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Oskar Lange's Theory of Socialist Planning

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This article shows that the belief that there is an alternative to the market (for a modern economy) is based on error and gives an analysis in history of ideas to show how the error arose. The relevance of an analysis that purports to deal with socialism and central economic planning is called into question. It is shown that the new school of socialist thought does not criticize market relationships but criticizes the real world market economy for not living up to the illustrative theory of pure competition. The outcome of the socialist controversy is the vindication of market relationships.

Introduction

It is more than three decades since Oskar Lange published his famous paper that had instant success as a (long-awaited) theory of socialist planning. Interest in the theory has recently revived (Bergson 1967) as a result of awareness that economic reforms in the Soviet bloc constitute abandonment of efforts at central planning rather than reforms of planned systems. If, as Bergson suggests, the direction of reforms in the Soviet Union is toward market socialism, this implies the frustration of aspirations that fired the Bolshevik revolution.

This paper shows that the belief, which has been incorporated in the orthodoxy for three decades, that there is an alternative to the market (for a modern economy) is based on error and gives an analysis in history of ideas to show how the error arose. The analysis in this paper shows why Drewnowski's assertion (1961) that the Lange-type

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model has nothing to do with socialist planning is correct. The models of the so-called socialist alternative are only efforts at market simulation. The relevance of an analysis that purports to deal with socialism and central economic planning is called into question. Apparently, that analysis has never acknowledged a matter basic to its use—and that is the question of what are its criteria for the theoretical classification of economic systems. If these criteria are not to be *organizational* criteria, how is an economy organized to produce “commodities” in keeping with principles of economic efficiency any different fundamentally whether it is organized by real world markets or their simulation?

The Original Intentions of Socialist Planning¹

Socialism intended to *replace* a system of market relations with a system of planning (toward which Mises directed his criticism). The reason for this socialist intention can be outlined as follows.

In Marx, alienation is a phenomenon defined to be inherent in developed market economy. It is not a result of private property, division of labor, surplus value, or exploitation but of market-exchange relationships, a system defined by Marx as “commodity production.” He argued that as a result of commodity production man is alienated from his own labor and his own consciousness. Thus, Marxian socialism requires an organizing principle by which to integrate the economy different from market exchange.

A commodity is defined by Marx as a product produced by an independent producer for exchange on the market rather than for direct use. Marx (1906, pp. 96–97) alleged that, because in a market system it is only through the act of exchange that producers come into social contact with one another, “the persons exist for one another merely as representatives of, and therefore, as owners of, commodities.” Material relations are established between persons, and social relations are established between commodities (things). The social relations between men are hidden behind the relations between commodities. Thus, exploitation is covered by the veil of commodity production. It is the veil hiding the underlying social relationships that Marx is protesting. It is not exploitation that is unique to capitalism but blindness to it, and this blindness is an aspect of man’s alienation resulting from commodity production. Unlike a serf who, through his direct obligation, is aware of the source of power over him, a man who sells his labor for money may think of himself as an unexploited, free participant even though

¹ The argument outlined here has been developed by Roberts and Stephenson (1968, 1970) and Roberts (in press).

his labor is being abstracted into money and taken from him through the exchange relations of the market.

With the impersonalization of productive relations, "the individual producer deals with his fellow men only through the market, where prices and amounts sold are the substantial realities and human beings merely their instruments" (Sweezy 1964, p. 36). Men regard the market as an external force to which they must adjust, and "the process of production has the mastery over man instead of being controlled by him" (Marx 1906, p. 93). According to Marx, such a state of affairs coincides with a period in which the development of modern science has provided man with the power to control his own destiny, yet the veil of commodity production "blinds him to the means of exercising the power which is within his grasp" (Sweezy 1964, p. 40).

The relationship between alienation and commodity production is such that the former cannot be eliminated independently of the latter. The goal of Marxian socialism to eliminate the alienation of man is achieved by the elimination of commodity production. The unique character of the alienation permits a unique solution: replacement of the organization of autonomous producers in a system of exchange relationships by uniting the whole of society as if it were a single factory. Under the latter, hierarchic organization, "use-values" for the community are produced instead of commodities ("exchange-values"), and commercial values in the form of market prices and the "cash nexus" do not come between the relations among men.

This sketches the program by which Marxian socialism transcends alienation. It is a program of transforming economic organization from a market-exchange system into a planned system of direct association in order to establish a new basis for relations among men.² Upon this new basis, a new society would arise. Bukharin wrote that "the market itself will cease to exist" (cited from Kaufman 1953, p. 245). Man for the first time becomes "master of his own social organization" (Engels 1954, p. 392) and "with full consciousness, makes his own history" (p. 393). This is the foundation of "planned economy."

Since it was this program of eliminating market relations toward which Mises addressed his argument, any theory that establishes socialism on the basis of exchange relations of the market is no answer to Mises. Instead, by equating the achievement of competitive market equilibrium with the goal of socialism, the Lange-type model takes the problem of socialist planning out of its historical context and obscures it.

By transforming the objective of socialism into the issue of economic efficiency, economists created a socialism that no socialist ever believed in, placed hopes in, or fought for. This "socialism" has an extensive

² According to Lenin (1932, p. 84), "the whole of society will have become one office and one factory."

literature concerning its possibility³ in spite of the fact that there has never been a socialist movement behind it.⁴ The famous "socialist controversy" among Western economists is not about socialism but about the logical consistency of models of market simulation, their determinacy, stability, and convergence toward equilibrium. Within the context of this socialist controversy, the possibility of socialism depends upon whether the market economy can be successfully simulated. This is why it has been a socialism interesting only to economic theoreticians.

The Logical Problem of the Lange Paradigm

The inappropriateness of the Lange model as a theory of socialist planning is not only demonstrated by its abandonment of the intentions of socialist planning but also by the logical impasse it presents for the theoretical classification of economic systems. The Lange model is constructed from economic theory that presupposes the exchange relationships of commodity production. Therefore, although the Lange model purports to establish the possibility of socialist planning, the model has the organizational structure of commodity production built in as a given of the economic theory out of which the model is constructed. By building a model of socialism upon the categories of economic theory, Lange disregarded the hierarchical prerequisites of socialist planning and socialist organization.

Since the Lange model takes as a given the organizational relationships of the market, that is, the commodity mode of production, the debate has been in terms of economic efficiency and convergence toward equilibrium. The framework of the debate prevented the debate from penetrating to the organizational basis necessary for a system of socialist planning and control. Theoretical classification of economic systems depends upon organizational criteria, that is, upon modes of production as well as upon property rights. The Lange paradigm precludes any organizational structure other than that of commodity production and contrasts only property rights; it defines socialism only in terms of property rights.

The result is a logical inconsistency that allows a contradictory dual status to the Lange model. For example, Bergson (1967) explicitly refers

³ See, for example, Bergson (1948) and Ward (1967).

⁴ Recent economic reforms in Eastern Europe and the Soviet Union might be interpreted as a socialist movement behind market socialism, but such a movement toward commodity production is, in fact, a movement away from socialism. The Soviet economist, A. Eremin (1970), recognizes that "in the 'model of market socialism' the principal emphasis is on the need for the regeneration of commodity production" (p. 6) and denies that socialism is "a species of commodity production" (p. 5). Eremin strongly states that market socialism is "a definite anti-Marxist concept" (p. 4).

to Lange's theory both as one of market organization of publicly owned firms ("market socialism"), in which the determination of inputs and outputs is left to managers of production units (p. 656), and also as "a planning scheme" (p. 661). Later in his paper, this contradictory dualism comes together in the idea of a Central Planning Board (CPB) existing simultaneously with the autonomy of managers (p. 665). This inconsistency reflects the contradiction between the central planning vocabulary of the Lange model and its market organizational structure. The contradictory dualism of the Lange model has been upheld by the willingness to overlook the logical inconsistency in assigning it a dual status. With this inconsistent duality, the Lange model was able to establish the theoretical possibility of socialist planning on the basis of the very market principles that socialist planning was supposed to replace.⁵ This paper will now develop its critique of the Lange model on the grounds that (1) it is organized as a market system in contradiction to the hierarchic structure required for central economic planning, and (2) it is a system of exchange relations embodying the very commodity production that was to be eliminated by socialist planning. Lange's neglect of the organizational requirements of central planning reduces the role of his CPB to dressing the market in socialist vocabulary.

The Theory of Oskar Lange

In reply to Mises (1935, p. 110), who asserted that "socialism is the abolition of rational economy," Lange (among others) advanced the theory that the central planning authority could achieve control over production by directing its subordinate managers to operate society's economic enterprises in accordance with the principles of competitive economic theory. Lange never uses the term "market socialism." Throughout his analysis there is a CPB, and he explicitly views its

⁵ In *The Economics of the Transitional Period*, Nikolai Bukharin states clearly the replacement in the socialist program of value by plan. He writes that political economy is the science "of the unorganized national economy. Indeed, as soon as we deal with an organized national economy, all the basic problems of political economy, such as price, value, profit, etc., simply disappear. Here 'relations between men' are no longer expressed as 'relations between things,' for here the economy is regulated not by the blind forces of the market and competition, but by the consciously carried out *plan*. . . . The end of capitalist and commodity society signifies the end of political economy" (cited from Kaufman 1953, p. 245). Sweezy (1964, pp. 53-54) shows awareness of the doctrines of Marxian socialism when he writes that "it follows that insofar as the allocation of productive activity is brought under conscious control, the law of value loses its relevance and importance; its place is taken by the principle of planning. In the economics of a socialist society the theory of planning should hold the same basic position as the theory of value in the economics of a capitalist society. Value and planning are as much opposed, and for the same reasons, as capitalism and socialism."

actions as replacing market organization with a hierarchical structure of central planning.

Lange (1956, p. 73) discusses central economic planning in two forms of socialist systems. One is completely centralized. In the other, there is a "genuine market for consumers' goods and for the services of labor," but no market for capital goods and productive resources outside of labor. In neither system are the managers of enterprises to be guided by wealth maximization (p. 75). Instead, the CPB imposes rules on the managers that determine the combination of factors of production and the scale of output (p. 75). The rules can be put in the form of instructions "to use always the method of production (i.e., combination of factors) which minimizes average cost and to produce as much of each service or commodity as will equalize marginal cost and the price of the product" (p. 78).

In order for the managers of production to be able to follow these rules, "the prices of the factors and of the products must, of course, be given" (p. 78). Under the form of socialist planning in which there is "freedom of choice in consumption and freedom of choice of occupation" (p. 72), the prices of consumers' goods and services of labor are determined in a market (p. 78); "in all other cases they are fixed by the Central Planning Board" (p. 78). In Lange's theory, "those prices being given, the supply of products and the demand for factors are determined" (p. 78).

He recognizes that, if the prices fixed by the CPB are arbitrary, they will have neither economic nor planning significance. His solution is for the CPB to impose the "parametric function of prices" on the managers as an accounting rule (p. 81). In Lange's mind, this gives the CPB rational, central control over output. He writes that the fixed "prices alone are the variables determining the demand and supply of commodities" (pp. 69, 81).

His procedure of socialist planning then is one of *tâtonnement*—a "method of trial and error based on the parametric function of prices" (p. 86). Constructing this system leads Lange (1956, pp. 82–83) to state: "The Central Planning Board performs the function of the market. It establishes the rules for combining factors of production and choosing the scale of output of a plant, for determining the output of an industry, for the allocation of resources, and for the parametric use of prices in accounting. Finally, it fixes the prices so as to balance the quantity supplied and demanded of each commodity. It follows that a substitution of planning for the functions of the market is quite possible and workable."

The Absence of Hierarchical Organization

It is clearly stated that the market is replaced by a process of planning. Lange (1956, p. 86) further writes that "all decisions of the managers of production and of the productive resources in public ownership and also all decisions of individuals as consumers and as suppliers of labor are made on the basis of these prices" fixed by the CPB.

However, the CPB is a redundant entity. The only prices fixed by it are the initial ones at the beginning of the procedure of *tâtonnement*, and, according to Lange, these "fixed" prices are the existing market-determined prices—"the prices *historically given*" (p. 86). All other prices are determined by demand and supply through a process of mutual adjustment devoid of central planning. Lange writes that "prices alone are the variables determining the demand and supply of commodities," but, according to his own words, the prices are not the right ones unless supply and demand are equal: "The determinateness of the accounting prices holds, however, only if all discrepancies between demand and supply of a commodity are met by an appropriate change of its price" (p. 93).

We are returned to the more familiar notion that it is supply and demand that determine price, rather than the other way around. And what determines supply and demand? In Lange's system, it is the people in the market: "The preferences of consumers, as expressed by their demand prices, are the guiding criteria in production and in the allocation of resources" (pp. 72–73).

It is necessary to acknowledge that contrary to what Lange writes and even Hayek (1940) seems to accept, these prices fixed by the CPB are not beyond control of the market. If the producers and consumers do not like them, the CPB has to change them, so that irrespective of whatever legal powers Lange gives the CPB over price and his insinuation that the CPB controls production by fixing prices, it is obvious that the only function of the CPB with regard to prices is to announce what has happened in the market. If the individual managers are following the rules that Lange says they are to follow, the collective body of managers through their mutual interaction in purchasing factors, being guided by derived demand established by the demand of consumers for final goods, are determining the levels and rates of outputs. The resources employed, the production functions used, the basket of final goods, and the relative prices of factors and final goods are all a result of the market process.

Lange (1956, pp. 90–91) describes a hierarchical economy completely directed from a planning center:

A socialist system where freedom of choice in consumption and freedom of choice of occupation are nonexistent and where

the allocation of resources, instead of being directed by the preferences of consumers, is directed by the aims and valuations of the bureaucracy in charge of the administration of the economic system. In such a system the Central Planning Board decides which commodities are to be produced and in what quantities, the consumers' goods produced being filled by assignment. In such a system also rational economic accounting is possible, only that the accounting reflects the preferences of the bureaucrats in the Central Planning Board, instead of those of the consumers. The Central Planning Board has to fix a scale of preferences which serves as the basis of valuation of consumers' goods.

Lange says that his rules and the procedure of trial and error are applicable also to this totally planned economy. However, rules taken from a market economy and which reflect its structure can have no applicability to a centrally planned economy. To give such rules organizational meaning in a planned system, as does Lange, is to override the intended hierarchic structure. It is a denial of a planned economy to have individual producers following these rules since, if they are, then *they* are determining the levels and rates of outputs, and the hierarchical economic structure of the system evaporates. The CPB has its functions taken over by the market. Here is a clear example of a leading advocate of central planning grossly confusing the organizational natures of a planned system and a market economy.

In a planned economy, the managers of plants can make no decision about the allocation of resources and the rates and levels of outputs as they would be doing if they followed Lange's rules. The decision as to the combination of factors "that minimize the average cost of production" must be made by the CPB when it decides "which commodities are to be produced and in what quantities" and handed down to the plant managers in the form of orders or instructions. The CPB cannot determine prices independently of the levels and rates of outputs.

The Nonapplicability of the Marginal Rule⁶

Under the Lange-type formulation, the element of conscious central control is absent; it is only present in words. In competitive market theory, the equating of marginal cost with price is the result of wealth-maximizing behavior; no one has as his conscious purpose to make marginal cost equal to price. However, under Lange's formulation of a

⁶ In different terms and from a different direction, Buchanan (1969) arrives at the point made in this section. The point is similar to that of Thirlby (1946) and Wiseman (1953). I derive the point from organizational and not cost considerations.

planned economy, a result of competitive theory becomes the principle of administrative control. It becomes the task of the subordinate managers, the test of their success, and the criterion for their reward.

I have argued that Lange's theory is rooted in market organization of the economy in contradiction to the hierarchic requirements of central planning. Lange overlooked the organizational character of the model from which he borrowed the "marginal rule," and he likewise overlooked the purely formalistic character of his own theory, which dealt with equating marginal properties without regard to the organizational system involved. He believed that his planning authority had in the marginal rule a method of subordinating economic activity to its directive control, but his effort to make an application to central planning of what is only an illustrative principle (that throws light on the kind of coordination achieved in the economic utilization of resources by a market economy) forces all judgment concerning the organization of production upon the individual managers. I will now argue that the marginal rule, upon which the Lange model depends, is not applicable as a *formal directive* even in a market economy.

Under real world conditions characterized by the phenomenon of time, the marginal rule gives no clear guidance to those directed to organize production in accordance with it. Introducing the phenomenon of time brings in uncertainty and requires the element of *judgment*. Neither uncertainty nor judgment is present in the formulation of perfect competition from which Lange took the idea of the marginal rule.

Although the elimination of uncertainty by central planning was a leading attraction to many adherents, it is present in Lange's system, which is based on "the procedure of trial and error." It might appear that the "fixing" of prices by the CPB would give the objectively known data for equating marginal cost with price. However, the managers cannot avoid knowing that the prices in this *tâtonnement* process are merely of temporary validity, and they will base their actions on anticipations of the direction of change.⁷

Since uncertainty is unavoidable, whether in Lange's system or in a real world market with resources publicly or privately owned, managerial behavior cannot amount to adaptation to known conditions. The manager's task is to decide among alternative resource allocations on the basis of estimates of future conditions. Thus, excess of total revenue

⁷ It might be thought to eliminate the organizing initiative of managers by prohibiting any economic undertakings until the right marginal-cost-price relationships are found for all products. This might seem to turn the managers into mathematical computing agents of the central authority—a system of explicit calculation that Lange's system was designed to avoid. However, each single manager still calculates his own adjustment with respect to all others, and optimality is a *result* of the individual computations; the "plan" is a historical result of the simulated market process.

over total cost may result from successful prediction as well as from "nonoptimal" organization of production. This renders the marginal rule directive inappropriate as the criterion of managerial success.

Since the problem actually faced by managers is one of choosing among alternative lines of action on the basis of estimates, it is a matter of personal judgment—a skillful process of tacit integration that can be formalized only in theory. A manager cannot undertake simultaneously all his alternative courses of action. The alternative chosen depends upon his judgment of the outcomes of the possible lines of action. A marginal rule directive could only check the ability of a manager to forecast the outcome of the alternative he chooses in the sense of it being profitable or not and control the rate of output; it cannot check its relative profitability against the alternatives that were not followed. Therefore, a marginal rule directive does not set a manager's task because it does not determine whether he should have chosen the course of action that he chose.

The point is not that there is a formal difference in economic theory between the marginal rule and profit maximization. Market organization could not be dressed in the clothes of hierarchy if the directive to managers is to maximize profits. However, the notion of a central planning board imposing the marginal rule upon managers of production units evidently sufficed to convince economists that the actions of individual managers could be directed by the CPB, which could plan economic activity by means of such control. Economists should be derided, perhaps, for their lack of perception, but I have simply argued that no application of the marginal rule as a formal directive is possible.

Sources of the Langesque Illusion of Planning

A source of the planning illusion is Lange's separation of interdependent variables that are only formally distinguishable. Such distinctions do not literally reflect reality. For explanation of an autonomous system, this is not serious if it is kept in mind that the validity of the theory is formal and that its bearing on reality is illustrative. However, for theories that are to be used to reconstruct reality, formal validity does not suffice. Lange (1956, p. 81) gives a description of dialectical relationships in linear terms (as is often done in the classroom) and confuses his linear description with reality (which is mutually determining). He has a notion of making an application of his linear description to control economic activity. This error reinforces in his mind the illusion of the CPB directing production. Lange goes through the procedure of *A* determining *B*, *B* determining *C*, etc., and comes to the conclusion that the

prices fixed by the CPB are the sole variables and that they determine supply and demand.

Certainly, the perpetuation of the illusion is indebted to Hayek's critique (1940), which accepted the Lange-type proposals on their own terms and thereby gave them an undeserved credibility. If the arch-critic accepts such proposals as systems of socialist planning and proceeds to discuss the problems of the systems, what could greater guarantee the success of the proposals? By focusing his critique on the comparative inefficiency of the Lange-type system as an equilibrating mechanism, Hayek allowed the fact to be obscured that the function of a CPB lies in the determination of the plan that replaces market relationships. As a consequence, the meaning of socialist planning was lost in the succeeding literature, and commodity production has since been represented in the literature as socialist planning.

Barone's article (1935) is a definite foundation of the illusion. Although Barone might have meant his article to be a refutation of the possibility of socialist planning, it allowed an interpretation that falsified the problem in two ways.

First, acknowledging the intentions of socialism, Barone (1935, p. 267) seems to deny need for money or prices in his model of a socialist economy. Instead, there are "equivalents," a semantic distinction that veils the illusion in the manner often used since. Lange (1956) calls them "accounting prices" and Leontief (1938) calls them "fictitious accounting prices."⁸ Although Barone's semantics have led many economists astray, he did not fool himself. A few pages later, Barone (1935, p. 272) writes that an "equivalent" is "the price, under another name."

Second, Barone (1935, p. 246) writes that he proposes "to determine in what manner the Ministry concerned with production ought to direct it"—implying concern with the organizational structure of a centrally planned economy—but what he accomplishes is to formalize in mathematical terms the operation of economic theory in exhausting the product

⁸ In his review of Pigou's *Socialism versus Capitalism*, Wassily Leontief (1938, p. 411) writes: "With great precision and clarity Professor Pigou describes the structure and operation of the hypothetical price system in a socialist economy. (The theoretical possibility of such a system, Professor Mises' objections notwithstanding, can be considered by now to be definitely established.) Following the path indicated by Dr. Lange and other authors, he visualizes it as a system of fictitious accounting prices and interest rates." If prices, whether generated by markets or the simulation of markets, guide the allocation of resources, they are real, and it is illogical to refer to them as fictitious. The curious terminology used and accepted by such distinguished economists underlines the fact that during the 1930s it was still tactically recognized that socialist planning and market pricing were antitheses. Therefore, it was necessary to deny the existence of market pricing in the models of socialism by terming the prices, upon which the models relied, fictitious. This is the use of artificial abstraction to make a model appear other than what it is. The obscuration was not the purpose of conscious intention but of superficial familiarity with socialist aspirations.

in an autonomous system. Often since, mathematical expositions of economic theory have been confused with central planning.⁹ Drewnoski (1961, p. 342) called mathematical formulation of market-generated criteria "the centralized decisions approach" to economic planning.¹⁰

Finally, Mises's formulation of his argument is itself ultimately responsible for the confusion. Whatever his familiarity with the intellectual foundations of socialist aspirations, he was faced with a program of action that was fantastic in its lack of foundation. When, for example, Engels (1954, p. 430) wrote that under socialism "people will be able to manage everything very simply, without the intervention of much-vaunted 'value'" and Bukharin (cited in Kaufman 1953, p. 245) wrote that "as soon as we deal with an organized national economy, all the basic 'problems' of political economy, such as price, value, profit, etc., simply disappear," they were serious.

Mises was passionate in his refutation of this socialist program. Simultaneously, he defended the concept of private property. By joining his arguments, he structured the problem such that, to those who later joined in the debate (particularly if they were unfamiliar with, or not serious about, the socialist intention to eliminate commodity production), the possibility of socialist planning could appear to turn on whether there could be rational economic criteria in the absence of a private capital market. From that time forward, the definition of socialism was cut loose from the qualities that had given it historical force.

The New School of Socialist Thought

Dickinson (1933, 1939), Lerner (1934), Durbin (1936), and Lange (1956) were preceded in the structure of their thought by Barone (1908) and Taylor (1929). However, in addition to pursuing the same ideas in the same period of time, the former four attributed positive values to socialism and can be regarded as leading members of a new school of socialist thought. A distinctive characteristic of this school of thought is that its members were critical of the real world market economy, not because it reflected the organizational structure of commodity production, but because it does not live up to the illustrative theory of pure competition! Their critique of the market is not founded on the basis of a true socialist estrangement from the market that fired an intention

⁹ Market simulation is also confused with central planning. It has evidently not occurred to numerous writers that a simulation of a system must reflect the structure of the system. A simulation of the market reflects the structure of the market and the exchange relationships of commodity production.

¹⁰ Since a theory of socialist planning does not exist, the failure of even such a theory to ensure perfection cannot be demonstrated by the eager analysis of our anatomists (reference is to Bator 1958). In this way, socialism is protected.

to replace one system of organization, X , with a totally different system of organization, Y , but is a critique characterized by the intellectual phenomenon of preferring the model of X to the literal X . They desired what they called socialism in order to achieve the efficiency of the competitive model. Dickinson (1933, p. 247) explicitly equates the achievement of competitive equilibrium with the goal of socialism: "The beautiful systems of economic equilibrium described by Bohm-Bawerk, Wieser, Marshall and Cassel are not descriptions of society as it is but prophetic visions of a socialist economy of the future."

Since their concern was with economic efficiency, full employment, and the distribution of income, they never penetrated to the organizational requirements of central planning. Therefore, they never had cause to notice the contradiction inherent in their models. Unlike revolutionary socialists, they accepted the organizational structure of commodity production, and their critique of the market was mainly in terms of the standards of economic theory, standards which socialism had rejected. Although later in life Lange (1962) was familiar with the Marxian analysis of commodity production, there is no evidence that the new socialists were familiar with the fundamental Marxian critique of market organization at the time they developed their models of socialist planning, and there is clear evidence that even later in life Dickinson had an erroneous understanding of what Marx meant by commodity production.¹¹ However, they were aware of a historical connection between socialism and planning and had the concept of a central planning board in their models, even though it was in contradiction to the implicit organizational structure of the models.

The new school of socialist thought was opposed on organizational grounds, not by Hayek and other critics of socialism, but by representatives of the original socialist intentions. For example, in his critique, Dobb (1940, p. 276) writes: "Either planning means overriding the autonomy of separate decisions or it apparently means nothing at all." In a review of Dobb's book, Rogin (1938, p. 329) writes: "In the closing chapter on 'Economic Law in a Socialist Economy,' the author states that despite its recent modifications with respect to monopoly, contemporary economic theory will play a negligible role in a socialist

¹¹ Dickinson (1948, p. 13) writes: "There are fundamentally two ways of organizing the work of a more or less free community—through the wages system, or through what Marx called 'commodity production.' We are accustomed to a society in which the great majority of people are doing a job for a wage or salary. . . . But it is not the only way of arranging things. There is also the system under which people, instead of selling their labour power to an employer or public body, embody their labour power in a commodity, which they then sell, either directly to the consumer or to a merchant. In its one case you have the choice of a job at a wage or salary, and in the other case you have what might be called the choice of a trade." With such a misrepresentation of the meaning of commodity production to tutors, it is no wonder that the socialist heritage has been lost.

economy. It cannot be otherwise with a theory which premises the allocation of resources on the autonomous decisions of entrepreneurs."

Dobb recognized intuitively what the argument of this paper has demonstrated, and that is that the purpose of the socialism that was a historical force was the replacement of market relationships by central planning rather than the achievement of a competitive equilibrium (given a growth rate and income distribution) and that the Lange-type model is merely a model of publicly owned firms operating according to the market principles that it was the purpose of socialism to abolish.

The outcome of the socialist controversy has not been to prove the possibility of socialist planning, as is believed, but to vindicate market relationships. This vindication in theory apparently is reinforced in practice by the outcome of the "Soviet experiment."

The most far-reaching result of the socialist controversy is unrelated to socialism and is the critique of the real world market economy from the standpoint of the standards of a theory whose bearing on reality is merely illustrative. Although man has ability to improve his social and economic organization—and the desire to do so is legitimate—much market criticism can be compared to criticizing inanimate matter for not reflecting the theories of physics and chemistry. There is a questionable normative element in a science that criticizes reality on the basis of theoretical standards. Much market inefficiency is purely formalistic in character. Breast-beating in the real world over market inefficiency, the validity of which is merely formal, is illogical. It certainly is not socialism.

Addendum

Petersen (1970, pp. 396–97) recently interprets the Lange model as a planning scheme in which a plan is derived from the preference scale of the CPB and the production-possibility curve. However, Petersen then says that in Lange's model prices are determined "by watching stock fluctuations" and notes that this is "a trial-and-error procedure." Petersen objects that "Drewnowski has been inclined to lay stress on Lange's second possibility" (markets undisguised by a planning vocabulary). Petersen might have noticed that, when Lange describes his "centralized" possibility (Lange 1956, pp. 90–91), he does so under the heading "The General Applicability of the Trial and Error Method" and says that his decentralized rules are applicable to what he describes as a totally centralized economy. There is an obvious inconsistency between Lange's centralized terminology and decentralized mechanism. Drewnowski, therefore, is sound in emphasizing the decentralized character of Lange's model. Lange says explicitly that "the CPB does not

need to have an elaborate formula of its preferences"; it assigns prices "by simple judgment" and watches the market reaction.

Petersen is right in pointing out that Lange describes at the beginning of his article a hierarchical planning procedure for deriving an ex ante plan. But Lange does not pursue this approach. After mentioning in the beginning a hierarchical planning procedure, Lange proceeds to develop a decentralized procedure in which the "plan" is an ex post result. Probably, Lange realized that central planning is a hierarchic procedure inconsistent with markets and yet could devise no way of deriving an ex ante preference function for a CPB faced with a large number of possible production functions and final outputs. As a solution, he described markets in hierarchical language.

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