My thesis was on the connection between the classical surplus approach and Keynes's theory of effective demand. I was at that time wrestling with the surplus approach, which is to say that I had not fully succeeded in my struggle 'to escape from habitual modes of thought and expression' (Keynes 1936: p. viii). I attended Pierangelo's

* Economics & Finance Department, St John's University, Queens, New York 11439 (USA). Email: mongiovg@stjohns.edu

lectures and often had occasion to discuss my thesis with him. He was generous with his time, and, as I recall, patient with my reluctance to abandon some of those habitual modes of thought.

In reflecting upon Garegnani's work I am struck by the penetrating clarity with which he elucidated the key elements at the heart of any theoretical problem he examined. A useful way to begin a discussion of the implications of his work is to identify its three principal interconnected themes.

The most fundamental insight that I got from Garegnani — the one that enabled me finally to dislodge the last residue of neoclassical thinking from my toolkit — is that the analysis of any economic question is contingent on how we explain the distribution of the social product: *the theory of distribution is the foundation stone of all economic analysis*. Our explanation of relative prices is anchored to our theoretical account of income distribution. So too are the various approaches we might take to explaining the outputs of different commodities, the levels of employment and of aggregate output, the processes of economic growth and development, and the welfare consequences of particular economic policies. This theme emerges repeatedly in Garegnani's writings.

A second key theme in Garegnani's work is his focus on the existence, within the history of economic analysis, of two alternative approaches to the theory of value and distribution — the classical surplus approach developed by Adam Smith, David Ricardo and Karl Marx in the 18th and 19th centuries, and the neoclassical, or marginalist, theory of supply and demand, which crystallized into a hegemonic orthodoxy between 1890 and 1930 (see Garegnani 1984, 1985). The classical economists viewed profits as the monetary manifestation of the physical surplus produced by the economy over and above the wage goods and produced means of production consumed in the production process. They saw profits as a key driver of economic growth. By channelling part of the economy's surplus product back into the production process, the capitalist class enabled the expansion of the social product over time; the greater the pool of profits, the greater would be the economy's potential to accumulate capital. The classicals viewed the return on investment as the inducement to invest; hence understanding growth meant understanding what determined the profit *rate*. They conceived of the latter as the ratio of the surplus to the capital utilized in the production of the economy's output. But since both the surplus and the capital utilized in production are comprised of a vast array of commodities, the numerator and the denominator of this ratio needed to be expressed as

value magnitudes: the physical quantities had to be weighted by their long-period prices of production.

The classicals argued, quite sensibly, that relative prices depend on what it costs the economy to produce different commodities, with cost understood to include a normal rate of return on capital. The mechanism that underpins the adjustment of market prices toward their long-period equilibrium values, or in Smith's terminology, toward their 'natural' magnitudes, is the intersectoral flow of capital in pursuit of its highest return; this same mechanism causes sectoral profit rates to converge toward a single long-period normal rate of return. The difficulty encountered by Ricardo and Marx was that the long-period prices required to determine the profit rate depend themselves upon the profit rate, and therefore could not be known prior to its determination. To get around this problem, Ricardo and Marx resorted to what has come to be called the labour theory of value (though neither used that term): by expressing the elements of the ratio of the surplus product to capital in units of labour time, they could define the profit rate independently of prices, thereby avoiding the circularity problem.[1] Both Ricardo and Marx recognized that this solution was inexact and problematic in various ways, but they lacked the analytical tools necessary to achieve a precisely correct formulation of their theory of the profit rate; such a formulation requires the simultaneous determination of the interdependent unknowns, i.e. the simultaneous determination of prices and the profit rate (Sraffa 1951; Garegnani 1982, 1984, 1991).

In a complex economy in which the outputs of the various sectors may enter as inputs into each other's production processes, the unit costs of different goods, and hence relative prices, are interdependent. That interdependence can be conceptualized in terms of a system of simultaneous equations, the solution to which yields the constellation of relative prices and the distribution of income consistent with the technical conditions of production of the economy under consideration. Using such a system of equations, Sraffa (1960) showed that the classical theory provided a robust determination of relative prices and the profit rate.

Over the course of the 19th century, the influence of the classical approach waned, partly because of its then still unresolved problems connected to the interdependence of prices and distribution, and partly because the ideological implications of the theory, first called to light by the so-called Ricardian socialists and then developed in a scientifically coherent way by Marx and Engels, were threatening to the interests of the capitalist class.[2] By the late 19th century, the classical theory had been displaced by

the marginalist theory. The latter theory takes as given the preferences of economic actors, the endowment and initial ownership pattern of productive factors, and the technology of production. Within this framework, the optimizing behaviour of economic actors manifests itself in two substitution mechanisms — technical substitution in production, and commodity substitution in consumption — that are presumed to ensure that the quantity demanded of a productive factor is an inverse function of its rate of remuneration. On the supposition that factor demand curves are downward-sloping, the marginalist theory purports to show how the optimizing decisions of market actors move the economy toward an equilibrium position that determines the prices of commodities and of the services of the factors of production, the outputs of the various commodities, the technique of production, and, through the saving decisions of economic actors, the growth rate of the economy. By the end of the 1920s, this approach had consolidated into a generally accepted orthodoxy that, while still undergoing refinement, seemed irrefutable.

But the marginalist theory faces the same problem of measuring the capital stock that confronted the classical economists — yet, unlike the classical theory, is incapable of resolving it. One of the signal contributions of Garegnani and Sraffa was their demonstration that while the difficulties involving the measurement of capital can be overcome within the classical surplus approach via the simultaneous determination of prices and the profit rate, leaving the essential structure of the theory intact, in the marginalist theory the problems relating to the treatment of capital have fatal implications. These problems come from two directions. First, the theory requires that the endowment of capital be specified *prior to* the determination of prices and the distribution of income: it cannot be determined simultaneously with prices and distribution because it constitutes part of the fundamental data from which prices, including factor prices, are determined.[3] Furthermore, the capital theory debates of the 1960s undermined the rationale for the factor substitution mechanisms that underpin the conventional downward-sloping demand curves for labour and capital upon which the marginalist theory depends (see Sraffa 1960; Garegnani 1966, 1970; Pasinetti 1966).

The classical framework eschews the idea that the distribution of income is regulated by the interaction of price-elastic factor demand curves with given factor endowments, an idea that came to dominate economic analysis only after the rise to dominance of the marginalist school in the early 20th century.[4] Smith, Ricardo and Marx understood the real wages of labour to be determined by a mix of biological, historical, and institutional factors that

bear upon a tug-of-war among economic classes over their shares of the social product. Profits, interest and rents were viewed as residual shares that accrued to property-owners. The thrust of Garegnani's work has been to establish that the surplus approach is theoretically robust, and that it is more solidly grounded than the marginalist approach.

A third recurring theme in Garegnani's writings is his clarification of the analytical method of the surplus approach. According to Garegnani (1984) the classicals deployed a method of logical separation involving a distinction between an analytical core and a set of no less important theoretical issues that lie outside the core. The analytical core of the classical theory is a set of mathematically exact relationships that link relative prices, the real wage and the profit rate, given the technology of production and the long-period equilibrium condition that profit rates must equalize across sectors. The equations that comprise Parts I and II of Sraffa's *Production of Commodities by Means of Commodities* (1960) capture what Garegnani means by the core. In contrast, the data themselves[5] — the real wage or the profit rate, the composition of output, and the production coefficients — depend upon historical, institutional and psychological factors and on the interplay of political and social forces, and therefore are not required, *as a matter of mathematical necessity*, to assume one particular set of values rather than another. The different characters of the two sets of theoretical problems, one involving quantitatively exact and necessary formal relationships, the other concerned with aspects of social and economic life that cannot be reduced to questions of mathematical logic, is reflected in the classical separation of the analysis of the real wage, outputs, accumulation and the technique of production from the analysis of the forces which operate within the core.

The treatment of distribution, the social product and technology as data in the core does not imply a denial of the possibility that these variables may influence and react upon one another (Garegnani 1984: pp. 296-97). Changes in prices and distribution obviously do affect outputs; accumulation may influence technology through induced productivity growth. But as these recursive effects are not regulated by forces which operate with the same mathematical exactness as those which determine prices and the profit rate, they lie outside the core, and are therefore considered at a separate stage of analysis. The classical economists and Marx took explicit account of such interactions, as when Smith (1776: Bk I, pp. 61-64) and Marx (1867: p. 619) discussed the impact which changes in the rate of economic growth might have on wages; or when Ricardo considered the

effect of diminishing returns in agriculture. Nor is there any presumption, in the method of logical separation, that issues which lie outside the core are less important than those addressed within it. With the exception of a single chapter on natural and market price, virtually all of *The Wealth of Nations* is concerned with questions that lie outside the core. Ricardo's machinery chapter, his discussion of the connection between accumulation and wages, and his analysis of the effects of accumulation on the profit rate similarly deal with questions that are external to the classical core. The attention that Marx devotes to accumulation, crises, the length of the working day, and class conflict indicates the centrality of these noncore phenomena to his account of capitalist production.[6]

The separate treatment of pricing, distribution and output sharply differentiates the surplus approach from marginalist theory, where a grand unifying principle — the idea that almost every meaningful question in economics can be formulated as a mathematical problem of optimization subject to constraint — grounds the derivation of price-elastic demand and supply functions that determine prices, outputs and income distribution all in one go. The surplus approach utilizes less intricate lines of causality, but, by dividing the analysis into distinct logical stages, it is able to bring within the scope of economic analysis issues which marginalist theory tends to ignore, such as questions relating to the distribution of property and wealth (as opposed to income), to the formation of tastes and preferences, or to the determinants of technical change.

In the century or so since its emergence as the dominant analytical approach, the marginalist theory has come to be seen by the vast majority of economists as the only scientifically sound framework of investigation. But even before this state of affairs had been achieved, the classical theory had been lost to view — 'submerged and forgotten' in the words of Sraffa (1960: p. v). This was partly due to Alfred Marshall's efforts in the last decades of the 19th century to buttress the newly formed marginalist theory by assigning to it a spurious pedigree in the work of Smith and Ricardo. The classicals, according to Marshall (1920: pp. 72, 416-17, Appendix I), had been grappling towards the supply and demand theory of price, but had emphasized the cost side of the market, neglecting the demand side, and had too often focused on the special case in which unit costs are constant with respect to changes in output. In this Whiggish reading, the classical theory is a primitive and imperfectly formed version of the marginalist theory. William Stanley Jevons, ironically, recognized that the classical theory was an altogether different analytical engine from the marginalist theory he and

his contemporaries were developing. But he had no clear understanding of its true logical structure, and he dismissed it as wrong-headed owing to its failure to place utility at its analytical centre. Ricardo, according to Jevons (1879: p. lvii), had 'shunted the car of Economic science on to a wrong line.'

The upshot of Garegnani's work is that economic science had been driven off course not by Ricardo but by Jevons, Marshall and Walras. Getting the discipline back on the right track requires the rediscovery and reactivation of the classical surplus approach that was abandoned in the mid-19th century.

A seldom-noted indicator of the degree to which the classical theory has been lost, and of the misunderstandings that surround it, may be found in a curious feature of conventional economics. I refer to the fact that in the standard presentation of supply and demand curves, the independent variable — price — is placed on the vertical axis, and the dependent variable — quantity demanded or supplied — is placed on the horizontal axis, in contravention of what every schoolchild learns about how to graph a mathematical function. No doubt this practice amplifies the difficulties that students have in absorbing the logic of a body of analysis that often produces counterintuitive results. But the question of how this odd convention came to be adopted is rarely asked, and when it *is* asked the answer is usually muddled.

The practice can be traced back to Marshall, who, as we have noted, sought to buttress the standing of the new supply and demand theory by linking it to respected founders of the discipline, Smith and Ricardo in particular. The classicals understood that the unit cost of producing a commodity was partly dependent on the level of output. Smith drew attention to the role that the expansion of output played in increasing the scope for the division of labour; higher levels of output could then be produced at lower cost per unit, and therefore would have lower long-period prices. Ricardo's focus was on agriculture, where the necessity of bringing less fertile tracts of land into cultivation as the demand for corn increased meant that at higher levels of output each individual bushel of corn would cost more to produce and hence would have a higher normal price.

Neither Smith nor Ricardo had supposed that the relation between output and unit cost could be usefully depicted as a continuous functional relationship. They were simply describing an empirical fact about the conditions of production in different sectors. But Marshall had studied mathematics in his youth, and he viewed mathematical reasoning as indicative of analytical rigour. Accordingly, he translated — or rather

mistranslated — the classicals' quite sensible observations about the connection between production costs and the extent of the market into somewhat less sensible mathematical functions, with output as the independent variable; and he drew those functions, as anyone would, with the independent variable on the horizontal axis, as in Figure 1. (A constant-cost sector would of course have a horizontal cost curve.)

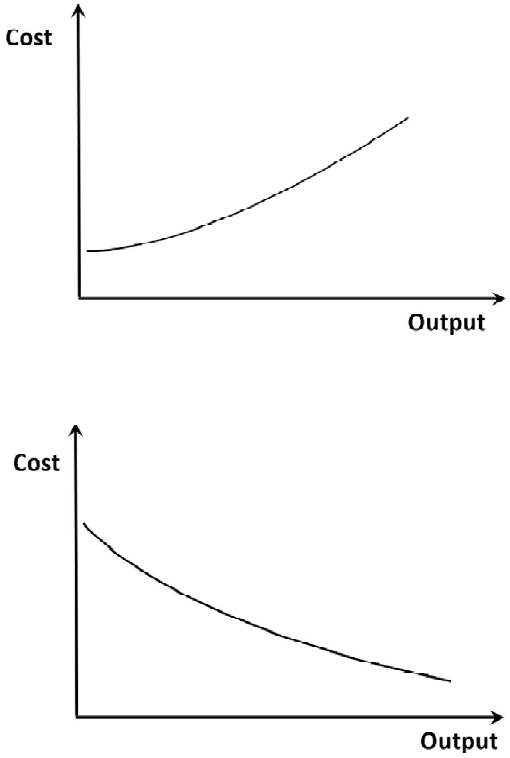

Figure 1: Marshall's average cost curves

The average cost curve was, for Marshall, the market supply curve: it showed the price at which sellers would be willing to bring any particular level of output to market. Having placed output on the horizontal axis in dealing with the supply side of the market, Marshall then had to treat the demand side symmetrically, so he formulated the demand curve in a way that nowadays strikes us as odd: instead of asking how much of the good would be bought at any particular price, Marshall asked what price ought to be charged in order to find buyers for a specified level of output. No economist today thinks about these relationships in the way Marshall did, but Marshall was, through his textbook (which was being used in British

universities forty years after his death), perhaps the most influential ambassador for the new theory, so that by the early 20th century his formulation had got locked into economic discourse and could not easily be replaced.

This discussion of Marshall's transposition of the axes serves not only to illustrate the circuitous route by which concepts can be transformed and sometimes distorted over the course of intellectual history. It also suggests the enormous difficulty of replacing an entrenched orthodoxy with a recovered and reconstructed earlier approach whose logic had been 'submerged and forgotten' for nearly a century. It is not an easy matter for modern economists to see the relation between output and cost as anything other than a functional relationship grounded in the optimizing behaviour of producers, or to shed the idea that, if cost depends on the level of output, then prices and outputs must surely be determined simultaneously via the forces of supply and demand, which rigour compels us to conceptualize as price-elastic mathematical functions. This seems so commonsensical that few economists are aware that the basis of this account of price determination resides in a particular theory of distribution that is itself built on foundations that have been called into doubt. Two curves intersecting in price-commodity space constitute a powerfully compelling image: the story they tell seems to make obvious sense. But as Sherlock Holmes quips in 'The Bascombe Valley Mystery,' by Arthur Conan Doyle, 'There is nothing more deceptive than an obvious fact.'

In the space remaining to me I shall address more directly three of the questions that the editor posed to the participants in this symposium.

THE DETERMINATION OF OUTPUTS

In a brief but sharply insightful contribution, Garegnani (1983) examined the role played by demand in the surplus and marginalist approaches. Within the surplus framework outputs are treated as part of the intermediate data of the system in the determination of relative prices and the residual distribution variable (the profit rate or, in Sraffa's analysis, the real wage). The explanation of the composition of the social product is left to a separate analytical stage outside the core; the theory is open-ended with regard to how the outputs are to be explained. In the marginalist theory prices are determined simultaneously with outputs; hence demand schedules are essential elements of the marginalist theory of price.

What had not been noticed before Garegnani's intervention on the matter, however, is that *in the marginalist theory, demand exerts its*

influence on price through its impact on the distribution of income. Demand can affect the price of a good only insofar as the supply function of the good is nonhorizontal. But given the usual marginalist assumption of constant returns to scale, variations in demand can influence the unit cost of a good only by affecting the prices of the services of the inputs used to produce it, that is, only by affecting the distribution of income. As Garegnani (1983, p. 310), puts it, 'the nonhorizonatality of the supply curve is the *expression* of the extent to which the quantity produced, and hence the demand conditions of the commodity, affect distribution.' Everything boils down to how we explain distribution.

The classical theory explains distribution independently of the circumstances that determine the composition of the social product. But that leaves open the question of how outputs ought to be explained within the surplus approach. In addressing this issue, Garegnani (1983, 1985) made a powerful case against the utilization of price-elastic demand functions for that purpose (see also Schefold 1985). What enables demand functions to play a role in the determination of output in the marginalist theory is the latter theory's account of distribution, in which the substitution mechanisms supposedly operate to ensure that the economy tends to operate on its production frontier, i.e. at full employment: the theory determines not only factor prices, but also the absolute incomes of the agents who participate in the economy. Those incomes underpin the individual and market demand functions that explain prices and outputs. But no such mechanism is present in the classical theory. In the context of the surplus approach, a series of demand functions of the form $Q_i = f(p_1, \ldots, p_n, w, r)$ would not be able to determine outputs without some specification of the overall level of economic activity. There is no foothold — such as the endowment of resources in the marginalist theory — to give traction to the preference sets of economic actors (see Garegnani 1985: p. 131). The composition of the social product, therefore, cannot be determined simultaneously with prices; its explanation must be undertaken at a separate stage of analysis outside the core.

Where modern economists 'see functional relations of known general properties,' Garegnani (1983: p. 311) writes, 'the classical economists saw relations too complex and variable to be quantified in any exact way.' This points to an altogether different approach to the explanation of outputs from that of the marginalist theory. The concept of demand utilized by the classicals, Garegnani reminds us, is that of the 'effectual demand' for a commodity — the amount of the commodity that would generally be bought at the long-period equilibrium price (Smith 1776: Bk I, Ch. VII). It is, in a

sense, the normal level of demand for the good, given the material conditions of the economy under consideration. The pattern of final demand observed in any economy is the result of a wide range of factors, including: the distribution of income; customary, i.e. learned, habits of spending within and across economic classes and demographic groups; marketing initiatives by firms; and prices. But on the role that prices play in shaping demand, Garegnani (1985: p. 131) makes a perceptive and highly useful observation. There is, he writes,

> a risk of falling between two stools. If the effect of the price on quantity bought is not appreciable, then the effect can be ignored without great error. Alternatively, when the effect is important enough to need general consideration, … it will often be the case that the effect constitutes an *irreversible* change, which is incompatible with its treatment in terms of a demand function. That is, the effect will entail a permanent change in the habits of consumers, which even marginalist authors would have to treat as a change of 'tastes' and therefore by a stage of analysis *separate* from the 'general equilibrium' determination of prices and the associated demand functions, where tastes appear as given.

As an example of an irreversible change in the consumer tastes, Garegnani cites the rise in the demand for automobiles in the US after the introduction of mass production methods in the industry brought the price of a vehicle within the budgets of working-class households.

Rather than explaining demand in terms of the behavioural responses of individuals to market stimuli, the surplus approach suggests that an empirically sound account of consumer demand would have to draw on disciplines outside of economics, such as history, sociology and psychology. Spending behaviour is both learned and induced, and it evolves through a complex process in which innovations in production methods and in consumer goods drive demand and economic growth, which in turn have further recursive effects on innovation. The abandonment of the marginalist theory of distribution opens the way for this sort of richly eclectic approach to the analysis of demand.[7]

ON THE CAPITAL CRITIQUE

More than six decades have passed since the publication of Sraffa's *Production of Commodities by Means of Commodities*. Garegnani's essay on 'Heterogeneous Capital, the Production Function and the Theory of Distribution' (1970) appeared over half a century ago. These two works laid out the basic elements of the critique of the marginalist theory of capital. It is fair to say that despite the attention paid to the debate on capital theory

in the 1960s and '70s, the ultimate impact of the critique has been negligible. Contemporary mainstream economics treats the issue as settled in its own favour, and deems the entire episode to have been much ado about nothing. Although Sraffa and Garegnani are accorded central roles in the controversy, the connection of the debate to their larger project — the reconstruction of the surplus approach of the classical political economists — is not well understood. It is only a slight oversimplification to say that while one side in the debate was acutely aware of this historical dimension, the other was concerned mainly with technical issues (though, as we have seen, the technical dimensions of the problem have a history that dates back to Ricardo).

The capital critique is not in itself a complicated argument; it has two basic components. First, when distribution changes, the prices of capital goods change, so that the value of the economy's capital stock changes as well. Hence there is no way to specify the value of the capital stock as a datum by which to determine the profit rate: we need to know the profit rate first. Second, because the various productive sectors of the economy can be interconnected in highly complex ways, it is entirely possible that the capital-intensity of production will respond to changes in factor prices in ways that undermine the factor substitution mechanisms upon which the marginalist theory rests.

In his 'Summing Up' of the debate, Paul Samuelson (1966: p. 578) acknowledged that reswitching and capital reversing 'can be called "perverse" only in the sense that the conventional parables did not prepare us for it'. But then, barely missing a beat, he rescinded this concession by characterizing reswitching as a 'pathology [that] illuminates healthy physiology' and by raising doubts about the empirical significance of the phenomenon. Stiglitz (1974) suggested that capital reversing and reswitching are phenomena akin to Giffen goods in the theory of consumer demand: theoretical possibilities, but so unlikely as to be of no practical significance. But the empirical likelihood of capital reversing is not at all relevant to the debate. The marginalist theory of distribution was not developed by inductive reasoning based on observed behaviour that reflects the existence of underlying supply and demand functions. Economists talk about demand and supply functions as though they are real things, when they are in fact mental constructs designed to help us understand what is observed.

The intuition of economists has been so deeply penetrated by the idea that a decrease in the price of a productive factor will cause the economy to use that factor more intensively, that alternative theoretical frameworks

can only be interpreted as concerned with anomalies. But that conventional view of the relationship between distribution and factor intensity was not derived from empirical observation or 'common sense.' Rather it emerged from a particular idea about how markets regulate the distribution of income, i.e. from the idea that factor prices are the outcome of an allocative process that is essentially designed to accommodate scarcity. From this premise follow all of the marginalist notions of downward-sloping factor and commodity demand functions, and of factor remuneration corresponding to the marginal productivities of labour and capital. Without the premise, we would never have been tempted to think about distribution in marginalist terms: theory shapes our conceptions of what is 'intuitive', what is 'common sense'.

There is of course a great deal of empirical evidence that calls the claims of the marginalist theory into question. We might mention here the stream of research, triggered by the findings of Card and Krueger (1994), which indicates that there is no significant inverse relation between the minimum wage and the employment of low-skilled workers. Economists have long understood that, because the wage is not only a cost for employers but is also an income for workers, a change in the level of wages has both a substitution effect and an income effect on employment, and that these effects operate in opposite directions. Hence a fall in wages will not generally lead to an increase in employment, and in a slump might have precisely the opposite effect. But if the market that determines roughly two- thirds of national income does not operate according to the logic of the marginalist theory, what can remain of *any* element of that theory?

Recent work by Bertram Schefold (2017; Han and Schefold 2006) has raised questions about the empirical relevance and practical likelihood of capital reversing. On the question of its empirical likelihood, it seems to me that there is simply no way to test for that. The models which demonstrate the possibility of capital reversing, and the logic behind the phenomenon, are formulated in terms of the *physical* input requirements of a highly disaggregated economy. But the data available to anyone who wishes to construct a wage curve such as we find in the Sraffian literature are available only in the form of Input-Output tables that show *flows of money*, not physical inputs, from one highly aggregated sector to another. These exercises cannot possibly establish meaningful results concerning the shapes of wage curves or whether they intersect in ways that validate the capital critique.[8] As noted above, the empirical likelihood of capital reversing is a red herring. Neither the principle of factor substitution nor the theory of distribution

based upon it was derived from the observation of empirical regularities; they were deduced 'from postulates ... now generally admitted to be invalid' (Garegnani 1970: pp. 424–25).

There are numerous reasons to be sceptical of the marginalist theory, not least its lack of conformity with what we observe in the economy. But it is perhaps also worth mentioning that the theory rests upon domain assumptions that are patently false: for factor prices to reflect marginal products, the economy needs to be characterized by perfect competition, and the conditions necessary for Euler's Theorem (essentially, universal constant returns) to hold must be present. This too has been known to marginalist economists for close to a century.

At present there are few mainstream economists who have any sophisticated knowledge of, or interest in, the capital controversy. To refer back to it in our debates with them on other matters is counterproductive. The upshot of the controversy is that distribution can and ought to be approached differently from the way conventional theory approaches it. This leaves plenty of scope for work that starts from empirically defensible premises — such as that the level of wages is not set by a market-clearing equilibration mechanism, but by social norms and the balance of bargaining power between workers and employers; or that inflation is at least partly a manifestation of a struggle over the shares of real income between workers and firms. There is no hope that I can see of convincing conventionally trained economists that they ought to scuttle their toolkit because of the capital critique. But there is some possibility of using what we have learned from the critique to develop arguments, particularly in macroeconomics, that may persuade the open-minded among them.

THE LABOUR THEORY OF VALUE

The labour theory of value is a topic upon which practically nothing remains to be said. The main technical issues connected to the labour theory of value were resolved by the early 1980s. We know that the profit rate and long-period prices of production can be determined without reference to Marxian labour values, and that Marx's formulation of the system-level profit rate in terms of labour values — $r = S/(C + V)$ — does not generally coincide with the actual long-period normal profit rate that guides the decisions of capitalists. On these points there is no longer any controversy. Yet debate continues.

There are two broad points of view on the matter. On one side are economists who believe that the scientific content of Marx's analysis can

be expressed independently of his value theory. Those within this camp hold vastly different positions on the soundness of Marx's fundamental claims about how capitalism functions. Some (Samuelson, Steedman) think that little can be salvaged; others (Garegnani, Petri, Kurz) regard Marx as a penetrating theorist whose account of capitalism's dysfunctions and predatory tendencies is correct in its essentials. But they all agree that economic analysis, including Marx's, has no need for labour values. On the other side of the debate are those who believe that the labour theory of value provides powerful insights into the logic of capitalism; hence, jettisoning it cripples Marx's entire project.

I cannot think about the labour theory of value without recalling two quotations from F. Y. Edgeworth:

> 'Economic controversy is generally a thankless task. You cannot hope to make an impression on your opponent. Yet he is the only reader on whose attention you can count.' (Edgeworth 1898: p. 234)

> 'The importance of Marx's theories is … wholly *emotional*.' (Edgeworth 1921: p. 73)

Those of us who have written on the labour theory of value can testify to the validity of the first observation. The second remark is condescending, and I do not agree with it. But many scholars who, rightly, find great merit in Marx's economics do appears to have a strong emotional attachment to the labour theory of value.

The difficulties operate on two levels. First, on the level of how Marxian economists communicate with one another, differences over how Marx ought to be interpreted can be distracting and counterproductive. Marx wrote before economics had acquired a unified language and conceptual framework. Moreover, he had not resolved to his own satisfaction many of the problems upon which he was working: his failure to complete Volumes II and III of *Capital* was due as much to this as to poor health and the distractions of his political activities. To the extent that Marx had not fully worked out his own ideas on issues like the relation between labour values and prices of production, no definitive reading is possible.[9]

Second, the attachment to Marx's labour value analysis hinders communication with non-Marxian economists. Joan Robinson (1942: p. vi) tells us that 'Keynes … was allergic to Marx's writing'. She meant Marx's dialectical rhetoric, which Keynes found both impenetrable and aesthetically repellent. Robinson praised Marx's 'penetrating analysis of exploitation' (p. viii), but she had no use for his value theory — 'metaphysics,' she called

it, using one of her favourite epithets — and she sidestepped the labour theory of value by equating exploitation with the idea that workers do not receive the whole of the net product.

The word exploitation originated in the morally neutral concept of accomplishing some end, and came to mean making effective use of a resource or an opportunity. It acquired a morally unsound connotation in English only in the mid-19th century, at about the time that Marx was beginning his economic studies, when social reformers made it apply to human beings (as opposed to just objects or situations). Marx in fact uses the word in this way in his *Economic & Philosophic Manuscripts* (1844: p. 62). Though he had read Ricardo by then, his thinking on theoretical economic questions was still in an embryonic stage. *The Poverty of Philosophy* (1846-47) written just two years later, exhibits a much more sophisticated grasp of theoretical economics and a deeper familiarity with Ricardo's work. By the time of his critique of Proudhon, Marx had arrived at many of the essential elements of his account of exploitation. He recognized that workers can be exploited because they have been alienated from the means of production through a historical process of expropriation and technological transformation. This insight, and the method of analysis by which he arrived at it, are impressive scientific achievements. But they have nothing to do with the labour value analysis of *Capital*, which Marx did not formulate until at least a decade and a half later.

What, then, was the function of the value analysis? Garegnani (1991, 2018) makes a compelling argument that the answer lies in the efforts of Marx to explain the rate of profit along lines laid out by Ricardo. We have seen the difficulty that Ricardo encountered owing to the interdependence of prices and distribution. Marx encountered the same difficulty and, like Ricardo, made use of labour values to resolve it. Garegnani convincingly argues that the inner reality of capitalism that Marx sought to expose was the trade-off between the wage rate and the profit rate. The fetishism of capitalism, the essential feature of the vulgar economics of his time, was the suppression of this idea of the conflict of class interests via an account of the market as a harmonious mechanism that, by its nature, bestows wellbeing on all members of society.

In his discussion of this aspect of Marx's thinking against the background of political economic developments of the time, Garegnani demonstrates his superb gifts as an intellectual historian. He shows how the intensification of class tensions over the course of the 19th century led to the identification of the labour theory of value as the essential element of the classical theory,

rather than as a tool for resolving a technical problem that, at the time could not be otherwise resolved. By the time the technical problem could be resolved, the actual contours of the surplus approach had been deeply submerged and therefore could not be easily recovered. Thus, Garegnani further argues, in order to cut through the fetishism of the more sophisticated marginalist theory of the present age, we *must* discard the labour theory of value: it was a useful tool for Marx, who had to penetrate the vulgar elements of Smith's erroneous suggestion that the price of a good could be explained by adding up the wage, profit and rent elements of cost without considering that the wage and profit rates are strictly connected to one another. Marginalist economics is a much more slippery engine of analysis.

The difficulty of recovering the surplus approach is evident in the powerful attachment of many modern Marxian thinkers to a device that no longer serves a useful purpose. A good deal of intellectual energy has gone into rescuing some semblance of Marx's untenable value analysis. One case of such needless effort is the so-called 'New Interpretation' (Foley 1981, 2000) which redefines Marx's labour value categories in order to rescue Marx's invariance postulates (the sum of values equals the sum of prices; the sum of surplus value equals the sum of profits), though what is rescued is a pair of propositions that have been given Marxian labels but which are not in fact the propositions that Marx actually put forward. It is unclear what analytical insights are revealed by such exercises.

In fact, Garegnani has established with exemplary clarity that on the crucial theoretical issues, Marx's insights were absolutely sound, and that none of Marx's key insights rely upon his value analysis. There is first of all the method of historical materialism and the associated idea that the evolution of the mode of production shapes the ideological, cultural, scientific and institutional superstructure of a society. Where Ricardo's main concern, vis-à-vis distribution, was the class antagonism between capitalists and landlord, Marx shifted the focus to the conflict between capitalist and worker, and he correctly established that there is a trade-off between the wage and the profit rate. Marx also showed that prices deviate from labour values in accordance with sectoral differences in capital structure. The intersectoral analysis of *Capital* Vol. II (1893), which explicitly models the economy as a self-reproducing system in which machines enter into the production of machines, resurrected the physiocratic idea of the interconnectedness — the layered nature — of production. This insight, now a commonplace, has enormous practical and analytical implications. It is the basis of modern Input-Output analysis. It grounds the structural complexities of the price

system upon which Piero Sraffa, Pierangelo Garegnani and Luigi Pasinetti drew to expose the defects of the orthodox theory of distribution. And it is a key element of Kalecki's business cycle model. Marx's crisis theory and his critique of Say's Law anticipated much of Keynes's economics. Marx's analysis of technological unemployment was an important contribution. None of these insights rest upon the labour theory of value.

I sometimes think it would be useful for the modern-day adherents to the labour theory of value to conduct an exercise in cost-benefit analysis. The cost of their staunch attachment to Marx's value analysis is clear: when they resort to labour values they can communicate only with the very small community of scholars who work in that same outmoded tradition — scholars who hardly need convincing on the merits of Marx's ideas. In assessing the benefits, they must address the following points. Must one adhere to the labour theory of value in order to think dialectically about history or the development of economic ideas? Why must one utilize labour values to develop an interpretation of capitalism as a socioeconomic system grounded in a historically specific type of exploitation? The idea that history is a dialectical process driven by the emergence, within any socioeconomic system, of internal contradictions which undermine the network of class relations and ideologies upon which the system is grounded — that idea is not dependent on any particular approach to value theory. Nor is the idea that under capitalism, exploitation is possible because a dialectical process of historical change concentrated ownership of the means of production in a class of economic elites. Nor is the idea that capitalism obscures the exploitative character of the wage relation because that relation takes the form of an apparently voluntary market transaction between worker and employer. What does Marx's labour value analysis show us about any of this that we cannot see without it?

Notes

1. Marx and Ricardo deployed labour values in slightly different ways. Ricardo used the terms value and price interchangeably and hypothesized that commodities exchanged roughly in proportion to the quantities of labour directly and indirectly required to produce them. Marx distinguished between long-period prices of production and labour values; instead of adopting Ricardo's empirical assumption that relative prices are roughly equal to ratios of embodied labour time, Marx simply defined value as the quantity of socially necessary labour time embodied in a commodity, and then asserted that the general rate of profit is regulated by the ratio of aggregate surplus value to the sum of constant and variable capital.

2. The decline of the classical theory is discussed in Garegnani (2018). Ricardo had mainly been interested in the opposition of economic interests between the capitalist class and landlords; his practical aim was to develop a theoretical framework with which to attack the Corn Laws, which he saw as detrimental to profits and hence as a hindrance to economic growth. But his view of profits as surplus entails a trade-off between the real wage and the profit rate. The Ricardian socialists shifted their focus onto this latter tension. By the time Marx turned his attention to political economy in the 1840s, the Corn Laws had been abolished and the capitalist class had achieved political as well as economic dominance; the conflict that now mattered was the one between capitalists and workers.
3. Garegnani (1960, 1990) has meticulously demonstrated that this difficulty cannot be avoided by specifying the endowment of capital as an array of heterogenous capital goods; in such a specification, there is no reason to expect that the initial endowment of capital goods will be consistent with the existence of an equilibrium that not only clears all markets but also establishes a uniform rate of profit on the supply price of every capital good. The theory's own internal logic requires that the equilibration process determines the composition of the capital stock.
4. Marx (1867: pp. 537-38; emphasis added) puts the point nicely: 'Classical Political Economy ... soon recognized that the change in the relations of demand and supply explain[s] in regard to the price of labour, as of all other commodities, nothing except its changes, i.e., the oscillations of the market price above or below a certain mean. If demand and supply balance, the oscillation of prices ceases, all other conditions remaining the same. But then demand and supply also cease to explain anything. The price of labour, at the moment when demand and supply are in equilibrium, is its natural price, *determined independently of the relation of demand and supply*. And how this price is determined, is just the question.'
5. Garegnani characterizes them as 'intermediate data' to make clear that the investigation of how they are determined falls within the scope of economic analysis: they are treated as given only in explaining the mechanisms operating within the core that link relative prices and the distribution variables.
6. Thus the resistance that many economists working within the Institutionalist tradition have exhibited towards the surplus approach appears to be unwarranted, and is perhaps due to a misconception that the approach is concerned only with the technical analysis of relationships within the core. In fact, the surplus theory opens up space for precisely the sort of sociological and institutional analysis that critics of orthodox economics rightly insist is essential for understanding of how capitalism functions (see Levrero 2014; Cesaratto and Di Bucchianico 2021).
7. Some examples of work in this vein are Nell (1998), Garegnani and Trezzini (2010) and Gualerzi (2012).
8. These points are developed more fully by Kurz (2020) and Petri (2022).

9. I do not mean to suggest that we ought not to debate what Marx — or Keynes or Ricardo — really meant: teasing out the answers to such questions is how we extract insight from the writers of the past. But when these sorts of questions become litmus tests for who is a true Marxist or a true Keynesian, they impede useful discussion.

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