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PROLEGOMENA FOR A NEW THEORY OF VALUE

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1. WHY PURE THEORY?

Economics is a branch of praxiology, the general theory of efficient action.[1] In fact, economics is the only branch that has been reasonably well established. Praxiology, like economics, is about optimizing. The optimization means maximizing desirable results given resources or minimizing the input of resources given a prescribed target. If praxiology is conceived as general and applied, pure economics turns out to be applied praxiology:

use value scarcity	general praxiology	economics
consumption and production as determined by exchange and distribution		

As long as an individual contemplates dividing his labour time between cultivating flowers and playing the piano, he is acting at the level of general praxiology. If, however, he sells the flowers or plays for an audience in exchange for an income, he engages in economic activities.

Economics as applied praxiology is a discovery of neoclassical theory. When Stanley Jevons, at the begining of the neoclassical era,

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[1] This is the definition of T. Kotarbiński, the author of the first comprehensive study of the subject (1955). O. Lange raises objections and defines praxiology as the science of *rational* activity, "using the word rational in the methodological sense; the effectiveness of an activity is connected with its factual rationality which, however, is not an attribute of activity as a mode of behaviour and is therefore not a question of praxiology but of technology" (1959, p. 189). The first to discuss the relation of economics to praxiology was the unavoidable Eugene Slutsky (1926). A. Lowe singles out economics, as the provision of material means, from praxiology, as the universal logic of choice (1965, p. 10). However, this distinction can hardly be sustained because hobby activities may provide material means and do not belong to economics

described his work as an attempt "to treat Economy as a Calculus of Pleasure and Pain" (1871, p. VI), he was undertaking an exercise in praxiology. When, six decades later, Lionel Robbins published his own definition of economics — which came to be considered as a representative neoclassical definition — he did the same: "Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses" (Robbins, 1932, p. 15).

Yet, pure economics is not the whole of economics neither is economics only praxiology. If empirical relevance is added, pure economics becomes economics proper. If production relations are included, economics becomes political economy (Horvat, 1985). The epistemological tree of economic science is depicted in Fig. 1.1.

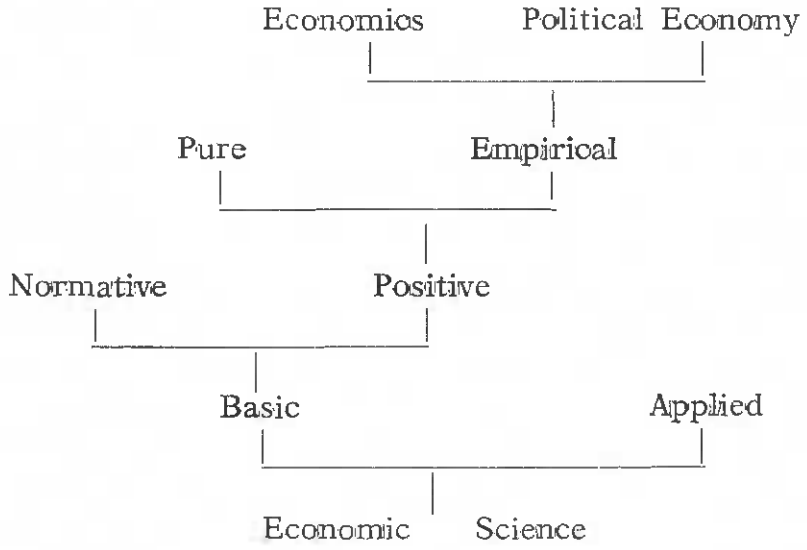


Fig. 1. *The epistemological tree*

An economic theory is either *positive* or *normative*. The former is about *what is* (facts), the latter about *what ought to be* (values). Judgements about what ought to be are value judgements. "More is better than less" is such a judgement. It is taken as granted in explaining economic behaviour. But it is centainly not shared by a Buddhist or a Stoic. The distribution of income is a classic field of value judgements. Arguing in favour of egalitarian income distribution on the basis of socialist, humanitarian, philosophical or other convictions is an exercise in normative economics. Every design of taxes involves value judgements. The value premiss that an individual is better off in a chosen position than he is in any other position — underlies most of welfare economics. In general, normative economics may be defined as a branch of economic theory that uses positive economics for the purpose of giving praotical advice, particularly in questions of public policy.

The distinction described is substantive. There is also another, methodological distinction. Economics may be normative in a sense which is morally neutral, namely *rational* as opposed to *behavioural*. The latter may or may not be rational. The theory of consumer behaviour — to take a characteristic example of conceptual confusion

— is a theory of rational choice (praxiology), not a theory of actual behaviour. Here "rational" means a consistent pursuit of one's goals whatever they are. The often stressed self-interest is one possible such goal, but so are altruism, humanitarianism and many other. Given resources, the goals may be achieved more or less fully, i. e. efficiently. Normative economics in this sense derives the standards of efficiency which may or may not be fulfilled in the empirical world. Therefrom the next dichotomy between *pure* and *empirical* theory.

The pure theory uses analytical statements (whose truthfulness is determined by the meanings of words), the empirical theory uses also synthetic statements (whose truthfulness is determined by the facts of experience).

A pure theory, if noncontradictory, cannot be falsified by reference to empirical world. It is irrefutable because it is purely deductive. The criterion for the evaluation of a pure theory is not its empirical truthfulness but its analytical usefulness. If the theory is logically correct, i. e., if logical and mathematical (also an aspect of logic) rules are satisfied — the implications follow from the premisses — the theory is true. But it may be useless.

An empirical theory must also pass the test of logical consistency. In addition, it must conform to empirical facts too. An empirical theory is thus less general, must pass two tests — logical and empirical — and may be (empirically) true or false. In fact, we can never be absolutely sure about its truth because unexpected future events may falsify it. Therefore it is useful to describe an empirical theory as being falsifiable. An empirical theory need not be discarded if the adverse effect is nonreproducible (Popper, 1968, p. 118) or, in general, if it is of little significance. Besides, because of the stochastic nature of economic phenomena, a single adverse effect is not a sufficient reason for the rejection of a theory. As M. Blaag pointed out, an adverse result indicates an improbability that the respective hypothesis is true, not a certainty that it is false (1984, p. 362). A pure theory, however, must be rejected if its deductions are not logically valid. A pure theory is similar to a mathematical theory. An empirical economic theory is similar to the theory as usually understood in natural sciences.

The logical basis of a pure theory is an axiomatic system. Such a system must satisfy four basic requirements (Popper, 1968, pp. 103—4): (a) It must be free from contradictions which, as we have already noted, is the crucial test for the validity of a pure theory; (b) the axioms must be independent so that none can be deduced from the others; (c) the axioms must be sufficient for a deduction of all statements of the theory and (d) also necessary. In economics such systems are called models, and axions are called assumptions. The foregoing considerations represent no more than an introduction into the field of economic methodology. The epistemological problems involved are much more complex. But, following the praxiological rule of minimizing the costs given the target, I shall not discuss them here any longer. The definitions stated suffice to eliminate the frequent

confusions about the meanings of pure and empirical theories in economics.

Our goal is, no doubt, to produce empirically falsifiable theories which generate predictions about unknown future events. Why then pure theories at all? There are several reasons for that. The economic world is so complex that we need some simplification in order to be able to analyse it at all effectively. Thus, economists eliminate many details from their analysis and construct relatively simple models of the world. Models play a similar epistemological role in economics as do Weberian ideal types in sociology. They are a classifying device. They provide standards of reference. They are substitutes for experiments, which are crucial in natural sciences and hardly possible in economics. The construction of mathematical models is an excellent device for rigorously defining the concepts used. Finally, they provide a sort of logical scaffolding for empirical economic theory.

2. THE NEED FOR A NEW PARADIGM

We need, next, distinguish clearly between analytical techniques and the theories they serve. If it is applied correctly, any technique must generate correct results. Thus, as far as the truth is concerned, the techniques are neutral. But they differ much in their usefulness depending on the subject of analysis.

Marginal analysis, which dominates in the neoclassical economics, requires the use of calculus. Algebra is more useful in neo-Ricardian economics based mostly on linear models. When great generality is required, the set theory appears an appropriate technique. But great generality often means great emptiness in terms of interesting information.

Analytical techniques are neutral, but theories using them are not. Both Ptolomean and Copernican theory can explain the movements of celestial bodies. Yet, the Copernican heliocentric theory is superior, gives much simpler explanations and provides more accurate predictions. The two theories reflect two different astronomical paradigms. The paradigms are "universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners" (Kuhn, 1962, p. X). The paradigms represent not only the basic visions of the world, they also determine research programmes. Within a particular paradigm, there is a natural tendency not to research a certain class of problems. The situation may be even worse: certain problems simply cannot be studied scientifically.

There are only two fully established theoretical paradigms in economics. They are: classical and (somewhat inappropriately called) neoclassical economics. Within each paradigm, there are different strands which need not detain us here. Of the four main economic processes — production, distribution, consumption and exchange — classical economists focused on the two former, neoclassical economists on the two latter. Classicists had not fully developed the idea that demand depends on prices. Neoclassicals make this idea the centre

of their analysis. Classical economists studied the distribution among social classes, insisted on the empirical relevance and were thus almost exclusively concerned with positive empirical economics. Neoclassical economists made the individual, Robinson Crusoe, the main object of their analysis, insisted on exactness and developed normative (pure) theory as a theoretical tool. Classical economists, dealing with production, were primarily interested in reproducible resources. Given sufficient time, production can be increased to satisfy any social need. Scarcity of non-reproducible resources simply generated rent. Neoclassical economists were mainly interested in consumption and exchange and were fascinated by the problem of scarcity. In the very short run, or if there is no production, everthing is scarce. Traders endowed with resources engage in the exchange of goods in order to satisfy their preferences optimally — that is the paradigmatic situation considered by neoclassicals. Trading reaches an end in the general equilibrium. What matters is allocational efficiency; production efficiency is simply assumed. Subsequently production was also introduced into the model, but it was shaped according to consumption. Marginal products correspond to marginal utilities, factors of production are allocated similarly as are commodities, and their marginal procutivities correspond to their prices which are treated parametrically; commodities are subject to substitution and so are factors; like commodities, all factors of production are symmetrical. This approach produces an elegant and aesthetically pleasing theory but encounters great, occasionally insurmountable, difficulties. Some of them will be discussed in the next section.

It is clear that each of the two competing paradigms was designed to deal with only a part of the reality. This was not consciously intentional but was the result of the development of economics as a science. The world is too complex to be grasped at once. Also exact analysis is a result of a long process of methodological refinement. Thus, every science starts with some aspects of reality that seem relevant and uses the tools that are available. This is the stage of classical economics. Later the need for the refinement of the tools arises in order to make analysis more exact. The writings of Jevons, Walras, von Wieser and other late 19th century economists are full of various "laws". Now those aspects of real world are selected that are amenable to an exact analysis. This is the stage of neoclassical economics. In the 19th century, in addition to economics, a number of disciplines — including mathematics — passed through a methodological transformation that made possible analytical rigour. Such a natural methodological development is, in economics, modified by social factors. It is well known that neoclassicals shunned class analysis and the analysis of the social relations in general. On the other hand, Marxian economists, who accepted the classical paradigm, have been not only methodological, but also political antagonists to their neoclassical colleagues.

There is an obvious need to overcome the inadequacies of the two partial paradigms. In other words, there is a need for a synthesis which will include all four economic processes and will take over the relevance from the classical and the analytical rigour from the neo-

classical economics. Such a synthesis is impossible as a mechanical amalgamation of the two existing paradigms. What is necessary is a *different* theoretical paradigm. Classical economics deals with individual producers, neoclassical adds individual consumers, but neither deals with social economy. And social economy is not simply an aggregate of individual producers and consumers. It produces the system's specific synergetic effects. Some of these effects were first more thoroughly analysed in Keynesian economics. If synergetic effects exist, maximizing individual preferences in isolation is an exercise in delusion.

The new theoretical paradigm could perhaps be described as follows. A social economy is a system, i. e., a whole of interdependent parts. Not only two but three categories of economic agents exist: individual producers and consumers with their endowments and preferences and a social regulating agency. They participate in the four economic processes mentioned. The producers use the available technology and create new, more efficient ones. The system is mostly self-regulating because it possesses an institution that serves as an automatic regulation device. The market is that institution and it brings together producers and consumers. But the market is not perfect even if prices are treated parametrically, and whenever it fails, "hand regulation" becomes necessary. The social planning agency intervenes. The "planning agency" is a catch name for a number of institutions, politically controlled, that help to eliminate market imperfections and keep the economy on the targeted track. One of the targets if full employment. More generally, the target is allocational and production efficiency. The three economic agents, when behaving rationally, maximize their preferences: producers maximize profit, consumers maximize individual satisfaction, the planning agency maximizes social welfare. In a general case, the last target can be defined only by an appropriate political process. In a less general case, when we confine our attention to economics exclusively, the planning agency maximizes economic growth. By doing that and given preferences and income distribution it also maximizes the consumption of all consumers (Horvat, 1958, 1965, 1968) which is the fundamental goal of economic activities.

The planning paradigm also suggests the fundamental methodological rule: start from the target of full employment (maximum growth) and let the three agents satisfy their preferences. This rule reverses the one applied in the other two paradigms when individual agents are allowed to maximize their preferences and the society is left to hope for the best believing in the almighty Invisible Hand.

Since the rational behaviour of independent individuals cannot produce an optimal system — and, consequently, cannot even be rational — the correct methodological procedure requires that we start from the rational design of the economic system in order to make possible consistent and rational behaviour of individual agents. The systemic approach will hopefully provide a rigorous conceptual framework for the macroeconomic theory, a framework which has been lacking so far.

3. NEOCLASSICAL APORIAE

The need for replacement of a paradigm arises when the old paradigm ceases to serve its purpose. That this is the case with neoclassical economics, remains to be shown. I shall do that by considering three classes of phenomena: conceptual inadequacies, synergetic effects and institutional inconsistencies. Some of them are by now well known, others are not. Let me start with conceptual difficulties.

Value. Neoclassicals explain value by reference to scarcity. That is certainly not incorrect. The trouble is that the explanation is too correct. An increase in prices is explained by greater scarcity; a decrease, by greater abundance and so "values in exchange are proportional to the rarities" (Walras, 1874, p. 145). Thus, the theory is *always* true, it is true by definition. It cannot be falsified, even in principle. It is, in fact, a tautology. Economic value is simply redefined as scarcity (relative to the demand for a commodity). A good acquires economic value and the demand for it must be rationed by prices if at zero price demand exceeds supply. That is also the definition of scarcity. Tautologies may be useful theoretical constructs. They serve as economizers in the use of words. But they do not provide explanations. We still do not know what creates economic values, why supply is not forthcoming.

Marginal productivity determines prices of factors of production. Suppose the incremental capital-output ratio is equal to three, ICOR=3, which is close to empirical values. This implies a profit rate equal to 33%. However, we know that the actual rate of profit (gross of taxes) represents only about one half of that magnitude or less. Why? Because profit is divided between workers and capitalists depending on the social strength of the two classes. Once wages are set, entrepreneurs proceed to allocate factors of production so as to maximize profits (or whatever goals they have). Thus, the actual causation is opposite from the one assumed. Alternatively, if the causality is not assumed, the proposition that prices are equal to marginal value products is a tautology. And that is not all.

The distribution of income according to marginal productivities of factors of production. It is assumed that income results from the sale of factor services. Income is a reward for their productive contributions which exactly exhaust the product generated. That requires a special production function. It need not be linear homogeneous, but must satisfy the condition

$$q = \Sigma f_i x_i$$

where $q = f(x)$ represents product as a function of productive factors. However, that makes profit equal to zero, $\pi = pq - \Sigma w_i x_i = pq - p\Sigma f_i x_i = 0$ (w_i are prices of factors' services). Since under capitalist institutions it is profit that makes the economy tick, it cannot be nonexistent. Distinguishing between pure, normal or natural profit provides no help. There will be a residual which is attributed to a

nonmeasurable factor called "enterpreneurship". Consequently, not all factors are rewarded according to their marginal products. And if there is a residual, it may be distributed to all faotors in many different ways. Thus, it may be closer to truth to interpret distribution as proceeding in accordance with property rights and other claims (Nell, 1980, p. 12).

Capital as a factor of production. Every factor of production, such as labour or land, has an independent existence and must be measurable in the unchanging units of measurement. Capital does not pass these tests because its value depends on the distribution of income into wages and profits. If capital, as embodied in fixed assets, remains absolutely unchanged, but the distribution parameters change, its value may change in any direction.

The difficulty in dealing with capital arises from the fact that it lives a double existence: as a stock of goods and a sum of values. Productive capital, represented by producer goods, *is* a factor of production. But different machines cannot be aggregated and they are being constantly created and destroyed by wear and tear.

To render it homogenous, capital is presented in value form, as a fund which has a permanent existence. Ever since J. B. Clark, capital has been visualized by neoclassicals as a mythical entity which "lives by transmigration, taking itself out of one set of bodies and putting itself into another, again and again" (Clark, 1899, pp. 9—20). In a more modern textbook formulation capital is "regarded as a fund of abstract productive power which endures forever even though individual capital assets wear out and are replaced by different types of capital assets" (Dewey, 1965, p. 28). A capital fund yields interest like money deposited in the bank. But this banking paradigm is ill suited for a technologically determined production theory. A bank may reduce the demand for money by increasing the interest rate, which is the price at which money is bought and sold. In the production sphere, a higher interest rate is compatible with a lower one as well as with higher capital intensity, depending on the technology. In the market, each commodity has just one price; but the same technique may be used at a lower as well as at a higher interest rate if it happens to "reswitch".

Suppose the interest rate in an economy is less than the rate of growth of net national product. The value of the national capital (representing the discounted value of infinitely expanding national income) in that economy will be infinite. Income generating assets will assume an infinite value also in the case when the interest rate is zero.

Capital goods need not be aggregated. In the general equilibrium theory old and new machines are treated as different commodities, and dummy markets are created for contingent commodities. Now prices of commodities can be determined for each time period and each state of nature. But in the equilibrium, profits disappear and the interest rates — linking the prices of commodities with those of their substitutes available at different points of time — have no specific connection with the prices of machines.

Capital theory is conceptually the least satisfactory part of the neoclassical theory.

Interest. Neoclassical economics treats interest as a price for capital services. But any price must have a definite dimension, value per physical unit, and interest is nothing of the kind. Interest has only a time dimension (1/t), and time is neither value nor commodity. As it cannot be explained within the theory, interest is treated metaphorically. The history of economic thought knows of a number of interest parables. Currently the most popular is the one that explains interest by time preference. This explanation is either tautological (high interest rate = high time preference, low interest rate = low time preference, whatever the reasons) or irrational (if now the cake of today is preferred to the cake of tomorrow, tomorrow the same cake will be preferred to the one eaten yesterday), or false. Namely, even if all individuals remain the same and, presumably, their time preferences do not change, the interest rate may change in any direction, depending on the rate of growth. It may even become negative and as such serve as a discount rate for evaluating investment projects.

Macroeconomically, Keynes made interest primarily a monetary phenomenon; liquidity preference (given the money supply) determines interest rate and that has nothing to do with the time preference. In the neoclassical theory interest rate is determined by an interplay of the time preference (the supply of saving) and the marginal productivity of capital. The former is a metaphor and the latter is conceptually unsound, as we saw above. Substituting marginal productivity of investment for that of capital makes the proposition only slightly less meaningless.

Substitution. If the price of a consumer good or of a productive input increases, they will be substituted by less expensive equivalents. Such substitution is legitimate and is empirically confirmed. But it becomes illegitimate when it is extended to the factors of production. If labour can always be supstituted for capital, then, given flexible wages, labour will always be fully employed. But it is not. The empirical fact is that, for any installed technology, substitution possibilities are extremely limited, technical coefficients are practically fixed. For any new venture, substitution is technically possible within a large interval but is economically again extremely limited, because new investment must also be profitable. Here technological progress intervenes. Modern, more mechanized, technology is usually more profitable than the older less mechanized one even if wages are lowered to subsistence level. Thus, the assumption of great substitution possibilities between labour and capital is misleading. Economically meaningful isoquants for factors of production simply do not exist. And if the capital-labour relation is mostly technologically predetermined, unemployment cannot be cured by lower wages but by greater investments (in a closed economy).

Strictly speaking, unlimited smooth substitution assumption does not generate conceptual difficulties but rather erroneous theoretical

conclusions. The concept is not logically contradictory but simply misleading, being an empty box.

I shall next mention several synergetic effects that do not fit the neoclassical paradigm.

Keynes's saving paradox. The more an individual saves, the better off he is (his wealth increases). The more all individuals save, the worse off they are (because aggregate demand shrinks causing unemployment). Private virtues turn out to be a public vice. In a close household, saving provides possibility for investment. In a closed economy it is the other way round: investment generates saving. Unemployment, due to low level of business activities caused by low profitability, cannot be cured by reduction of wages but by an increase in spending. More generally, rational behaviour of all agents may generate cyclical downturns in which everybody is worse off.

The crowding effect. The effect is due to the limited absorptive capacity of an economy for productive investment. For high rates of investment (around 40% of GNP) marginal social efficiency of investment will be reduced to zero and even below zero. At the same time, firms will be unaware of that because the marginal efficiency of investment for individual firms will be positive and so will the interest rate (Horvat, 1968).

The replacement effect. Given the technology, real capital cost per unit of output for an economy varies with the rate of growth.

Most of the problems enumerated above can be solved by inserting Ptolomean epicycles into neoclassical theory. But it is obviously more desirable to design a different theory which will generate the explanations in a simpler way and straightforwardly.

Neoclassical theory is about the efficient allocation of resources. But it fails to achieve its professed goal and, in fact, cannot possibly achieve it given the assumptions about the social system. Thus, the implicit social system assumptions provide the third group of objections against the neoclassical paradigm. Using the epicycle called "The Golden Rule", — which makes little sense in a laissez-faire economy and properly belongs to a planned economy — Richard Goodwin (1982, p. 171), advances the following set of arguments:

> "(1) To each profit rate corresponds a rate of relative prices. A change in relative prices alters a technique of production chosen by competitive producers.
>
> (2) To any particular growth rate there corresponds an efficient technique ... which ... yields a greater consumption than any other technique.
>
> (3) This best technique will be chosen by competitive producers if a profit rate on invested capital equals the growth rate.
>
> (4) Any consumption by owners of produced capital goods means that a profit rate is greater than growth rate. The result is a

choice of an inefficient technique, in the sense that both capitalists and workers could consume more had the technique associated with equal growth and profit rates been chosen.

(5) All capitalist economies are inefficient in this sense, since capitalists also in fact consume part of profits.

(6) Any profit rate greater than growth rate amounts to levying taxes on output for the benefit of a particular class. The result is ... a sub-optimal allocation of resources. This is separate from and additional to the unjustifiable distribution of consumption.

(7) Therefore, optimality requires in effect expropriation of capitalists, since if the owners of capital can never, now or in a future, consume any of the income, the ownership of capital is nominal, its "fruits" accruing to the whole society."

In other words, even in the most perfect of all perfect competitions, pricing — and, consequently, allocation of resources — is inefficient because of institutional constraints posed by private property.

4. THE LABOUR THEORY OF VALUE

The value theory represents the core of any economic theory. In this sense it is paradigmatic for an economic theory. Or, in the words of Joseph Schumpeter: "... the problem of value must always hold the pivotal position, as the chief tool of analysis in any pure theory that works with a rational scheme" (1954, p. 588).

I shall make use of the insight of classical economists who realized that labour is not just one of the factors of production, fully symmetrical with others, but that it enjoys a unique position in the economic process, being its prime mover. This is certainly true sociologically. It will prove to be true economically as well, so providing an opportunity for the design of a possible grand social science synthesis at some future date.

Assuming that giving birth to a child is determined by autonomous values not related to economics, the population changes will be considered exogenous. For the purpose of this study, the participation in the labour force will also be considered as exogenously motivated. (A positive theory of employment will easily relax this assumption.) Thus, labour force is given at any moment of time. What we are after is to maximize the production of consumer goods in order to maximize economic welfare of the populatoin (given the distribution of income determined by other considerations; Horvat, 1982, Ch. 9—III). Given material resources and technology, this will be achieved if the labour input in every product produced is minimized. Consequently, all we need is to determine the quantity of labour embodied in commodities in order to allocate them optimally. The commodities are evaluated in labour time, prices are detemined as labour (time) prices.

The general professional opinion about labour prices is reflected in the contention that they are either impossible or that they provide false indicators of allocation. One of the standard questions in the undergraduate economics exams is to ask why is the labour theory of value false? To substantiate these observations, I shall quote four representative opinions from authors who cover the entire spectrum of political-ideological positions, from a conservative to radical and socialist ones:

> "The postulate of asymmetry — people make machines but not vice versa — is, of course, the foundation of the so-called labour theory of value and the pointless activity of people who take it seriously... The labour theory of value is an intellectual curiosity that economists have long since abandoned to theologians" (D. Dewey, 1965, pp. 25, 41).

> "One of the conclusions of this book is that Marx's economics can acquire citizenship in contemporary economic theory by detaching it from its root, the labour theory of value, and grafting it onto the von Newmann stock so as to produce a Marx-von Neumann flower" (M. Morishima, 1973, p. 194).

> "If we define *value* as the labour time required to produce a commodity and than odvance the proposition that commodities normally exchange at prices proportional to their *values* in this sense, then we have to reduce it from a metaphysical statement to a hypothesis. But it is a hypothesis that it would be a waste of time to test, for we know in advance, and Marx also knows, that it is not accurate" (Joan Robinson, 1964, p. 38).

> "The labour theory of value, ...while of interest for the history of economic thought, has no place in today's economic analysis" because it has been "overthoroughly demolished" (A. Lerner, 1972, p. 50).

> Five standard objections are used to dismiss the labour theory of value:

1. It cannot explain prices of goods in fixed supply such as works of art, rare books and old stamps.

2. It cannot explain prices of goods in excess supply (or demand).

3. It cannot explain differences in prices due to heterogeneity of labour. In other words, wages of labour of differing skills can be explained only in terms of the value of their products.

4. It cannot handle price formation when two primary factors are involved.

5. It cannot explain relative prices because labour is not the only factor of production and simple addition of labour time spent in production gives patently wrong prices.

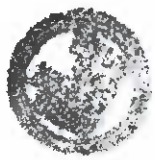
To refute the first four objections is not particularly difficult:

1. The labour theory attempts to explain the prices of *reproducible* goods and so it cannot be criticized for failing to do something it never intended to do.

Already Ricardo knew that commodities in fixed supply "form a very small part of the mass of commodities daily exchanged in the market" (Ricardo, 1817, p. 12), and as such were not particularly interesting. We saw in the preceding section that the only alternative theory, the scarcity theory, is an excercise in circular reasoning: value is explained by scarcity; scarcity is not physical but a demand — determined concept; and demand depends on values attributed to commodities.

Though not designed to deal with fixed supply, labour theory can nevertheless say something meaningful applying the concept of opportunity costs. When I consider the prospects of buying an old stamp. I evaluate its price in terms of labour time necessary to earn an equivalent income. The ratio of prices is equal to ratios of opportunity labour costs.

2. Labour theory is an equilibrium theory. As such it provides standards for the evaluations of nonequilibrium and nonefficient positions.



3. As noted in the preceding section, the distribution of income is institutionally determined. Strong unions and social-democratic governments make for a lot of difference in the wage structure. Labour management increases wages up to the limit of technological possibility by wiping out (excess) profits. Different countries using the same technology have different wage differentials. Long ago English economist Dickinson, a socialist by persuasion, exposed the institutional determination of the wage structure in his *Institutional Revenue* (1932). The book was simply ignored by the neoclassical professional establishment. More recently, Piero Sraffa was somewhat more successful. He showed, in the words of Joan Robinson, that "a given technical situation is compatible with any proportion of relative shares. This rules out the notion of earnings determined by productivity." Thus, the distribution appears to depend "upon commercial, social and political influences and the fortunes of the class war" (Bhaduri and Robinson, 1980, p. 111).

It follows that wages are set institutionally and production is adjusted to maximize profits — which is the causation already mentioned. Wages are social weights attached to different categories of workers. In this way workers are rendered homogeneous, standard, workers who can be counted. All that remains to achieve conceptual consistency is to assume perfect substitutability of standard workers at the margin of production for adjustment purposes. It also follows that wages cannot be treated symmetrically with rent and interest, which is the simple recognition of the fact that workers are not commodities.

4. The second primary factor is non-producible land. If land is produced — say an artificial island in the sea — it represents capital

and not a primary resource. Land as a primary factor is not produced, consequently does not incur cost and the income it generates — rent — does not enter the cost of production. Rent is not the cause but the result of price formation. Land in fixed supply is a factor counterpart to commodities in fixed supply whose price is pure scarcity price, i. e., depends exclusively on demand. In a sufficiently short run, any factor may be non-reproducible and earn rent. In the long run, rent is the difference between the (scarcity) value of demand and the labour value of supply which is insufficient to meet demand if only the most efficient technique of production is used. Since rent is a demand-generated addition to costs of production, the Ricardo solution of the problem may be applied: consider production at the margin where no rent is generated. A different aspect of land is often confused with the one just described (H. Buchanan, 1929). As a primary factor, land is in fixed supply. But land has many alternative uses, and for any particular use it is not in fixed supply. Thus, rent as an opportunity cost enters costs of production. This aspect will not be considered.

5. The fifth objection is a real one. The Ricardo-Marx labour theory of value is certainly not accurate. It is, however, a nonsequitur to claim that any labour theory of value must be false in a nonstationary economy. Economic processes ocour in time. Time is an intrinsic dimension of economic phenomena. It is therefore, an elementary requirement of economic analysis that all dated variables be brought to the same point of time. Ricardo and Marx committed a methodological error in adding dated labour diachronically. (Admittedly they did that because they did not otherwise know how to aggregate labour, but that is a different story). The procedure is illegitimate because in a changing economy dated labour is not homogeneous and cannot be added. If, however, the synchrony rule is followed and care is taken of the relevant synergetic effects, the road is opened to a rigorous labour theory of value which is also a theory of relative prices.

Regarding any theory of value, three questions may be asked: about the source of value, about its determinants and about the measure of value.

The first question is somewhat metaphysical and is not particularly interesting analytically. The answer, however implies quite important theoretical consequences in political economy; the proper answer permits a meaningful definition of surplus (value). As no good has an economic (exchange) value if it is not useful, it may be argued that utility is the source of value (J. B. Say). That is more than we need, notes Walras (1874, p. 201) since extremely useful goods, such as air, may have no exchange value. For this reason, since Adam Smith, economists have distinguished between use value and exchange value and have tried to explain the source of the latter. Common observation indicates that a useful thing acquires exchange value when its supply is limited relative to demand. A good that is both useful and available in limited quantities relative to demand may be called

scarce. Thus, neoclassical economists generally argue that scarcity is a proper source of value. That, however, leads to circular reasoning described above: a useful thing has exchange value when it is scarce, and we declare it scarce when we observe that it has exchange value! On the other hand, classical economists pronounced labour as the source of value (value without a qualifying adjective always means exchange value). That is less than we need, notes Walras, because valuable objects, such as collectors items, do not embody labour. Therefore Ricardo simply admitted that "possessing utility, commodities derive their exchangeable value from two sources: from their scarcity, and from the quantity of labour required to obtain them" (1817, p. 11).

I prefer to answer the first question in the following way. In order to maximize the economic welfare of individuals comprising society, an optimal allocation of resources and an optimal structure of final output (given the distribution of income) ought to be achieved. For that purpose, heterogenous goods and services must be attributed exchange values so that they can be aggregated and properly allocated. A good is produced in quantities that satisfy demand at a value depending on labour inputs technologically necessary. For reproducible goods, as noted by J. S. Mill (1848, p. 455) it is not supply and demand that determine value, it is the value that determines supply and demand. Since value depends on labour, labour is the source of value, and labour values are objectively determined. If a good with use value does not require labour input for its procurement, it is either a free good with no exchange value or a nonreproducible good with positive exchange value. The latter goods, being in fixed supply, do not acquire value in the process of *production.* If they are consumption goods, they can be exchanged at values which consumers subjectively choose to attribute to them (while taking account of the opportunity labour costs). If they render productive services, they merely modify the input of labour. It appears that labour value is objective and measurable and represents a production concept while scarcity value is subjective and unmeasurable and represents a consumption concept. They belong to different fields of analysis. The difference between exchange value and labour value, if it exists, represents rent. The difference between exchange value and scarcity value makes no sense and for two rasons: (a) the former is an objective and the latter a subjective quantity and (b) because the latter is defined to be always proportional to the former (at the margin).

The foregoing answer has also well known a theoretical consequence. If labour adds value to objects used in production, and the remuneration of labour (wages) is less than the value added, the difference represents a surplus appropriated by the owners. This surplus measures the rate of exploitation unless the owners are all members of the society.

As for the second question, three determinants of exchange value may be recognised: social distribution of wealth, individual subjective preferences and objective input of resources itself dependent on the available technology. Regarding the third question, labour (time) is the

measure of exchange value. Unlike the scarcity theory with its unmeasurable subjective utility, the labour theory is able to use an objective measure.

Labour values serve primarily as a normative standard for efficiency comparisons. They are, therefore, long run equilibrium values. That implies full employment of labour and full use of productive capacity. The unit value of a good or service is called price.

One last point concerns the loose talk about labour prices often found in the literature. Ever since Smith invented his measure of "the labour which a commodity can command", real values or labour prices have been derived from market prices deflated by wages (p/w). The dimension is correct, labour time per unit of output (Lt/X,), but the magnitude is not. The price is arbitrary, not optimal. No amount of competition will make such prices optimal, i. e., efficient, unless certain systemic conditions are fulfilled.

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