THE SOVIET PRICE REFORM DISCUSSION *

MORRIS BORNSTEIN

I. Background of the discussion, 16. — II. Criticisms of present industrial wholesale prices, 18; relationship of price to "value," 20; relative prices and choice, 21; control and evaluation of enterprise performance, 22; measurement of macroeconomic relationships, 23. — III. Reform proposals, 23; the traditionalist school, 24; the surplus product markup schools, 28; the opportunity cost school, 36. — IV. Conclusion, 45.

Since 1956 there has been a vigorous discussion among Soviet economists about the theory of value and the principles of price formation for producer goods. This discussion is significant not only as a chapter in the evolution of Soviet economic thought but also, and more importantly, for the insights it provides into the problems of Soviet economic planning and the barriers, doctrinal and other, to their solution. This paper analyzes and appraises the discussion, examining the background of the debate, the deficiencies in industrial wholesale prices identified in the debate, the leading proposals for price reform, and the provisional resolution of the controversy in the 1963 Soviet industrial price revision.¹

Concurrent with, and related to, the discussion on industrial prices are several other controversies among Soviet economists, including most prominently discussions about investment criteria; the use of mathematical techniques, such as linear programming and input-output, in Soviet economic research and planning; and the decentralization of industrial management. While some reference is

* This article was written while the author was an Associate of the Russian Research Center, Harvard University, on leave from the University of Michigan on a Ford Foundation Faculty Research Fellowship. Some of the research was conducted earlier in the Soviet Union on a travel grant from the Joint Committee on Slavic Studies of the Social Science Research Council and the American Council of Learned Societies. The author gratefully acknowledges the assistance of the Center, the Foundation, and the Joint Committee. He also wishes to thank the Soviet economists, including leading participants in the price reform discussion, who granted him interviews while he was in the Soviet Union. He is grateful to Abram Bergson for valuable comments.

made to these parallel controversies, a detailed treatment of them is beyond the scope of this paper. Also, the paper deals only with the reform of industrial wholesale prices, which has been the main focus of the price reform discussion because these are the prices used in the planning and operation of the state sector of the Soviet economy. Only secondary attention has been given in the discussion to changes in other types of prices, such as agricultural procurement prices, retail prices, and foreign trade prices. For this reason, as well as limitations of space, these other prices are not considered in the present article.

I. BACKGROUND OF THE DISCUSSION

The industrial price reform discussion is part of the broad reappraisal of the Soviet economy undertaken by Stalin's successors in an effort to increase economic efficiency in order to achieve their ambitious goals for economic growth, military power, and improved living conditions. Since 1956 there has been a revival of critical discussion among Soviet economists and a marked improvement in the caliber of Soviet economic literature. During the Stalin era, Soviet economics had been emasculated by the narrow delimitation of economics to managerial or technical questions, such as labor recruitment, factory management, cost accounting, etc., as well as by the unhappy fate of economists judged to be "deviationist." Some economic journals ceased publication in the 1930's, and those that continued contained with few exceptions descriptive, hortatory.


3. The discussion of agricultural prices has concerned such questions as the calculation of production cost on collective farms, differential rent and the regional differentiation of prices, and relative prices for different crops. The discussion of retail prices has stressed adjustments of relative prices to bring demand and supply into closer correspondence, more accurate estimates of price and income elasticities of demand, and closer contact between the retail trade network and consumer goods industry in planning the composition of consumer goods output. The Soviet discussion of foreign trade prices and the calculation of the "effectiveness" of foreign trade is in its infancy compared with the discussion in Eastern Europe.
and doctrinal articles. Although there was some discussion, for example, of the "law of value" and the role of prices and of investment choice, innovation and original thought were sharply criticized. In contrast, the last half dozen years have witnessed great changes in Soviet economics. Along with the statistical "thaw" begun by the publication of statistical handbooks in 1956, original theoretical and empirical work, including sophisticated mathematical and econometric work, has appeared in Soviet economic journals and monographs. Soviet economists are again, albeit with official approval and within carefully circumscribed limits, discussing important questions affecting resource allocation, investment choice, the degree of centralization of economic management, and even the optimum distribution of national income between accumulation and consumption.

The current discussion on price reform began in 1956, following speeches by Mikoyan and Suslov at the Twentieth Congress of the Soviet Communist Party in February 1956, in which they attacked many of Stalin's economic doctrines, including those on value and prices, and bade Soviet economists revise them. In December 1956 a meeting was held at the Institute of Economics of the USSR Academy of Sciences to discuss Kronrod's paper, "Concerning the Law of Value and Problems of Price Formation in the USSR." A second conference at the Institute, on "The Law of Value and Its Use in the National Economy of the USSR," soon followed in May 1957, and a third conference, on "The Law of Value and Its Role in Socialism," was held by the Department of Political Economy of Moscow University in January 1958. A vigorous discussion has continued in monographs, economic journals, and newspapers, as well as at scholarly conferences, the most recent of which

took place at the end of 1962 and was attended by three hundred economic specialists.\(^9\)

The discussion has covered a wide range of topics, including the meaning of cost and value, the relationship of price to value, calculation of the effectiveness of capital investment and new technology, and the role of "economic accountability" and profit in the control of enterprise management. Relatively early in the discussion it was agreed by a majority of the participants that Stalin had been wrong in asserting that the "law of value" and the concept of "commodity production and exchange" applied only to the exchange of goods between the state and the population, and the state and cooperatives (i.e., collective farms), but did not apply to the production and circulation of goods within the state sector, i.e., to producer goods.\(^1\) Instead, the majority agreed, the law of value did apply to the state sector, and it was therefore necessary to correct a number of deficiencies in the pricing of producer goods. Toward this end, various proposals for price reform have been advanced, ranging from modest adjustments in relative prices to the adoption of shadow prices derived from the mathematical formulation of an optimum plan.

This paper deals with these more concrete aspects of price policy and their broader implications for Soviet economic planning and control, rather than with more abstract and recondite aspects of Marxist doctrine on value and price. Section II reviews briefly the shortcomings of the present industrial wholesale price system identified by the participants in the price reform discussion. In Section III, the leading proposals for price reform are analyzed. Section IV offers some conclusions.

II. CRITICISMS OF PRESENT INDUSTRIAL WHOLESALE PRICES

The present Soviet industrial wholesale price system is composed of three types of prices.\(^2\) The enterprise wholesale price (optovaia tsena predpriatia) is the price at which a producing enterprise sells its output. The industry (i.e., branch of industry) wholesale price (optovaia tsena promyshlennosti) is paid by the state-

enterprise buyer and includes, in addition to the enterprise wholesale price, (1) the turnover tax, if any, on the product; (2) the markup of the branch sales organization; and (3) transportation charges if these are borne by the sales organization rather than the buyer. If there are no turnover taxes on the product and it is sold by the enterprise itself, rather than by a branch sales organization, the enterprise wholesale price is also the industry wholesale price. Finally, a settlement or accounting price (raschetnaia tsena) is used in some branches where production costs diverge widely, notably the extractive branches. Individual enterprises or groups of enterprises receive different settlement prices, rather than a single, uniform industry wholesale price, from the branch sales organization. The latter, however, sells to customers of the branch at a single industry wholesale price.

Enterprise wholesale prices are composed of the planned branch average cost of production (sebestoimost') and a profit markup. The former has no exact equivalent in Western cost accounting. It includes direct and indirect labor, materials (including fuel and power), depreciation allowances, and various overhead expenses. Although interest payments for short-term bank loans are included, both rent and interest on capital are ordinarily omitted from sebestoimost'. The profit markup is supposed to provide a "normal" profit, for the branch as a whole, of 5–10 per cent, calculated in relation to sebestoimost'. This profit markup is not intended to allocate resources among alternative uses, but rather to provide a source of "net income" (chisty dokhod) or accumulation to the state, to serve as an instrument of financial control, and to promote the "businesslike" operation of Soviet enterprises.

The bulk of accumulation is obtained, however, through another form of "net income," the turnover tax, which is levied primarily on consumer goods and included in the wholesale prices of the light and food industries, and thereby in retail prices (which also include a trade markup). As a result, there is a great disparity between producer and consumer goods in the relationship between their wholesale prices and their "costs." For example, in 1961, for the heavy industry branches, producing producer goods, 82.2 per cent of the value of output in industry wholesale prices was devoted to covering production and marketing costs and 17.8 per cent represented profits and turnover taxes. In contrast, the corresponding figures for the light and food industry branches, producing consumer goods, were 67.4 and 32.6 per cent.³

³ S. Stoliarov and Z. Smirnova, "Analiz struktury tsen" ("Analysis of
In the price reform discussion, this scheme of price formation, in use since the 1930’s, has been criticized on various grounds, which are examined below.

Relationship of Price to “Value”

One criticism is that Soviet producer goods prices do not properly reflect their “values,” in the Marxian sense of the term. In Marxian value theory it is possible for the actual prices of commodities, whether determined by market forces or administratively, to differ (“deviate”) from their values, which in a long-run, “normal” sense are regarded as determined by the amount of past and present socially necessary labor embodied in them. ("Socially necessary" labor is the amount used with average skill, intensity of work, and conditions of production.) Since such a deviation of price from value is considered possible, the price reform discussion has been concerned with such questions as the following: Do Soviet producer goods (and other) prices correspond to their (Marxian labor) values? Should prices be fixed on the basis of values? If so, what principles of price formation should be followed to achieve this result? If not, under what circumstances should prices consciously be fixed to deviate from values?

According to Marxian value theory, the value (stoimost' in Russian) of a commodity is regarded as composed of three parts: (1) the value of past labor embodied in the materials and that portion of plant and equipment (as measured by depreciation charges) used up in producing the commodity; (2) the value of current labor for which workers receive compensation in the form of wages (their “product for themselves”); and (3) the value of current labor for which workers are not compensated (surplus value, or in current Soviet parlance “surplus product” or “product for society”). In Marxian terminology, these components of value are designated respectively $c$ for constant capital, $v$ for variable capital, and $m$ (or $s$) for mehrwert (or surplus value or product). A uniform, proportional relationship between $m$ and $v$ was usually assumed by Marx in his writings.

In applying this value $= c + v + m$ formula to the Soviet econ-
Soviet economy, Soviet economists usually take sebestoimost' as equivalent to the sum of c and v, and they regard the sum of total profits and turnover taxes as equal to total surplus product or aggregate m. The latter represents that portion of the total value of the net material product — i.e., the national income in the Soviet sense — which is not paid out as wages and other personal incomes but is instead used by the state for investment and collective consumption (including defense and government administration). The relative magnitude of aggregate m therefore depends on the political leadership's decisions regarding the distribution of national product — which Soviet economists take as a datum.

One complaint of critics of the present scheme of industrial price formation is that, because (as noted above) industrial wholesale prices of producer goods contain significantly much less profits and turnover tax (m) in relation to sebestoimost' (c + v) than do industrial wholesale prices of consumer goods, producer goods as a group are priced below their value. In addition, they assert, because surplus value is not properly distributed in the prices of different commodities, relative prices of producer goods do not correspond to their relative values. Thus, both the level and the structure of producer goods prices are held to deviate from value.

Relative Prices and Choice

There is wide agreement among participants in the price reform discussion that because present producer goods prices fail to correspond to their values, either in some aggregate sense or relative to each other, they furnish unreliable guides for various kinds of economic choices in which they are used. As a result, the decisions of both economic planners and enterprise managers are distorted. Among the instances cited in the price reform discussion are the following:

1. If prices of different producer goods are not set properly relative to each other, incorrect choices will be made in decisions regarding alternative inputs (e.g., different raw materials) and alternative outputs (e.g., different machines or semifinished products). Although it is true that Soviet emphasis on detailed physical planning restricts the range of input and output choices based on prices, the influence of prices on these two types of choice, especially at the enterprise level, is still significant. Furthermore, dissatisfaction

with prices as guides for choice in turn constitutes a strong reason for the continued reliance on physical planning.

2. Because producer goods as a group are underpriced relative to consumer goods, in the calculation of production expenses both materials and machinery are undervalued relative to labor — whose wage rates are related to the price level of consumer goods, which includes turnover taxes. This leads to the unjustified substitution of materials and machinery for labor.6

3. Specifically in this connection, the defects in the level and structure of producer goods prices distort calculations of the “effectiveness” of new investment and the introduction of new technology which use formulas comparing the saving in annual operating expenses (sebestoimost’) with the cost of new investment.7

4. For similar reasons, the shortcomings of present producer goods prices distort the comparisons of internal and external prices on imports and exports which are made to calculate the “profitability” of foreign trade operations. Thus, they make it difficult to reach sensible decisions regarding international specialization in the Communist Bloc.8

Control and Evaluation of Enterprise Performance

Prices are used by the central planners to secure compliance by enterprise managers with the plans elaborated by the former and to evaluate the performance of managers in the execution of their assigned tasks. Industrial wholesale prices are used (along with other prices, such as wage rates, transportation rates, and, in the case of retail trade enterprises, state retail prices) in measuring the degree of fulfillment of various plan targets. Similarly, they are used in comparing the performance of the enterprise, in regard to output, cost, and profit, with the performance of other enterprises and with its own performance in earlier accounting periods. The defects of industrial wholesale prices thus impede central control and evaluation of enterprise operations. For example, they


cause differences in the level or rate of profits (or losses) which are unrelated to the performance of enterprises or their contribution to the economy.  

Measurement of Macroeconomic Relationships

Soviet economists agree that under the present system of industrial wholesale prices part of the value created in producer goods branches of industry is "realized" in the prices of consumer goods. Therefore, they point out, the calculation of various macroeconomic relationships using these prices does not give an accurate picture of the structure and development of the economy. Thus, because of the concentration of surplus product (i.e., turnover taxes) in consumer goods prices, the share of heavy industry is understated in the distribution of national income by sector of origin, while the share of accumulation (i.e., investment) is understated relative to consumption in the distribution of the national product.  

III. Reform Proposals

On the issue of what reforms are needed in the industrial price system, Soviet economists are divided into three main groups or schools.

1. A "traditionalist" school upholds the essentials of the present scheme of industrial price formation but suggests various relatively modest adjustments in order to improve the structure of producer goods prices without altering their level significantly. It believes that the use of prices as instruments of economic control requires many deviations of price from "value," in order to promote the efficient operation of enterprises, recognize supply and demand factors in certain cases, etc.

2. Another group of economists favors pricing on the basis of "value" by adding a uniform, proportional surplus product (m) markup to sebestoimost' (c + v) to derive a price equal to value (i.e., to the sum of c + v + m). In some instances, as exceptions, prices could deviate from value so determined. However, the economists who agree on the need for a uniform surplus product markup differ among themselves about how this markup should be calcu-

lated, i.e., about the base to which it should be applied. One group advocates using labor cost as the base; another, sebestoimost'; and a third, capital. Any of these solutions would alter both the level and the structure of producer goods prices.

3. A third school also favors basing prices on "value," but its concept of value rests essentially on an opportunity cost approach, under which values and prices would be derived from the formulation of an optimum plan by input-output analysis and mathematical programming. Its notion of value is therefore much different from that of the first and second schools. Adoption of its proposals would involve great changes not only in present producer goods prices but also in the planning process itself.

The following discussion analyzes the views of each school and their criticisms of each other. In appraising these opposing views on price reform, it is important to keep in mind that all of the participants in the Soviet price reform discussion assume the continuation of the main features of the present Soviet economic system, including public ownership of the means of production, planners' rather than consumers' sovereignty, and political control by the Communist Party. Also, they all swear fealty to Marxian political economy and firmly deny opponents' charges of lapses into "bourgeois" political economy.

The Traditionalist School

The traditionalist position is supported by a more conservative group of Soviet economists, including price planners, university and research economists, and ideological spokesmen. Its most prominent figures are Professor Sh. Ya. Turetskii, of the Moscow Institute of National Economy Named for Plekhanov; L. Maizenberg, Deputy Chief of the Price Bureau of Gosplan (the State Planning Committee); Academician K. V. Ostrovitianov; V. Dyachenko, Chief of the Price Sector of the Institute of Economics of the USSR Academy of Sciences; and L. Gatovskii, chief editor of Voprosy ekonomiki (Problems of Economics), journal of the Institute of Economics. The views of this school may be summarized as follows:

Price is the monetary manifestation of value, which is deter-

mined by “socially necessary expenditures of labor,” which in turn are defined as expenditures of labor “in socially normal conditions of production and average, for the given time, skill and intensity of labor, however, only within the limits of social requirements for that type of output.” The factors determining the magnitude of socially necessary labor expenditures include the extent to which labor is equipped with machinery, the organization of production and work, the qualifications and skills of workers, social requirements for output (as determined by the plan), etc.³

However, while “bringing prices closer to value is a natural tendency in the perfection of the price system under socialism,” “it does not at all mean that the price of each commodity should equal its value.”⁴ The reason is that prices have other functions in the Soviet planned economy in addition to reflecting socially necessary expenditures of labor, and in order to perform these functions prices must deviate from value. These other functions include the following:

1. Prices should include a modest profit to promote the efficient operation of enterprises. It is asserted that both unduly high profits and unduly low profits (or losses) fail to spur managers to reduce costs—the former by creating an “easy life” for enterprise managers and the latter by diminishing their prospects for bonuses.⁵

2. Relative prices for substitutes must consider their “use value”; “... the consumer must get a unit of use value approximately at a single price, despite a different level of production outlays.”⁶ Thus, fuel buyers should pay the same price for a ton of conventional fuel of the same calorific value, whether they buy coal or petroleum, even if this requires low profits in coal-mining and high profits (or turnover taxes) in the petroleum industry.

3. The introduction of new technology and “more progressive” methods of production should be promoted by fixing relatively low prices on machinery (and therefore also on the materials used in it), relative to labor.

---

⁶ Maizenberg, op. cit., p. 46.
4. "For those goods which are in short supply but which are of great importance for the national economy (for example, strategic raw materials), it is economically justified to establish higher prices which would simultaneously stimulate production of goods and restrict their consumption."  

5. For reasons of social policy, some goods may be sold at high (industry wholesale and retail) prices to discourage consumption, e.g., vodka, or at low prices to promote consumption, e.g., books.

The traditionalists believe that the present scheme of industrial prices can perform these functions satisfactorily and that there is therefore no need for basic changes in the principles of price formation. They see no justification for a large increase in the over-all level of producer goods prices to incorporate more "surplus product" in them. Instead, they stress selective adjustments in the structure of producer goods prices intended to make them perform more effectively the specific tasks assigned to them. For example, they recommend various specific price adjustments to eliminate losses and excessive profits, establish the "correct" price relationships between substitutes, encourage the introduction of new models of machinery, etc.

The traditionalists attack the advocates of the proportional distribution of surplus product, by the addition of a markup to sebestoimost', on the ground that the latter take a "one-sided" view, regarding price solely or primarily as a measure of value and ignoring or neglecting the other functions of price. In order to perform these, the traditionalists insist, prices cannot be set in a "mechanical" way by a "simple arithmetical formula." Specifically, such formulas reflect a failure to appreciate the role of the turnover tax as a means of (1) regulating retail prices to adjust demand to supply and (2) collecting, for use by the state, part of the surplus value created in agriculture but realized in retail prices rather than in agricultural procurement prices. These functions of the turnover tax, say the traditionalists, preclude distributing it in equal proportion in the wholesale prices of producer and consumer goods alike. 

Adoption of the proportional surplus product markup would, in their opinion, lead to an unjustified doubling in the price level of producer goods, which would remove some of the pressure to reduce costs and which would conflict with the historical policy of cost and price reductions. It would also remove the stimulus to

7. Ibid.
mechanization provided by the relatively low level of machinery prices compared with wages. Such a general increase in producer goods prices would, moreover, have repercussions on other sectors of the price system. By increasing costs, it would cause losses in some branches of light industry, unless their prices were raised correspondingly, which would in turn increase retail prices. Also, higher prices for agricultural machinery and production inputs like fertilizer would necessitate an increase in agricultural procurement prices, and subsequently in retail prices. Higher retail prices, in turn, would require an increase in wage rates.

Finally, the traditionalists criticize the proposals for a proportional surplus product markup on the ground that such proposals attempt to apply to socialism the capitalist "law of average rate of profit." Because capitalist competition does not prevail in the Soviet economy, there is no need to equalize profit rates among industries, they declare.

The traditionalists also attack the opportunity cost theorists, for their acceptance of scarcity and marginalism — "... the view of scarcity as a constant phenomenon inherent in the socialist economy with the attendant universal existence of rent and rent relations under socialism and an orientation on a high level of prices corresponding to costs under the worst conditions of production." The model-building of the opportunity cost theorists is described as "the replacement of a study of objectively existing laws governing price formation by the construction of abstract schemes and 'models' and attempts to 'fit' practice to these speculative structures."

To summarize the position of the traditionalist school: It offers not so much a theory of value and price as a set of rules for price-setting practice. It believes that these rules have worked well, on the whole, in the past, as shown by the rapid development of the Soviet economy and particularly its heavy industry. The traditionalists do not recognize scarcity and demand as factors in value — which would contradict Marxian value theory. They do not advocate scarcity or "efficiency" prices which would equate demand and supply for producer goods. "Use value" and scarcity are recognized only as reasons for selected deviations of price from value. Under their approach to pricing, producer goods prices

9. Ibid., pp. 79-80.
1. Ibid., and Maizenberg, op. cit., pp. 43-44.
would continue to serve primarily as a tool to implement decisions taken by physical planning, rather than as a guide to resource allocation decisions.

The Surplus Product Markup Schools

Proponents of surplus product markup formulas as a basis for pricing criticize the traditionalists as lacking a single, general theoretical principle for setting industrial wholesale prices. They describe the traditionalists' position as "empirical," "arbitrary," "voluntarist," and "subjectivist," because it lacks such a single "objective criterion" for setting prices. These critics believe that such an objective basis for price formation exists in the proportional distribution of surplus product according to a formula to be applied to both producer and consumer goods.

They propose to apply their formulas so as to raise the level of wholesale prices of producer goods without altering the general level of wholesale prices of consumer goods. This is to be accomplished by a partial shift of surplus product (profits and turnover taxes) from consumer goods prices to producer goods prices in order to raise the latter relative to the former. The increase in the cost (sebestoimost') of consumer goods which would result from higher prices for producer goods inputs would just offset the reduction in profits and turnover taxes on consumer goods, leaving the level of wholesale prices of consumer goods unchanged, according to their proposals.

The proponents of a proportional surplus product markup agree, however, that some deviations of prices from "value" may be justified, e.g., in the case of some substitutes. But they argue that such deviations should be exceptions to a general rule that producer goods be priced at their values. In this way, they endeavor to uphold general adherence to the "law of value" at the same time that they endorse "conscious utilization" of it, by an "active" price policy, in selected cases.


However, the proponents of a proportional surplus product markup do not accept all of the deviations of price from value advocated by the traditionalists. For example, they challenge the traditionalists' contention that low prices on producer goods promote technological progress. Instead, they say, the result of pricing producer goods below their value is to furnish an "artificial stimulus" to the substitution of machinery and materials for labor, which hinders rather than promotes true technological progress. In addition, the proponents of a surplus product markup see no conflict between higher prices for producer goods and the avoidance of "excessive" profits which might reduce pressure on enterprise managers to reduce costs. This problem, they believe, could easily be handled by levying turnover taxes on producer goods in order to absorb an appropriate part of the surplus product to be included in producer goods prices under their proposals. They cite the use of turnover taxes in this way in the petroleum industry at present.

Although the advocates of a proportional surplus product markup as the means of basing prices on value generally agree in their criticisms of the traditionalist position, they differ among themselves on the manner in which surplus product should be distributed in the prices of goods. One view favors using labor cost as the base to which the markup would be applied; another, sebestoimost'; and a third, capital.

1. Labor Cost as Basis for Surplus Product Markup. The most orthodox position advocates relating the surplus product markup to labor cost, i.e., the wage bill, in order to obtain prices that are truly based on "labor value" (trudovaia stoimost'). Its chief proponents are Academician S. G. Strumilin, the dean of Soviet economists, and Ya. A. Kronrod, Chief of the Sector of Political Economy of the Institute of Economics of the USSR Academy of Sciences.

They propose a uniform surplus product markup related to the wage bill, according to the following formula:

\[ p = c + v + \frac{M}{V} = c + v \left(1 + \frac{M}{V}\right) \]  

(1)

where \( p \) represents the price of a commodity, \( c \) the branch average materials cost (including also depreciation charges) per unit of the commodity, \( v \) the branch average wage cost per unit of the com-

8. Kronrod, Problemy . . . , pp. 139-41.
9. Their views are presented most fully in S. G. Strumilin, Problemy sotsializma i kommunizma v SSSR (Problems of Socialism and Communism in the USSR) (Moscow: Ekonomizdat, 1961), Chaps. III, IV, and Kronrod, Problemy . . . , pp. 89-162.
modity, \( M \) the total surplus value to be distributed among goods, and \( V \) the total wage bill for workers engaged in "material production." The prices of the material inputs (and capital equipment to be depreciated) in \( c \) would themselves be calculated in the same way.

Their justification for this basis for pricing is that "all new value, constituting the national income . . . is created only by live labor and is therefore proportional to the expenditure of such labor. . .". They reject alternative surplus product markup formulas, which relate surplus product to \textit{sebestoimost}' or to capital, on the ground that such formulas attribute the creation of value to "past" labor embodied in materials and equipment, whereas Marxian value theory holds that only present, live labor creates new value.

Their proposal that labor cost be used as the basis of the surplus product markup has (rightly) been attacked by many Soviet economists on the ground that it would make labor-intensive goods higher priced relative to more capital-intensive goods, with a number of deleterious consequences. For example, pricing according to this formula would make it appear that branches of the economy using more labor-intensive methods were more "profitable" to the economy, with the strange result that the "profitability" of a branch to the economy would decline as it adopted "more progressive" methods of production (i.e., mechanized, substituting capital for labor). Within a given branch, those enterprises with more capital and less labor than the average enterprise would have lower costs and higher profits; while employing less labor they would, paradoxically, create more surplus product in the form of profits. Finally, enterprises would find it more profitable to produce more labor-intensive (and therefore higher-priced) goods but more profitable to use more capital-intensive (and therefore lower-priced) inputs.

2. \textit{Sebestoimost}' as Basis for Surplus Product Markup. An alternative surplus product markup formula, proposed by D. D.


Kondrashev of the Institute of Economics of the USSR Academy of Sciences, relates the markup to total sebestoimost' \((c + v)\) rather than to labor cost \((v)\) alone.\(^3\) With \(p\), \(c\), \(v\), \(M\), and \(V\) defined as before and \(C\) representing the total materials cost (including also depreciation) of aggregate “material production,” his formula is as follows:

\[
p = c + v + (c + v) \frac{M}{C + V} = (c + v) \left(1 + \frac{M}{C + V}\right). \tag{2}
\]

This formula resembles present price-setting practice in relating the surplus product markup to sebestoimost', but it differs from it in calling for the uniform application of the same percentage markup to all producer and consumer goods.

Kondrashev considers his formula superior to those that propose labor cost or capital as the base for the surplus product markup because, he says, value is not created, as these formulas assert, uniformly in proportion either to the amount of current labor or to the amount of fixed and working capital used to produce a good. Although, he says, surplus product is created only by live labor, it is nevertheless true that live labor equipped with a greater quantity of past (embodied) labor produces more net income than hand labor or poorly equipped labor. His formula recognizes this truth better than the others, he believes.

Kondrashev's formula has not won the support of other Soviet economists. The traditionalists consider a uniform rate of profit or surplus product unnecessary and undesirable, as noted above. Adherents of labor cost as a basis for the surplus product markup condemn Kondrashev for relating the markup, and thus value, to past as well as present labor.\(^4\) Supporters of capital as a basis for the markup criticize him for failing to recognize adequately the “time factor” in production, represented by the fixed and working capital tied up in the enterprise.\(^5\)

3. **Capital as Basis for Surplus Product Markup.** The leading advocates of this view, which amounts to proposing a capital charge, include I. S. Malyshev, Deputy Chief of the Central Statistical Administration; V. A. Sobol', Chief Editor of its journal, Vestnik statistiki (Herald of Statistics); L. A. Vaag of the State Planning


\(^4\) Kronrod, Problemy . . . , pp. 130–31.

\(^5\) Malyshev, Obshchestvennyi uchet . . . , pp. 164–78.
Committee; and Professor Z. V. Atlas of Moscow University. With \( p, c, v, \) and \( M \) defined as before and \( k \) representing the average amount of fixed and working capital per unit of the commodity and \( K \) the total fixed and working capital used in "material production," their formula for pricing is as follows:

\[
p = c + v + k \frac{M}{K}.
\]  (3)

The members of this school justify the proportional distribution of surplus product through a capital charge by pointing out that, along with live labor, "... such important factors of production as fixed and circulating assets ..." contribute to production. Thus, the magnitude of surplus product depends not only on the quantity of live labor used in production but also on its productivity, which in turn depends on the capital with which it is equipped. Capital, moreover, has an opportunity cost: the provision of capital to one enterprise enables it to reduce its production costs or to expand its output, but the state is forced to deny this capital to other enterprises which could use it for the same purposes. Capital investment should therefore, they hold, be reflected in prices, in order to promote the economization of capital in choices between more and less capital-intensive goods and methods of production. Likewise, enterprises should pay capital charges to the state, the owner of the means of production, because such charges would lead them to request less fixed and working capital and to use more effectively the capital they have.

Two other important advantages are claimed for prices constructed according to this formula. First, it is asserted that they would make it possible to use profitability (calculated as profits in relation to capital) as the chief measure, or "indicator," of enterprise performance and the chief basis of managerial bonuses, as proposed by Liberman and others.


7. Malyshev, Obshchestvennyi uchet ... , p. 226.

8. Ibid., p. 293.


Second, it is asserted that the “average norm of profitability” represented by the ratio $M/K$ could, and should, serve as the criterion or “standard rate of effectiveness” in the evaluation of investment projects. In fact, the use of investment effectiveness formulas is claimed to imply acceptance of this pricing formula, since both add a capital charge to sebestoimost’. For example, in the comparison of two “variants” of an investment project to produce the same (or equivalent) output, let $c_1$ and $c_2$ represent the operating costs (i.e., sebestoimost’) of the two variants, $k_1$ and $k_2$ their respective capital investments, and $r_n$ the standard or criterion rate of effectiveness of investment. Then if $c_1 + r_n k_1 < c_2 + r_n k_2$, the first variant should be selected in preference to the second. Thus, say the members of this school, investment variants are being compared by the equivalent of prices constructed according to formula (3). It logically follows, they hold, that the magnitude of the ratio $M/K$ should be used for $r_n$ and that the prices in $c$ and $k$ should be constructed according to formula (3).

However, while prices constructed according to this formula should be used in this way to choose among variants of the same effect (e.g., in deciding among investments to expand the production of substitute fuels), this school declares that such prices and investment effectiveness formulas cannot be the basis for allocating investment among branches of the economy (e.g., machine tools or textiles). Such decisions are taken by “society” in the light of its “needs” — i.e., are determined by the political leaders and the planners. Although all branches of the economy would have the same rate of profitability under this pricing scheme, this would not mean that they should be expanded at the same rate. Profits earned in one branch would be transferred through the budget to another branch, in order to allocate investment according to the plan.

How do the members of this school reconcile their advocacy of a capital charge with the Marxian labor theory of value? With frequent citations to Marx, they reiterate that of course only labor really creates value, albeit labor is more productive with more capital. They point out the analogy between their formula and the “prices of production” in Volume III of Marx’s Capital. While in “simple” capitalist production, goods exchange according to their labor values, in the advanced stage of capitalist development, they

6. Ibid., p. 284.
exchange at “prices of production,” which appear as a result of competition between capitalists. At this stage, surplus value tends to be distributed, according to the “law of the average rate of profit,” among capitalists in proportion to their fixed and working capital. Thus, both the members of this school and their critics refer to prices constructed according to formula (3) as “prices of production.” However, the advocates of this formula stress the difference between their “prices of production,” fixed in a planned way under socialist conditions of production, and capitalist “prices of production,” determined by the market and capitalist production relationships. Though apparently similar in form, the former are held to be quite different from the latter in content.7

The critics of this school have not found this distinction convincing, however. They accuse this school of attempting to apply to socialism a pricing principle of capitalism which Marx never intended should pertain to socialism—a principle according to which profits guide the distribution of resources and the “law of value” regulates production.8 These critics also charge that the “prices of production” formula contradicts the labor theory of value, in that it asserts that past labor creates value, i.e., that capital is a “factor of production.”9 Moreover, this pricing formula attributes all new value to past labor, by relating profits exclusively to capital: while it is true that with more capital the enterprise can, other things equal, produce more, its output and profits are not solely attributable to its capital.1

Another set of objections has been raised in regard to the advantages claimed for “prices of production” in calculations of investment effectiveness. If the distribution of investment among branches of the economy is to be made by the planners on the basis of the “needs of society” rather than on the basis of calculations of investment “effectiveness” — as this school affirms — then in order to apply investment effectiveness formulas within a given branch a different standard rate of effectiveness would be required for each branch. A single economy-wide relationship, such as the “price of production” school’s M/K, could not be used for this pur-

---

7. Ibid., pp. 72–74, 229–31; Sobol’, op. cit., p. 64; and Atlas, op. cit.
pose. Moreover, what is required is a *minimum* (i.e., marginal) rate of effectiveness, not some average relationship, such as the "average norm of profitability" $M/K$. Finally, it does not follow that the differentiated standard rate of effectiveness employed in each branch in investment calculations need also be included in the prices of that branch as a capital charge, as the "price of production" school advocates.\(^2\)

The introduction of capital charges through the "prices of production" formula is also opposed by those economists who advocate low prices on machinery and capital-intensive materials as a means of promoting mechanization and the use of technologically advanced "new" materials in place of traditional materials (e.g., plastics instead of timber).\(^3\)

The following conclusions emerge from this discussion of the several surplus product markup proposals for price formation: These formulas are all cost-oriented, neglecting demand as a basic element in value and price. They do not recognize a connection between value and allocation. The formulas purport to fix price according to value, but they do not yield equilibrium or efficiency prices. The allocation of resources still would be accomplished by directives in physical terms, supplemented by selected divergences of price from the "value" result yielded by the particular formula. However, the widespread use of such an "active" price policy, involving numerous "deviations" of price from value for different reasons and to different degrees, would mean the abandonment of the formula as a guide to pricing.

In the case of producer goods, none of these formulas would provide equilibrium prices which could replace the present supply system as a means of allocation. In the case of consumer goods, none of them could be counted upon to yield wholesale and retail prices capable of equating household demand with planned supply for a vast number of individual commodities — a task now assigned to differentiated turnover taxes.

Of the three surplus product markup formulas, the "prices of production" variant offers the greatest advance over the present

\(^2\) These objections have been expressed most cogently in T. Khachaturov, "Tsenoobrazovanie, effektivnost' kapital'nykh vlozhennii i rentabel'nost'" ("Price Formation, Effectiveness of Capital Investments and Profitability"), *Voprosy ekonomiki*, No. 1 (Jan.), 1961, pp. 72–81; trans. *Problems of Economics*, IV (July 1961), 18–25.

price system, by imposing a charge for scarce capital. A capital charge could, indeed, be accommodated in the present pricing scheme as an element in sebestoimost’, to which a variable profit markup could be added, rather than itself constituting a uniform profit markup. Even if this capital charge did not truly measure the marginal efficiency of capital for the economy as a whole, but were only a notional figure of say 10 or 15 per cent, it would still help to economize capital. However, this would imply the productivity of capital as a separate factor of production and conflict with the Marxian labor theory of value.

The Opportunity Cost School

The most prominent members of this school are Professor V. V. Novozhilov of the Leningrad Economic-Engineering Institute and L. V. Kantorovich, formerly a professor at Leningrad University and now Director of the Laboratory for Economic-Mathematical Methods of the Siberian Department of the USSR Academy of Sciences. Novozhilov is a mathematical economist, while Kantorovich is a mathematician by profession and one of the discoverers of linear programming. A less outspoken member of this school is Academician V. S. Nemchinov, currently Director of the Laboratory for Economic-Mathematical Methods of the USSR Academy of Sciences.

They advocate, explicitly or implicitly, efficiency prices which would reflect relative scarcities and include capital and rent charges. These prices would, ideally, be the shadow prices obtained from the formulation of an “optimum” plan by input-output and linear programming methods. Such an optimum plan would achieve as fully and as efficiently as possible a final output program specified by the political leadership. The members of this school recognize that such a plan, and its shadow prices, cannot be formulated at present, because of the absence of the necessary detailed information on many millions of economic relationships and the lack of the necessary data processing and computing facilities to handle this information if it did exist. However, they believe that it is possible at present to improve the existing price system by incorporating, if only imperfectly, some of the features of the ideal prices of the optimum plan.

1. Novozhilov’s “national economic costs.” Novozhilov sets

4. The core of Novozhilov’s ideas on value and price was first presented in “Metody soizmerenia narodnokhoziaistvennoi effektivnosti planovykh i proektnykh variantov” (“Methods of Comparing the Economic Effectiveness of Plan and Project Variants”), Leningradskii industrial’nyi institut, Trudy,
as his task the allocation of the available means of production, including a specified amount of investment during the period, so as to produce a given final output program, determined by the political authorities, with a minimum total labor input (or cost). Since the specified output of each final product can in fact be produced in more than one way, i.e., by different methods or "variants," the task is to select the variant for each product so that the entire final output program will be attained with the least use of labor.

However, the total labor cost — called "differential cost" (differentsial'naia zatrata) — of a good includes not only direct (live) labor cost but also "inversely related costs" (zatraty obratnoi sviazi), hereafter abbreviated as i.r.c.'s. Because nonlabor inputs are allocated to a given production process, labor inputs are reduced there, but at the same time labor inputs are greater in other processes to which these scarce nonlabor inputs must be denied. The additional labor inputs in the latter processes are the i.r.c.'s of using the scarce nonlabor inputs in the given process. I.r.c.'s may therefore be regarded as opportunity costs of using scarce nonlabor inputs, expressed, however, not in terms of output foregone but rather in terms of additional labor costs incurred elsewhere. In effect, i.r.c.'s measure the technical rate of substitution between nonlabor inputs and labor input in producing a given output. For each nonlabor input, the i.r.c.'s corresponding to all its possible uses can be ranked in descending order until the limited supply of that input is exhausted. The i.r.c. of each nonlabor input in its "least effective" (i.e., marginal) use is its "norm of effectiveness," which constitutes the appropriate charge for its use. Thus does Novozhilov derive his capital charges, scarcity rents for natural resources, and equi-

librium prices for intermediate goods. By choosing among production processes so as to minimize total costs, including these charges, in all partial decisions, the economy can achieve the goal of producing the specified final output program with a minimum total labor cost.

Such measurement of total costs in units of labor-time cannot, however, be achieved until full communism, Novozhilov says. In the present socialist stage of Soviet economic development, total costs must be measured in value terms with prices. In a socialist economy, total labor cost (differential cost) may be called "national economic cost" (narodnokhoziaistvennaia sebestoimost') — hereafter abbreviated as n.e.c. — and calculated as follows: For a unit of the i-th product, let $s_i$ represent the n.e.c.; $c_i$ the direct labor cost (wage bill); $k_i$ the capital used; $r_k$ the "norm of effectiveness" of (charge for) capital; $q_h$ the quantity of inputs of $h$ materials, use of $h$ structures and equipment, or use of $h$ natural resources; and $r_h$ the "norm of effectiveness" of scarce means of production $h$. For materials, the "norms of effectiveness" $r_h$ are their n.e.c.'s; for scarce structures and equipment, $r_h$ is a rental payment which includes depreciation; and for natural resources, $r_h$ is a differential rent.) Then,

$$s_i = c_i + k_i r_k + \sum_{h=1}^{m} q_h r_h \quad (h = 1, 2, \ldots m). \quad (4)$$

Thus, the n.e.c. includes direct labor cost, a charge for capital used, materials at their n.e.c.'s; and scarcity rents of buildings and equipment, and natural resources. Prices of producer goods should correspond to their planned n.e.c.'s so calculated. Prices of consumer goods, however, would vary from their n.e.c.'s both in the aggregate and individually. The sum of consumer goods prices would exceed the sum of their n.e.c.'s by an amount determined by the share of national product devoted to nonconsumption purposes, while prices of individual consumer goods would differ from their n.e.c.'s in order to balance supply and demand. The turnover tax would, as at present, be used for these purposes.

Novozhilov recognizes that the full application of his ideas is not possible at the present time. Calculation of the "norms of effectiveness" of the means of production is a "very complex task," and, he concedes, he has explained only the "laws of measurement of costs" in a socialist economy, but not the techniques of calculating

them. These techniques have yet to be worked out, although Kantorovich's linear programming provides the general method. Other obstacles are the need to collect much new data and the "colossal computational task." However, Novozhilov believes it is important that Soviet economics strive to overcome these obstacles, in order to obtain the great benefits in the planning and administration of the economy that would result from the adoption of his ideas.

He asserts that his scheme of pricing would make it possible to have both a high degree of centralized control and a high degree of local initiative. The central authorities, with knowledge of the final output program desired and the resources available in the entire economy, would establish the "norms" or scarcity prices for resources as part of the construction of the optimum plan. Once these were fixed, however, the lower echelons of economic administration, including individual enterprises, could be given wide initiative, since the many individual decisions they would make to minimize costs using these prices would correspond to the desires of the planners regarding resource use. The planners could control resource use by prices rather than physical allocations because their equilibrium prices would balance the supply and demand for producer goods. Thus, these prices would serve not only as the basis for the compilation of the over-all central plan but also as the means of operational direction of its fulfillment by enterprises. His "norm of effectiveness of investment," \( r_e \), would provide the needed criterion rate of return for investment choice decisions. Finally, because these prices would reflect both the value of their output and all of the factors affecting their costs (including the use of scarce materials and equipment, natural resources, etc.), the performance of enterprises and their contribution to the economy could be compared accurately.

Novozhilov steadfastly denies any conflict between his ideas and the Marxian labor theory of value. He asserts that his n.e.c. measures only labor cost, and that capital and land are considered only as they affect labor cost and only in order to minimize the total expenditure of labor. Thus, he says, his model is quite different from the general equilibrium models of Walras and other bourgeois

7. Ibid., p. 177. Novozhilov refers to the work of his Leningrad colleague Kantorovich in his 1946 article (see Novozhilov, IEP, p. 87n).
economists, because he does not treat capital and land as factors of production "on a par" with labor (which he says Kantorovich does) and because he does not impute the prices of intermediate goods from the values or utilities of final goods. Novozhilov likewise denies that prices corresponding to his n.e.c. are the same as capitalist prices. Despite an apparent similarity in form (i.e., the inclusion of charges for scarce nonlabor inputs), their social content is quite different, he asserts. It is true that each capitalist tries to minimize expenses and maximize profits, and through competition the equivalent of Novozhilov's "norms of effectiveness" are established. However, in capitalism the results of this process, in the form of profits from cost savings, go to the capitalists, not to society as a whole. Moreover, in capitalism, this process operates through the market, which tests the correctness of decisions already taken; in Novozhilov's socialist model, the correctness of "norms of effectiveness" is tested on computers in terms of plan variants and corrections are made without actual losses to the economy.

2. Kantorovich's "objectively determined valuations." Like Novozhilov, Kantorovich proposes to formulate an optimum plan to produce a final output program specified by the political authorities, using the available resources and methods of production. His optimum plan variant is the one which produces the maximum possible amount of the specified assortment with the available resources. The optimum variant would be found by the application of linear programming techniques developed by Kantorovich.

1. Novozhilov, "Ischislenie . . . .", pp. 88-93.
2. Novozhilov, "Izmerenie . . . .", pp. 177-83.

The shadow prices of this optimum plan would then measure opportunity costs, in terms of goods foregone, i.e., equilibrium marginal rates of transformation between goods. In his 1939 work, these shadow prices were called "resolving multipliers" or "solution factors" (razreshaiushcie mnoshiteli), while in his 1959 book they are called "objectively determined valuations" (obektivno obuslovennye otsenki), hereafter abbreviated as o.d.v.'s. Kantorovich justifies the latter designation for his shadow prices by stressing the "concrete" and "real" nature of these "indicators": they arise from the concrete conditions of the plan (the specified assortment, available resources, existing production techniques, etc.) and reflect the real production possibilities of the economy (i.e., the actual marginal rates of transformation). In contrast, present producer goods prices are criticized as "a priori" or "external" for failing to reflect the scarcity conditions determined by the plan.

Like Novozhilov, Kantorovich recognizes the scarcity of non-labor factors, through o.d.v.'s for capital, machinery, and scarce natural resources. However, he differs from Novozhilov in recognizing labor as also being a scarce factor, each "category" of which should have its own o.d.v. Also in contrast to Novozhilov, Kantorovich does not try to prove his adherence to the labor theory of value by using labor input as his numéraire and expressing opportunity costs in terms of incremental labor input.

Kantorovich considers the most important use of o.d.v.'s to be as shadow prices in central planning. However, he believes it would also be desirable to use them as operational prices at the enterprise level, as a means of implementing the plan. Thus, enterprises should pay the equivalent of o.d.v.'s for scarce resources used, i.e., charges for capital, rental charges for scarce machinery and natural resources, and "supplementary payments" for scarce labor representing the excess of o.d.v.'s over the wages actually paid to workers. These charges would not only lead enterprises to economize scarce resources. They would also bring price and value relationships in the economy into correspondence with the physical aspects of the plan. Moreover, such prices would make it possible to use profitability as the main indicator of enterprise performance.

Kantorovich recognizes that it is not at present possible to formulate an optimum plan, and the corresponding o.d.v.'s, along the lines indicated, because of the lack of data and computing facili-

6. Ibid., p. 36.
7. Ibid., pp. 92, 153-56.
ties, but he argues that some use of o.d.v.'s can be made, with the promise of great beneficial effects. For example, he proposes working out a "preliminary system of valuations for the major types of output, corresponding to full social expenses (or correction coefficients for the existing prices for various groups of output)." The latter would be "coefficients of scarcity" (koeffitsienty defisnosti) to be applied to existing prices for materials, equipment, and labor. This system of valuations would be used, initially at least, only as shadow prices in planning and project design calculations, but not as actual interenterprise transfer prices.

Adjustment of present prices to reflect o.d.v.'s would increase the relative prices of goods in the production of which relatively more scarce resources are used, such as metals, petroleum, and cement. It would also raise the general level of producer goods prices and narrow the present gap between the producer and consumer goods price levels, but Kantorovich stresses that his aim is the correct relative price structure for producer goods, not a "blanket" increase in producer goods prices. Moreover, wholesale and retail prices of consumer goods need not be based on o.d.v.'s, which he offers only as a basis for prices and allocation within the state sector. He asserts that retail prices and agricultural procurement prices differ in nature from producer goods prices and must be fixed according to different principles, with which he says he does not concern himself.

Like Novozhilov, Kantorovich affirms that his ideas conform to the Marxian labor theory of value and that his prices are different from capitalist prices determined by supply and demand. Kantorovich asserts that his o.d.v.'s are in full agreement with the labor theory of value because they reflect the full input of labor in the optimum plan, by taking account of the "conditions of the application of labor," i.e., the use of factors which economize labor. He concedes that his o.d.v.'s for capital, equipment, and natural resources may recall "certain theories of the vulgar bourgeois schools of political economy about three independent sources of value: land, labor, and capital." But he insists that his o.d.v.'s consider natural resources, capital, and equipment only as they affect labor productivity. "Thus, these cannot in any way be independent sources of value. Only their indirect influence on the productive power of labor is being calculated." Similarly, he says that his

8. Ibid., pp. 159-65.
9. Ibid., pp. 242-45.
1. Ibid., pp. 155-56, 255.
2. Ibid., pp. 128-29.
o.d.v.'s are not derived from "subjective" demand or utility, but from "real, objective" conditions, such as plan targets, available resources, etc. Likewise, he affirms that, although his o.d.v.'s and capitalist prices are both "objectively determined by the conditions of production and production costs," his o.d.v.'s, corresponding to the optimum plan of a socialist society, differ fundamentally in "meaning and origin" from the prices of the anarchic capitalist market under the influence of capitalist corporations.

Given the great similarity in views between Novozhilov and Kantorovich, it is not surprising that they have been attacked on the same grounds, often jointly. Their critics are not persuaded by their repeated protestations of adherence to the Marxian labor theory of value. Instead, their critics (correctly) point out that Novozhilov and Kantorovich recognize land and capital as factors of production, relate value to scarcity, and use the "notorious" bourgeois marginal analysis. These critics declare that they have not been deceived by the efforts of Novozhilov and Kantorovich to disguise their deviations from the Marxian labor theory of value in "mathematical clothing." Like other advocates of capital charges, Novozhilov and Kantorovich have been attacked on the ground that their proposals would retard mechanization and technological progress. Finally, a more sympathetic line of criticism agrees that linear programming methods and shadow prices are very useful in various specific planning problems. But it holds that Kantorovich's o.d.v.'s do not measure value and should not be used as a basis for prices, but rather used only in "economic calculations of a special type, which take into account scarcity of resources."

3. Ibid., p. 99.
7. V. S. Nemchinov, introduction to Kantorovich, Ekonomicheskii
3. Nemchinov's "national economic costs of production." A more cautious member of the opportunity cost school is V. S. Nemchinov, who has attempted to fit some of Novozhilov's ideas into a more traditional framework. Nemchinov proposes that wholesale prices be based on a "transformed form of value" (prevrashchennaya forma stoimosti), in which the surplus product is distributed through "planned rates of profitability" for branches and enterprises. This transformed form of value is represented by "national economic costs of production" (narodno khoziaistvennye izderzhki proizvodstva), hereafter abbreviated as n.e.c.p.'s.

The n.e.c.p. of a good is equal to its branch average cost of production (i.e., sebestoimost') plus a planned profit representing a portion of the surplus product. This "profit" consists of two parts: (1) a capital charge and (2) differential land, forest, mining, and building rents. The former would be calculated by applying to the fixed and working capital of the enterprise a uniform capital charge, called the "single rate of effectiveness of assets" (edinaia norma effektivnosti fondov). This rate would be equal to the ratio of (a) the value of annual net investment in fixed and working capital, plus enterprise expenditures on the training of personnel, in material production, to (b) the total value of fixed and working capital engaged in material production. Differential rent charges would be determined by calculating the optimum variant of the national economic plan, e.g., the variant which produces the specified bill of goods with the minimum expenditure of labor. Enterprises would make payments to the state budget equivalent to their capital and differential rent charges, less some allowance for the enterprise fund (for bonuses and housing and social facilities for workers). 9

Nemchinov believes that with wholesale prices based on n.e.c.p.'s it would be possible to abandon the present system of physical allocation of producer goods and permit enterprises to buy their material inputs at wholesale trade centers in accordance with their needs. However, although wholesale prices should be set on the basis of n.e.c.p.'s, retail prices must still be fixed, with the help

9 Nemchinov is reported subsequently to have refined his concept of n.e.c.p. to include (1) separate charges for fixed assets and working capital, and (2) a surcharge on the wage bill for scarce categories of labor. See Chernysheva, op. cit., p. 147.
of the turnover tax, in the aggregate so as to absorb household incomes and individually so as to equate demand and supply for specific goods.

In all of this, Nemchinov strives to remain within a framework of Marxian value theory, avoiding references to scarcity and even the appearance of marginalism, although his differential rents would in fact accommodate both. He is more forthright about imposing a capital charge. He justifies his capital and rent charges as consistent with the Marxian labor theory of value in much the same terms as Novozhilov and Kantorovich, asserting that in his n.e.c.p.'s, "the value of the surplus product is distributed in accordance with the conditions of the application of labor," i.e., the availability of fixed and working capital and favorable natural conditions.

Although Nemchinov presents his ideas in somewhat less unorthodox terms than Novozhilov and Kantorovich, like them he recognizes the role of scarcity in value and the connection between value (and prices) and optimum allocation. His capital charge differs from theirs, however. It is not intended to measure the marginal efficiency of capital but rather only to yield an amount of surplus product or net income sufficient to finance new investment (including investment in "human capital" in the form of training expenditures!). Despite his concurrence with Novozhilov and Kantorovich on major issues, such as the use of capital charges and scarcity rents, Nemchinov has not been subjected to the same severe criticism made against them. Although this may be due to the more cautious and less detailed statement of his ideas, it seems more likely that his predominant status, and influence and authority, in Soviet economics is responsible.

IV. CONCLUSION

Of the various price reform proposals, those of the opportunity cost school clearly go the furthest toward solving the various problems of economic choice for which the present industrial price system is inadequate, including both investment choice and choices among current inputs and outputs. Only scarcity prices of the type they propose would make it possible to reduce or eliminate detailed physical planning for enterprises and the rationing of producer goods by administrative allocation. They are the kind of prices which would be needed for the decentralized operation of enterprises according to the profit maximization criterion advo-
cated by Liberman and his supporters. At the same time, as the members of the opportunity cost school stress, such prices, and the planning based on input-output analysis and mathematical programming that originates them, are compatible with the specification of a final output program by the political authorities. They are in fact intended to accomplish this program in the "optimum" way.

However, because these prices recognize the contribution of nonlabor factors of production, demand and scarcity, and the need for marginal calculations, they conflict with the Marxian labor theory of value, at least as it is understood by most Soviet economists. The latter separate value and price from allocation. Both the traditionalist and the surplus product markup schools view the determination of value primarily as an accounting problem separate from the allocation problem. They believe that in those instances where prices should be used for allocation purposes, prices will usually have to deviate from value.

In addition to this conflict with Marxian doctrine — which the members of the opportunity cost school of course deny — there are other obstacles to price reform along the lines they propose. An important one is a fear on the part of both Communist Party leaders and planners that a shift from detailed physical planning to more aggregative value planning will mean a loss of control by the central (political and economic) authorities and an undesirable dispersion of power to regional authorities and enterprise managers. In part, this stems from the traditional Marxist criticism of the "anarchic" operation of the decentralized market economy of capitalism. Finally, both the members of the opportunity cost school and their opponents recognize that a lack of economic data and a lack of computing techniques and facilities prevent the adoption of the school's proposals in any comprehensive way at the present time.

For the present, the views of the traditionalist school continue to dominate in the formation of Soviet industrial prices, as evidenced by the 1963 revision of producer goods prices, the first comprehensive revision since 1955. Despite the long and heated debate since 1956, the new prices do not reflect the ideas of either the surplus product markup school or the opportunity cost school. The principal objective of the 1963 price revision (consistently called that, instead of a price "reform") is to adjust prices and costs

In heavy industry to provide a "normal" level of profitability, in relation to sebestoimost', of about 9 per cent. The general level of wholesale prices for heavy industry will remain virtually unchanged, being reduced by only about 3 per cent. The structure of heavy industry prices will be changed markedly, however, by price increases in most extractive branches and price reductions in the secondary branches, such as machine-building and chemicals. The revision thus recognizes and ratifies wage and cost increases in the extractive branches, on the one hand, and productivity gains and cost reductions in the manufacturing branches, on the other, since 1955. In some cases (e.g., coal and petroleum), relative prices of substitutes will be altered to adjust demands on the part of users to the planned supplies. The effects of the producer goods price revision on other sectors of the price system — such as wholesale prices of consumer goods, agricultural procurement prices, and retail prices — are expected to be negligible.2

Despite this setback to the cause of price reform, the price reform debate continues, and it is too early to determine what will be its final impact on the Soviet price and planning system and on Soviet economic doctrine. Research pertinent to price (and planning) reform is being conducted along several different lines. Work is being done by various economists and mathematicians, including Novozhilov and Kantorovich, to construct mathematical models to explore and evaluate the implications of different schemes of price formation.3 Much work is also in progress on the development of information systems to collect and process data for planning and price formation; on the development of mathematical programming methods, especially dynamic programming; and on the development of computing techniques and machines.4 In addition, Soviet economists have begun to discuss the demand side of the problem — i.e., the bill of goods itself — chiefly in regard to the proper composition of consumer goods output but also, though cautiously, even in regard to the distribution of national product between consumption and investment.5

5. E.g., S. Strumilin, "K probleme optimal'nykh proportsii" (On the
The search for greater economic efficiency, of which the price reform discussion and this research are parts, must surely lead Soviet economics toward greater recognition of demand, scarcity, and marginal calculations in planning and pricing. It seems more likely that this recognition will come about through the development of mathematical models to implement planners' preferences than through a movement toward competitive market socialism. New concepts and methods will have to be justified in Marxian terminology — as examples of "creative Marxism" — and their "fundamental" differences from both bourgeois economic theory and capitalist practice will be stressed. For Soviet economics cannot, for political as well as ideological reasons, simply adopt Western theories of value, prices, and allocation. It must either adapt them, carefully reframing them in Marxian terms, or indeed discover them, as Kantorovich reconstructed most of Western production theory in linear programming form rather than in the traditional form of continuous differentiable production functions. Given the obstacles, doctrinal and other, an early or rapid transformation of Soviet value theory and the Soviet price system does not appear likely.


6. This accomplishment of Kantorovich is pointed out by Campbell, op. cit., p. 409.