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USSR Report

CONSUMER GOODS AND DOMESTIC TRADE

(FOUO 5/81)

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CONTENTS

CONSUMER GOODS PRODUCTION AND DISTRIBUTION

FOOD PROGRAM, ORGANIZATIONAL STRUCTURE OF FOOD COMPLEX REVIEWED

Moscow VOPROSY EKONOMIKI in Russian No 7, Jul 81 pp 20-30

[Article* by Vladimir Potapovich Mozhin, corresponding member of VASKhNIL and director of the Central Scientific Research Institute of Economics of RSFSR Gosplan, El'mira Nikolayevna Krylatykh, doctor of economic sciences and professor at Moscow State University imeni M. V. Lomonosov, and Anatoliy Nikitovich Lifanchikov, candidate of economic sciences and department head at the Central Scientific Research Institute of Economics of RSFSR Gosplan: "The Food Program and the Structure of the USSR Food Complex"]

[Text] The Accountability Report of the CPSU Central Committee to the 26th party congress points out that "the party is advancing a broad program for further improvement in the well-being of the people in the 11th Five-Year Plan and the 1980's as a whole." Paramount importance in this is assigned to reliably providing the population with a broad assortment of high-quality food products. The production and consumption of food products has risen steadily in recent five-year plans. In the last five-year plan, however, the growth rate of production of agricultural output slowed down and difficulties arose with supplying animal husbandry products to the population. This was related to unfavorable weather conditions. To achieve a fundamental solution to the problem of uninterrupted supply of food products to the population, it has been recognized as necessary to develop a special food program which should serve as the basis for planning, financing, and managing the unified agroindustrial food complex. The program measures outlined for the current five-year plan are an organic part of the State Plan of Economic and Social Development of the USSR for 1981-1985.

A large volume of technical-economic and socioeconomic substantiation and calculation must be done during development of the food program. Many scientific institutions and planning agencies are working on the food program, so it is essential to develop a methodological foundation for their joint work.

The food program is one of the special-purpose comprehensive national economic programs. The ultimate goal of the special food program is full satisfaction

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* The article is offered as a formulation of the problem.

of public need for all types of food products in conformity with scientifically recommended diets. The immediate objective is to insure a stable food supply to the population in all parts of the country, to create reliable reserves, and to increase the quality of products. When establishing the goals of the food program we should envision lessening dependence on importing food products which can be efficiently produced in the country.

Because the goal is stated as satisfying the need for food products, the question of how to calculate this need arises. There are a number of methodological approaches to estimating this figure, including the normative method which involves determining physiological needs for food substances and working out balanced diets on this basis, as well as the method based on an estimate of solvent demand for food products. In this case demands can be viewed as a function of personal monetary income with different elasticities of demand for particular products depending on the growth rate of income. It seems to us that both approaches must be used to frame the quantitative indicators of the food program.

The norms of a balanced diet should be the basis for establishing the strategic goal and long-term developmental trends in the production of the most important food products. Estimates of solvent demand may be used to work out guidlines for development in medium-range planning and to supplement the dietary norms. The main goal should be broken down into a number of sub-goals and particular tasks in order to obtain quantitative estimates of needs and to determine the structure of the food program.

Various foods are needed to maintain normal metabolism, form the tissues of the organism, and regulate the process of supplying energy to the person. The most important result of scientific research in recent years has been the theory of the balanced diet, from which it follows that optimal functioning of the organism requires not only adequate amounts of energy and protein, but also observance of definite proportions among many ingredients of the diet, each of which has a specific role in metabolism. Despite their great diversity, it is customary in economic calculations to consider five basic food groups, which are the basis of the diet: proteins, including both proteins of agricultural (animal and plant) origin and the proteins in the meat of fish and sea animals; fats, including animal, fish, and vegetable fats; carbohydrates, including simple sugars (fructose, glucose, and others), disaccharides (saccharose, maltose, and lactose), and polysaccharides (starch, cellulose, and others); vitamins; minerals, other substances, and water. In conformity with this the overall goal of meeting public needs for food products can be broken down into a series of detailed sub-goals which includes satisfaction of public needs for the basic foods: proteins, fats, carbohydrates, vitamins, and mineral and other substances.

An orientation to satisfying human needs for food substances greatly expands the possibilities in searching for alternate ways to satisfy a particular need. For example, the animal protein requirement can be met with different variations of consumption of meat, meat products, fish, fish products, and dairy products on the condition that the diet is balanced in terms of essential amino acids.

Problems of maximum receipt of protein or minimum expenditures of public labor can also be solved with different combinations of consumption of the meat of cattle, hogs, sheep, and poultry. Furthermore, it is possible to work out alternatives for using different types of raw materials to produce the same food products. For example, starch can be obtained from potatoes or from grain. Each of these alternatives, while solving the problem of meeting a certain need, has different levels of expenditures and efficiency.

The set of goals involved in providing the population with the most important dietary elements and food products should, in our opinion, be the basis of special first-level sub-programs. We suggest the following basic sub-programs: supplying public needs for proteins, fats, sugar and other carbohydrate-containing foods, fruits, berries, and vegetables and rationalizing the structure of production and consumption of drinks.

The question of the priority of particular sub-programs is difficult. During the last five-year plan the growth in per capita consumption of a number of food products slowed down, and for some it practically stabilized. The dietary level now attained does not fully provide the population with animal protein, vegetables, fruit, and berries. At the same time, the consumption of grain products, sugar, and potatoes, which means food products containing large amounts of carbohydrates, exceeds rational norms. And although the total caloric value of the actual diet provides for the energy needs of the population, its imbalance in terms of basic food substances prevents us from considering it fully satisfactory at the present time.

Carrying out all the sub-programs will demand enormous capital investment and other types of resources, most of which are in limited supply. Therefore, we must identify the programs that are most important and concentrate our efforts on them. In the first stage of working out the food program it seems wise to give preference to two special-purpose sub-programs: to supply the population with meat and dairy goods, and to supply fruit and vegetables.

We must also take up the question of the consumption of alcoholic beverages. Significant resources of agricultural raw material, labor, and the like are taken for the production of alcohol. Despite a number of measures the consumption of alcohol has not dropped in recent years. In the future the structure of consumption of alcoholic beverages must be modified in the direction of a significant increase in the proportion of grape wine, above all champagne and high-quality dry and semidry wine. This will require further development of viticulture, an expansion of lands given to vineyards, a rise in their yield, and an increase in capital investment for the development of viticulture and wine-making. This is not only a major economic problem, but also a social problem. Within the food program this problem should be reflected in a special sub-program to rationalize the consumption of alcoholic beverages.

In addition to the special sub-program the structure of the special-purpose comprehensive food program should also single out what are called "service" sub-programs. The most important of the common sub-programs should be, in our opinion, the following: raising soil fertility and improving the use of land

resources; full mechanization and electrification; development of the nonproduction infrastructure and solving social problems in the countryside; development of scientific research (in the fields of agriculture and the sectors that serve it) and raising its efficiency; developing socialist economic integration and cooperation in the production of food products; and, foreign trade in agricultural raw material and foodstuffs.

Combining special-purpose programs with assignments to supply them with resources makes the food program a special-purpose (tselevoy) and comprehensive program. Within the framework of the food program priority elements should be identified and distribution of resources must be organized in such a way that it is possible to carry out the necessary structural changes in the entire food complex.

The food complex, for which the food program is becoming the basis of development, is a part of the national agroindustrial complex. In terms of gross output the food complex accounts for 74-76 percent of the agroindustrial complex. The food complex should also include production, not related to the agroindustrial complex, which uses the wealth of the world ocean and internal bodies of water for food and fodder needs. According to rough estimates, the total volume of gross output of the food complex was 260-280 billion rubles in 1979, and about 150-170 billion rubles in final output.

Three spheres can be identified within the structures of the food complex that define its functional structure. The first sphere is the production of means of production for all the sectors. It includes tractor and agricultural machine building, machine building for animal husbandry and feed production, the production of equipment for land improvement work, the production of equipment for the food industry, trade, and public catering, the production of specialized motor vehicle transportation, shipbuilding (for the fishing industry), the production of agricultural and other accessories, the production of containers, the sectors of basic chemistry (for production of mineral fertilizer and chemical plant protection means), construction for all spheres of the food complex, the mixed feed and microbiological industry, and the production of special equipment and instruments for the sectors of the food complex. The second sphere is the production of agricultural (crop farming and animal husbandry) output, fishing and fish culture, salt mining, raising pedigreed stock, nursery plantations, raising seed material for pond culture, and various other types of activities. The third sphere comprises the processing of agricultural and other output of plant and animal origin and production of the final output of the complex. The sectors of food (with the exception of the perfume-cosmetics and tobacco sector), meat and dairy, fish processing, and flour-bran industries should be classified with the third sphere.

As the food complex develops there is an increase in the role of infrastructural elements that affect primary production and its efficiency as they gradually become independent sectors. Therefore, it is useful to single out one more structural element in the food complex. This is the production infrastructure of the complex, or the fourth sphere. It includes systems for production-technical support and service to agriculture; material-technical

supply to the industrial sectors of the food complex, procurement of agricultural output and the elevator system; storage of output; transportation and the road system; specialized retail trade; communications and information-computer services; and, applied scientific research and design for all spheres of the food complex.

The product structure of the food complex is a set of vertically integrated sectors, the product subcomplexes. Each vertical link connects technologically and economically interrelated types of activity of the food complex spheres and infrastructural elements that are integrated to achieve the final objective of meeting needs for particular types of food products. Product subcomplexes must be singled out within the structure of the food complex in order to substantiate the economic proportions which are defined by technologically interrelated sectors, subsectors, and types of activity in the process of producing and selling the final output.

Each special sub-program is a tool for managing a set of intersectorial product complexes, particular sectors, and types of activity. The set of sub-programs, subcomplexes, and sectors that insure achievement of the established goals may appear as follows: sub-program to supply protein-rich products to the population, including programs for the development of the meat-dairy and fish subcomplexes; sub-program for development of the subcomplex to produce and process vegetable oils and animal fats; sub-program to supply the population with carbohydrate-containing foods, including sub-programs for the development of the grain product subcomplex, the sugar beet subcomplex, and the potato products subcomplex; sub-program for the development of the fruit-vegetable subcomplex; sub-program to rationalize the production and consumption of beverages, including the program to develop the vineyard-winemaking subcomplex, the beer and nonalcoholic beverage subcomplex, and the tea subcomplex.

But what should be the structure of the product subcomplexes, which in this case are considered to be objects of planning? In the opinion of some economists, it is best to include all the sectors of the first, second, and third spheres and the production infrastructure of the food complex in the product subcomplex. The most highly debated point is the issue of including the sectors that produce means of production for the second and third spheres of the food complex in the product subcomplexes. In our opinion, we should only deal with narrowly specialized sectors that produce means of production for a definite subcomplex. For this reason it seems advisable to include the sectors of the second and third spheres of the food complex in the product subcomplexes, but from the sectors of the first sphere to take only the narrowly specialized subsectors that are especially important for the development of the subcomplexes. For example, mechanization of harvesting and, accordingly, the problem of designing and series production of machines to harvest fruit, vegetables, and berries are important for the fruit-vegetable subcomplex. Another, equally important program is development of the production of containers for storing and transporting fresh produce (glass containers, tin cans, and aluminum containers) as well as polymer films and materials for preserved and quick-frozen products. The emphasis here should be on determining the need for the output of sectors of the first sphere and their requirements with respect to its quality, productivity, and other technical-economic parameters.

The main advantage of switching to comprehensive planning of the development of the sectors that make up the product subcomplexes is that it permits the possibility of balancing the development of the particular sectors belonging to a subcomplex, eliminating disproportions, and on this basis shaping an effective structure and achieving a significant reduction in losses, more rational use of raw materials, and an increase in production efficiency. The comprehensive approach makes it possible to identify "bottlenecks" in the functioning of the entire chain from production (extraction) of the original output to sale of the final output. It helps overcome the narrowly departmental approach to the uniform process of planning and coordinating different sectors involved in the production, processing, and delivery to the customer of the actual products, and this results in optimal distribution of capital investment.

As the meat-dairy subcomplex takes shape and develops still-existing intersectorial disproportions will be eliminated. The most pressing problem now is to balance available feed and the number of stock. A protein imbalance at the 15-17 percent level is the cause of failure to receive animal husbandry output worth 9-11 billion rubles. This shortfall can be eliminated by increasing the production of protein-rich feed crops such as peas, alfalfa, clover, soybean, rape, and the like. The document "Basic Directions of Economic and Social Development of the USSR for 1981-1985 and the Period Until 1990" poses the challenge of raising the average annual production of legume crops to 12-13 million tons (the average crop in the 10th Five-Year Plan was 6.8 million tons).

Another way to overcome the protein shortage in feeds is accelerated development of the microbiological industry. It is common knowledge that protein-vitamin concentrates obtained from liquid paraffin contain 56 percent protein and using one ton of them in animal husbandry produces a gain in output of 700-900 rubles (for an expenditure of 80-90 rubles per ton of liquid paraffin in the microbiological industry). Chemical hydrolysis of wood has even better prospects in this respect. Output in the microbiological industry is to increase 1.8-1.9 times in the 11th Five-Year Plan. The development of a comprehensive program to establish a reliable, balanced feed base in the country, an important part of the overall feed program, must be completed in the near future, as envisioned in the document "Basic Directions."

One of the main areas of imbalance is in production capacities, their technical level, and the amount of meat and dairy raw materials arriving for processing. This is the reason that all the useful components are not extracted from raw material and that the assortment of output is not expanding rapidly. Milk serum, for example, is a valuable raw material that is only 10-12 percent used at present. For technological reasons 8-12 percent of the slaughtered meat remains on the bones turned over for further processing; this is 20,000-25,000 tons of a valuable product. Large losses of raw material occur during intensive periods of large-scale processing because production capacities cannot keep up with the flow of raw materials. Sometimes excessive concentration of industrial production and the establishment of very large enterprises increases the radius of delivery for livestock and milk so much that the inevitably resulting losses nullify the benefit from concentration. Therefore, the question of the rational size of meat-dairy industry capacities should be

decided together with development of plans for specialization and concentration of animal husbandry, provision of special means of transportation, and establishment of a reliable road network. This entire set of questions applicable to particular regions should be reflected in the food program. Balance among all elements of a subcomplex is an important condition for raising the efficiency of meat and milk production.

At the present time significant disproportions have occurred in the process of production because of failure to coordinate the economic interests of the sectors that belong to the fruit-vegetable subcomplex and owing to departmental conflicts. These disproportions cause significant losses of output and an inadequate level of production efficiency. Failure to coordinate interests leads to a situation where many farms try to fulfill the plan with higher-yielding and less labor-intensive crops, which are more advantageous to the producers. Therefore, cabbage, table beets, and carrots, which have limited use in the canning industry, take up some 45 percent of the planted area designated for vegetables in the RSFSR, for example. At the same time, crops which are valuable for processing such as green vetch, pepper, marrow squash, and eggplant make up just five percent of the gross harvest of vegetables (including just 1.3 percent for green vetch) and very small amounts of early cucumbers and tomatoes, sweet peppers, bush scallop, spinach, garlic, lettuce, and various other crops are raised.

The same factors cause the unsatisfactory structure of perennial plantings. For example, in the RSFSR fruits with seeds occupy 77 percent of the area, pitted fruits are 16 percent, and berry patches are seven percent. Among the seed-type fruits the proportion of winter-keeping varieties is extremely low, while summer varieties of apples which are ill-suited for processing predominate. There are not enough mazzard cherries, apricots, and pears in the structure of pitted fruit orchards. In many regions, for example the North Caucasus, the area planted in pitted fruit trees is decreasing.

The level of specialization and concentration of production in orchard farming and vegetable and potato raising is still low in many parts of the country. Industrial methods of production are being introduced very slowly. The low level of concentration and specialization in the production of fruit and vegetable output with a concurrent increase in the level of concentration of production in the canning industry leads to a significant increase in the number of supplier farms and the radius of delivery of raw materials. For example, the Adygey canning plant in Krasnodarskiy Kray receives raw material from 48 farms with an average delivery radius of 160 kilometers. When the shipping length for tomatoes, for example, is increased from 25 kilometers to 80-100 kilometers, the proportion of first-grade tomatoes is cut in half; increasing the shipping radius by 10 kilometers raises expenditures by two percent.

Existing disproportions in price formation and narrowly sectorial and departmental interests hinder rational use of fruit and berry raw materials. For example, while overall consumption of fruit is inadequate a growing amount of fruit and berries is used to produce fruit and berry wine because its production is more profitable than canning. In the RSFSR in 1979, about 70 percent of the fruit and berries sent for processing was used to produce wine.

Lack of coordination of departmental interests leads to certain elements of the fruit-vegetable subcomplex lagging sharply behind. At the present time, the labor-intensiveness of producing vegetables on open soil is four times greater than the labor-intensiveness of producing grain crops, while for potatoes it is 2.3 times the figure for grain crops. The labor-intensiveness of raising grapes, fruit, and berries is even higher. Harvest work accounts for a large part of the labor expenditures. Mechanization of harvesting is one of the key problems of further development of vegetable and potato growing, orchard farming, and grape growing.

Expenditures to harvest the grapes today reach 20-35 percent of labor expenditures for raising the grapes. With an average harvest norm (3-3.5 quintals per person per day), more than 500,000 persons are already employed for a month in the grape harvest, and by 1990 the number of persons employed in the manual grape harvest should exceed 1 million. Therefore, it is essential to switch to combined methods of harvesting industrial grape varieties. A number of successful designs have already been developed, including the Kuban'-1 combine which is being tested in the vineyards of the North Caucasus and Crimea. But lack of departmental coordination makes it impossible today to concentrate the efforts of the design organizations of the interested ministries on development and series production of a grape-harvesting combine.

Significant disproportions have developed between agricultural production and storage capacities for fruit and vegetables. The material-technical base for storing fruit and vegetables does not match the current scale of fruit and vegetable procurement. The 60 percent increase in capital investment to improve the storage of agricultural raw material, which is planned for the 11th Five-Year Plan, will make it possible to significantly reduce losses of output.. Systems management and planning of the subcomplex on the basis of target-program methods will make it possible to eliminate the existing disproportions between the volume of production of fruit and vegetables and capacities for processing and storing it, thus insuring balanced development.

The question of the system of planning indicators is an important one. The overall system of indicators of the food program should be worked out with due regard for the following principles: correspondence between the system of food program indicators and the structure of the food complex itself; orientation of all indicators in the program to final goals; integrated systems of program measures and development of the entire food complex as a whole; reflection in the system of indicators of intersectorial links and ways to improve them for the purpose of intensifying the production of the entire food complex; delivery of program indicators and assignments to specific accountable performers in directive form; coordination of the system of indicators of the program with the overall system of national economic plan indicators.

The main target indicator of the program is final output. The calculation of final output must be based on balances of the output of agriculture and the food industry. By itself, however, the indicator of final output does not fully reflect the goals of the complex, even though it is very important. It is necessary to introduce indicators of public need for food goods taking account of rational consumption norms and predicted trends in solvent demand for food. The

most significant harvest evaluation indicator of the food program should be the ratio between the volume of output going for personal consumption and the volume of public needs. An indicator established in the program that reflects the degree of attainment of rational norms of per capita consumption can play the same role. The target indicator should be represented in natural terms by the consolidated groups of products adopted in the USSR State Plan of Economic and Social Development.

It is useful to recalculate and give indicators of needs for the basic nutritional elements (proteins, fats, carbohydrates, and vitamins) in reference form and to introduce indicators of the degree of satisfaction of these needs by the stages in which the comprehensive food program is being developed. The introduction of this kind of indicator will make it possible to coordinate the summary section of the program more closely with the indicators of the subprograms for satisfaction of requirements for the basic nutritional elements. In addition to the target indicators the summary section of the program must represent resource indicators, above all those which can be allocated for the entire food complex and distributed among its product subcomplexes, sectors, and subsectors. The distribution of capital investment should be done from the standpoint of the priority of the problems. Thus, at the present time the proportion of capital investment in the production infrastructure and for storage and processing of agricultural output should be increased, which will permit a significant decrease in losses of output.

Among the generalizing cost indicators that can be used are the indicators of final and net output (normative) for the entire food complex and per employee in material production in the food complex, return on capital, rate of repayment of capital investment, the indicators of relative savings of production resources, and many others. The indicators of the food complex should correspond to the indicators of the state plan of economic and social development, and the structural cross-section of the programs should be an organic part of the structure of the national economic plan.

The sub-programs of the second level, related to creation and development of the material-technical base of the food complex, should have indicators for production of program output (agricultural machinery, fertilizer, equipment, means of transportation, and the like) and development of its capacities through reconstruction, technical re-equipping, and new construction in the actual sectors that produce means of production.

For the sub-programs that aim at meeting public needs for food products it is necessary to introduce the indicators of final and gross output in a group assortment and the introduction of capacities in agriculture and the processing sectors and to set a limit on capital investment for the development of each product subcomplex for it to fulfill its assignments to deliver final program output. These sub-programs should define the requirements of the product subcomplexes for material, labor, and financial resources and the sources or ways to provide these resources. It is very important to achieve a realistic balance between the total requirement of the product subcomplexes for production resources and the volumes of production and delivery of these resources in the sub-programs for development of the material-technical base.

In the sub-program for foreign economic links it is essential to represent indicators on the volume and structure of export and import of foodstuffs. This sub-program should include indicators and assignments from long-term special-purpose (target) comprehensive programs concluded within the CEMA framework.

Preplanning and planning materials can only be worked out with broad application of mathematical economic methods and computers. We believe that the best results can be obtained where systems of mathematical economic models of development of the food complex are employed. Different variations of balance models of production and distribution of the output of the food complex with blocks for distribution of fixed capital (capacities), capital investment, and labor can be used as a summary model. Such models are designed to correlate the indicators of production volume of the sectors, determine consumption within the complex given an assigned final product, and to identify needs for fixed capital, capital investment, labor, and — most important — output from agriculture and fishing. The cost versions of these models, covering the sectors of the food complex in consolidated form, will permit a full calculation of expenditures for the production of the basic types of output of the food complex and determination of total expenditures per unit of final output from the complex.

The development of optimization models will help substantiate the most rational structure for the food complex with maximum production of final output in an assortment that corresponds to a rational public consumption structure. The constraints in these models are land and labor resources, production capacities in the industrial sectors, fixed productive capital, and capital investment.

Another type of model is designated to optimize the development of the most important product subcomplexes of the food complex. The purpose of these models is to define balanced development of all the main vertically integrated areas of production. Unlike the consolidated models of the entire food complex, there should be a much greater degree of detail in the variables and constraints here. The most important in them is to choose the best technological procedures in each element of the technological chain from production of the means of production and raw materials to receiving the final output.

All these models are framed as a whole according to the national economic food complex and its sectors and product subcomplexes. They are supplemented by an optimization model of the composite location of production with the number of blocks in the largest territorial-production subsystems of the food complex. Because location is based on zonal specialization and concentration of agricultural production, during development of this model experience with construction of the model of location of agriculture must be used as much as possible. Experience from optimization of the location of food industry sectors is also useful. The general comprehensive model of territorial location of the food complex should be supplemented by more detailed models of the development and location of regional food complexes and the most important product subcomplexes. Considering the stochastic nature of agricultural production, probablistic and simulation models should find broader application.

The special-purpose comprehensive program is becoming a realistic management tool when reliable systems for controlling its use have been created. The established departmental sectorial structure of control is not adequate to the target program approach which must be followed in the food program. The document "Basic Directions" formulates the challenge as follows: "Establish and use efficient systems in control programs."

It seems to us that we must have an agency that coordinates the activities of the many ministries and departments that produce food products. Within such an agency it would be possible to gradually change the structure of management, carrying out a transition from the sectorial principle that is now prevalent to the principle of managing intersectorial product subcomplexes of the food complex. Management forms of this type have already been established, for example by the USSR Ministry of Fruit and Vegetable Industry and the corresponding republic agroindustrial committees such as the RSFSR State Committee for Wine Industry and other agroindustrial formations.

But this transition should not be limited to the sphere of planning and establishing coordinating management bodies alone. It is equally important to work out a new kind of relations between partner-sectors. The general principle of this reorganization is accountability of each element for final results, which will strengthen plan discipline and contract relations. The time has already arrived to switch to concrete forms of this. One of the forms is evaluating the results of work by sectors considering not only the sectorial impact but also the impact from the use of output of this sector in other sectors of the food complex. The unreliability of material-technical supply makes it difficult to employ such evaluations. For example, the sectors that produce agricultural machinery cannot be accountable for its efficient use in the fields and at livestock units because it is produced from low-grade metal. Therefore, we cannot fundamentally improve the economic mechanism of management of the agro-industrial complex without making profound changes in the system of intersectorial relations of the national economy as a whole.

Nonetheless, a great deal can be done at the lower levels, in particular with respect to the relations among enterprises that belong to different sectors of the food complex. Thus, the decree of the CPSU Central Committee and USSR Council of Ministers entitled "Improving Planning and Economic Stimulation of the Production and Procurement of Agricultural Output" contains a number of important ways to improve the economic mechanism. Procuring ministries and enterprises are given responsibility for accepting all the output delivered by agricultural enterprises. They can now accept above-plan nonstandard output at prices set by agreement of the party. This will make it possible to reduce direct or concealed (used for livestock feed) losses of output. It is also important to switch to receiving all output at the place of production and hauling it from the farms in vehicles belonging to the procurement agency.

Along with centralization of receiving, transporting, storing, and processing agricultural output, we must develop decentralized systems of different sizes for storing and processing output, which will make it possible to reduce peak loads in technological chains and to reduce losses. A procedure must be

established by which output is counted in the procurement plan for the year in which it is actually marketed. The general conditions of material-technical supply for containers, fuel, and other resources that apply to enterprises of the food industry must also apply to the industrial enterprises of the kolkhozes and sovkhozes.

The role of state and cooperative trade in the entire structure of the economic mechanism should be strengthened. The operational influence of trade on shaping the assortment of industrial output, its quality, preparation and packaging, should be based on a study of public demand in each region by seasons of the year.

While strengthening the centralized principle in planning, above all in defining the structure of the food complex, we should give the farms greater opportunities to show initiative, to maneuver, and to employ healthy socialist entrepreneurship in resolving ongoing management problems. This will make it possible to receive a significant benefit while carrying out the food program.

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CONSUMPTION TRENDS AND POLICIES

SUPPORTING ECONOMIC CALCULATIONS FOR NEW CONSUMER TECHNOLOGY URGED

Moscow VOPROSY EKONOMIKI in Russian No 7, Jul 81 pp 84-93

[Article by I. Rakhlin: "New Technology and Personal Consumption"]

[Text] The problem of raising the material and nonmaterial standard of living received a great deal of attention at the 26th CPSU Congress. As L. I. Brezhnev observed, for the 11th Five-Year Plan and the 1980's as a whole the Communist Party is advancing a broad program of further improvement in public well-being, a program that covers all aspects of the life of Soviet people: consumption and housing, culture and leisure activities, and working and living conditions. The document "Basic Directions of Economic and Social Development of the USSR for 1981-1985 and the Period Until 1990" envisions implementation of a system of measures to consistently raise public well-being. Among them are improving housing conditions, medical services, working conditions, and supply of consumer goods and solving a number of other social problems. It is contemplated that special-purpose comprehensive programs will be developed and carried out in stages for the most important socioeconomic problems. Foremost among these programs are the food program and the program for development of consumer goods production.

The growing role of scientific-technical progress and its social consequences in fundamentally solving the problems of raising public well-being has raised a new economic problem in recent years, one that has not yet been treated thoroughly in the literature. I am referring to the methodology and techniques of determining the socioeconomic efficiency of new technology (new products and services) in the sphere of personal consumption. The greater social orientation of scientific-technical progress means that the many different variations of developing, incorporating, and introducing new technology should not be carried out without a competent and detailed consideration of their socioeconomic consequences.

In design and planning practice (beginning from the achieved level of development of efficiency theory), economic evaluations are given primarily for measures that accelerate scientific-technical progress in the sphere of material production. The steady rise in public well-being, the saturation of everyday life with new goods and services, and the rapid growth in expenditures to achieve social goals objectively demand a transition to evaluations that encompass the

social consequences of the introduction of new technology in material production, the nonproduction sphere, and everyday living.

In the personal consumption sphere new technology is used in the form of new goods and services. The new consumer benefits and services offered to people through the use of scientific-technical advances in production can be conditionally put in three groups: (1) new technology for private use (cars, electric refrigerators, washing machines, television sets, and the like); (2) new perishable products (food products, clothing, footwear, household chemicals, medicines, toys, and the like) and durable goods (furniture, floor coverings and wall finishing material in apartments, cultural-domestic and household goods) or products with improved qualities produced on the basis of new machinery and technology or using contemporary materials; (3) new types of paid and free services rendered using new types of equipment, materials, or technological processes.

Widespread electrification, mechanization and automation, chemicalization, and cybernetization under current conditions have fundamentally transformed the principal types of everyday human activities: preparing and storing food (gasification and electrification of the processes, new types of kitchen equipment, electric refrigerators, and the like); cleaning and maintaining comfortable apartments (electric vacuum cleaners, electric floor polishers, air conditioners, electric fireplaces, and so on); maintaining the wardrobe (sewing machines, domestic chemicals, and the like); washing laundry (washing machines, synthetic detergents, and the like); maintaining health (medicine and sports equipment); cultural use of leisure time (television sets, tape recorders, radios, and other cultural-domestic goods); travel (cars, motorcycles, and bicycles), and so on.

Each year the volume of domestic, municipal-housing, transportation, medical, and other services increases, the assortment broadens, and the quality of the services rises. For example, our country now produces more than 80 types of machinery and equipment for everyday living. We have incorporated the production (in some cases without proper substantiation, it is true) of many models of goods: bicycles — 89; electric shavers — 34; television sets — 56; tape recorders — 38; radios and victrolas — 51. About 1 billion domestic machines and appliances are used by the population.[1] In the period between 1965 and 1979 the number of durable cultural-domestic articles per 100 urban and rural families rose as follows (number of articles at the end of the year): television sets, from 24 to 83; refrigerators, from 11 to 82; washing machines, from 21 to 70; electric vacuum cleaners, from 7 to 26, and so on.[2]

As public well-being rises there is a corresponding rise in the level and change in the structure of the material and nonmaterial needs of the people which are satisfied. The intensity of satisfaction of these needs can be judged by the fact that each 15 years the socialist society moves to a qualitatively new level of consumption.[3] In the last 15 years the sectorial structure of the consumption fund (without considering wear on fixed nonproductive capital) has changed significantly: the share of food products has dropped from 62.0 to 53.6 percent while nonfood goods have risen from 38.0 to 46.4 percent (including a

rise from 4.9 to 10.0 percent for output from machine building and from 0.8 to 2.3 percent for chemicals).[4] This same trend is confirmed by changes in the ratio between food and nonfood goods in the total volume of commodity turnover in state and cooperative trade, including public catering (see table below, in percentages).[5]

Type of Goods	1940	1970	1979
Food Goods	63.0	55.5	51.6
Nonfood Goods	37.0	44.5	48.4

In the structure of use of the aggregate income of worker and kolkhoz member families (according to data from a sample survey of the budgets of 62,000 families), there is intensive growth in the share of expenditures for the purchase of furniture and cultural-domestic and household goods, fabrics, clothing and footwear, and savings (growth in cash and savings deposits), in addition to a rise in the share of free services from public consumption funds for education, medical care, and the like. At the same time, there is a sharp decrease in the share of expenditures for food.

These data on actual changes in the structure of consumption of material goods and services, in particular the rise in the share of nonfood goods and expenditures for the purchase of cultural-domestic and household goods and new everyday services testify to the growing influence of scientific-technical progress on the process of satisfying public needs.

A more detailed outline of the problem of the impact of the socioeconomic efficiency of new technology on the personal consumption sphere can be done, in our opinion, by formulating the most important social components according to similar types of consumer goods and material services. The following basic social components of human life, with a material character, can be identified on the basis of data on public well-being: food products, property, health, living conditions (manmade and natural), the consumption budget, and free time.

The material foundation for the production of foodstuffs (food products) and nonfood goods (property) is the group B sectors as well as the sectors of heavy industry (the latter account for more than half of the nonfood goods that are produced). As noted at the 26th CPSU Congress, new technology and bolstering the scientific and design bases have a decisive role in renewing the assortment and raising the quality of various consumer goods and in technical re-equipping of group B sectors.

Let us look at the role of new technology in changing the social components of life in more detail using the example of human health. The question of the negative consequences of accelerating scientific-technical progress, which must be identified and eliminated in time, deserves special attention here.

The intensification of production, urbanization, psychological stress, pollution of the biosphere, and other factors have a negative effect on human health. These consequences may lead to enormous losses when they are underestimated.

Thus, more than 600,000 various chemicals are dumped in the environment in the contemporary world each year; 12 billion tons of carbon monoxide is put into the atmosphere and thousands of tons of petroleum products and other waste are discarded into the oceans and seas. The human race has exterminated 150 animal species in various ways, one of which is environmental pollution, and some 1,000 species are threatened with extermination or have become rare.[6] The negative effect of noise reduces human longevity in the cities by 8-12 years.[7]

Effective steps are being taken in our country to improve human working and living conditions from the standpoint of establishing medical norms for permissible environmental effects on the human organism. In recent years medical norms have been developed and introduced in public health practice for approximately 1,000 chemical compounds that are potential environmental pollutants. In other words, the negative consequences of accelerating scientific-technical progress can and must be averted in time.

At the same time scientific-technical progress has a direct and beneficial effect on human health through medicines and new medical procedures. Thus, Soviet medical practice uses some 3,000 drugs that have been authorized by public health agencies. The list of products of the domestic medical industry covers more than 6,000 items, including about 1,600 medicines.

There are three contemporary methods of treating malignant tumors: surgical, radiation (based on ionizing radiation before and after surgical eradication of the tumors), and medicinal (hormone preparations and about 60 types of chemotherapy substances). Among the techniques for early diagnosis of cancer are endoscopy using fiberoptics, examination of tumor cells under the microscope, x-ray examination, ultrasound "transluscence," and others. Thanks to effective use of anticancer procedures (including early prevention), the standardized indicators for mortality from cancer for men in the USSR have not increased in the last 10-15 years and for women show a clear trend to decrease. Therefore, the country today has more than 500,000 persons who completed treatment for oncological diseases 10 or more years ago.

New principles of treating eye diseases (glaucoma, cataracts, and the like) are based on microsurgery, laser and ultrasound technology, and the use of new medicines, artificial crystalline lenses, new tools (for example the tubular probe), and the like.

The meaning and orientation of economic measurements in the area of new technology should be defined by the purpose of socialist production. The main criterion of the socioeconomic efficiency of production is the extent to which the requirements of the basic law are met. There is reason to think that the social orientation of production takes on the role of the primary criterion for optimization of social and economic proportions in the national economy. It follows from this that now, even though it is a very important indicator for formation of the consumption fund, national income cannot be either the initial or the primary expression of the socioeconomic impact of socialist production. The socioeconomic result of production is this impact.[8]

The socioeconomic national economic impact has two facets: as a goal it is a certain socioeconomic result in the form of a mass of output and services of the appropriate structure and quality produced; as a means, a source for achieving this goal it represents cost economies (raising the aggregate productivity of live and embodied labor calculated for a given socially useful result).[9]

The main difficulties in working out the methodological foundations for determining the socioeconomic efficiency of new output and services in the personal consumption sphere are related chiefly to the fact that the concept of the social result is much broader than the concept of the economic result and certain parameters of social efficiency cannot be adequately described in terms of economic efficiency. In the opinion of Academician T. Khachaturov, we must not restrict ourselves to attempts to reduce the entire impact of the nonproduction sphere to an economic effect expressed in rubles, especially where such calculations are in many cases extremely crude and unconvincing.[10] One must also agree with the opinion of Corresponding Member of the USSR Academy of Sciences L. Gatovskiy that "the human being, human life and health, and satisfying human needs are goals-in-themselves and cannot, certainly, be reduced to the savings of resource expenditures which occur as the result of the inverse impact of social factors on economic factors."[11]

It is evident that a partial, local approach to solving the problem of the socioeconomic efficiency of the sphere of final personal consumption is inevitable. The first subject of economic evaluation can be the basic social components of human life which have a material character. But even with such a limited consideration of this problem, the sphere of calculations of socioeconomic efficiency will include such extremely important objects as the impact of new products and services on the human diet, property, health, living conditions, consumer budget, and free time. These social components, which have their own values that are not measurable in economic categories, unquestionably influence the economy indirectly. As we see, eliminating the economic evaluation of other social components, especially nonmaterial ones, does not at all mean refusing to determine the socioeconomic efficiency of the sphere of final personal consumption in the "narrow" sense.

Let us consider the problem of determining the socioeconomic efficiency of new technology in the personal consumption sphere from the standpoint of two interrelated factors: the socioeconomic result, and the cost savings.

The socioeconomic result as a category of public reproduction through production and nonproduction (public and personal) consumption is an inalienable condition of human and product reproduction. Determining the socioeconomic result may be considered a new class of problems in the field of the socioeconomic efficiency of new technology, one which has not been adequately treated in the literature and methodological writings. Specifically, the "Methodology (Basic Principles)" for determining the economic efficiency of use of new technology, inventions, and efficiency proposals in the national economy (published in 1977) does not disclose the essential features and content of the socioeconomic results. The social factors of production and use of output (including the environmental impact) are mentioned in paragraph nine in connection with insuring the compatibility of variations of new and base technology being compared for national

economic efficiency. The influence of the social factors of introducing new technology is not revealed in the indicators of cost accounting efficiency either. As a result, no techniques are provided for economic evaluation of the social factors of the use of new technology in material production, the nonproduction sphere, and personal consumption.

The appearance of public and personal needs under the influence of scientific-technical progress is an objective process that reflects the interaction of production and consumption. At the same time, the extent of satisfaction of the people's material and nonmaterial needs, which means the socioeconomic result, is assigned by society ahead of time in the plans for economic and social development of the national economy as a reflection of the requirements of objective economic laws.[12] Therefore, we believe that applied to the sphere of personal consumption it is advisable to use a preassigned socioeconomic result of the corresponding structure and quality for calculations. In a number of cases this result may assume more concrete forms related, for example, to preservation of health; buying, preparing, and storing food; buying, using, and preparing clothing, footwear, and domestic appliances; washing and ironing white goods; cleaning the apartment, and the like.

The novelty of the problem of the socioeconomic result lies not only in the framing of its structure, but also in the economic evaluation of social components that have grown. The heterogeneity of the social components included in the socioeconomic result should be noted. Applicable to the sphere of personal consumption socially useful socioeconomic results of the use of material goods and services are divided into two parts: those which have immediate economic content (growth and the volume of public consumption of material goods and services as the final result of material production); those which do not have immediate economic content, but do influence the magnitude of this result (working and leisure conditions, human health, environmental protection, and the like).

An economic evaluation of the social components with immediate economic content, for example, food products and property, can be done (depending on the purpose of the calculations) on the basis of wholesale prices and rates, normative net output, and retail prices and rates. The situation is more complex with an economic evaluation of the social components that do not have immediate economic content. To solve this problem it is necessary to formulate the socioeconomic result in natural physical terms for these components on the basis of an elaborate system of social norms and standards that cover all the processes of vital human activity with some degree of completeness. For example, the sanitary-health conditions of human life and labor (size of rooms, sound levels, air exchange, lighting, temperature conditions, and the like) can be standardized in terms of norms. The central question of a health evaluation of materials and articles is controlling harmful substances released into the environment. From the standpoint of the esthetic aspects (new output) it is necessary to control colors and various other design parameters. For the ecological aspect the central problem is to establish the maximum permissible concentrations of harmful substances in the natural environment (water, air, soil, and the like).

The social norms serve as both standards and limitations on variation in particular parameters of the process of vital human activity. In the broad sense, we are speaking of the need to define the list and quantitative values of the social norms that regulate compliance with the requirements for creating normal human living conditions.

As the sphere of personal consumption is saturated with new goods and services, all the variations of their introduction being worked out should meet compulsory normative requirements for socioeconomic results. If this is not true, the variations will not be comparable in terms of socioeconomic results, which will make it impossible to compare them in cost terms. If correspondence to mandatory normative requirements is observed, the socioeconomic result can be determined for variation in natural physical form. This is quite a complex problem because it covers a multitude of initial social norms.

Comparing the socioeconomic results for the variations of conditional and new technology makes it possible to determine the increment of growth for the new technology variation in natural physical form. We propose that the economic evaluation of the increased social results for the most important social components be based on a set of varied, interrelated, and interdependent factors, some of which are given in the section below. [Social components are underlined, followed by factors that generate the savings.]

Food Products. Increase in the length and improvement in the conditions of storage and also preparation of food products by the population as the result of the use of new refrigerators, polymer packing materials, and fresh-frozen dishes and intermediate products; decrease in losses of food products from a worsening of their properties based on organoleptic and other evaluations; increase in the proportion of high-quality food products by preservation of their nutritional and taste properties.

Property. Expansion of the assortment and improvement in the quality of new material goods and services; rise in the artistic and design level of new output; reduction in expenditures for storage and use of new material goods and for new services.

Health. Improvement in the quality of medical services, a resulting decrease in the length of therapeutic, diagnostic, and preventive procedures, time spent by patients in the hospital, and expenditures for repair of medical equipment; an expansion on this basis of the contingent of persons employed in material production and the nonproduction sphere and an increase in the additional volume of output produced and services rendered by them, a decrease in expenditures to pay for disability certificates and the like; higher sanitary-health specifications for medical equipment, medical instruments, medicines, and food and industrial goods and for sanitary conditions in the food industry, retail trade, and public catering.

Living Conditions (Manmade and Natural). Improvement in the quality, comfort, and convenience of housing and in housing-municipal services; reducing the level of soil, air, and water pollution with domestic waste, wornout articles, and packaging materials; obtaining an additional savings from recycling material resources.

Consumer Budget. Improvement in the quality (technical-economic, use, esthetic, and other properties) of new goods and material services; decrease in the labor-intensiveness, prime cost, and capital expenditures for the manufacture, maintenance, and repair of goods and rendering of material services; savings of resources in connection with refusal to buy goods because their qualities have been made available in the domestic services sphere; lowering of retail prices for goods and rates for services and the related savings of resources in personal consumption.

Free Time. Reduction in labor expenditures, lightening of working conditions, and change in the nature of labor; increase in the number and improvement in the quality of new types of machines, equipment, instruments, and mechanized devices used to render material services in public health, retail trade, public catering, the domestic services sphere, housing and municipal services, passenger transportation, the public communications sector, and in the home.

Let us note specially that the economic evaluation of the increased social results must be based not on an economic evaluation of the enumerated component as such, but on an economic evaluation of the impact of scientific-technical progress on change (growth) in these components. For example, we are far from the idea of evaluating human health in economic terms; we are posing a completely different problem, to evaluate the savings from maintaining health at the proper level by the use of new medications, new treatment procedures, and other means. Therefore, we are talking about an economic evaluation of social components by an indirect, not direct, method, through change in costs for the different alternatives before and after the use of new technology. Therefore, the social component should have corresponding quantitative measures which can be adequately described in economic terms. The other quantitative measures that are now subject to economic evaluation can be described by their distinctive natural indicators.

In the sphere of final personal consumption, the following cost indicators can be used for an economic evaluation of the social components that do not have immediate economic content: growth in the volume of normative net output in material production and the nonproduction spheres; capital savings in the budgets of social security, public health, and state and personal insurance; capital savings in the personal consumer budget for medical treatment, purchase of food products and medicines, purchases, maintenance, and repair of articles of clothing and cultural-domestic and household goods, and acquisition of housing;

personal time savings resulting from using the services of the service sphere and in the performance of housework.

The different goods and services are comparable in terms of their ability to meet public and personal needs. It can be assumed from this that the social components listed above, despite their differences, are similar and comprise a unified complex that aims at realization of the supreme goal in socialist society. It becomes possible to add together the results of an economic evaluation of the factors of different social components and obtain an overall evaluation of the increased social result in cost form.

The savings from the increased social results plainly is different in nature from the savings of costs, for example, calculated costs. In the first place, these economic indicators are designed to solve different problems. A savings of calculated costs (a category of comparative efficiency) is, of course, determined in a calculation to obtain the identical (assigned) socieconomic result. As for a savings from an increased social result, it manifests itself in the process of an economic evaluation of different socioeconomic results, the base result and the new result. This increase is caused by the different possibilities of attaining technical-economic and social norms using traditional and new technology. In the second place, the savings of calculated costs reflects a savings of primary resources in the sphere of material production, while the savings from an increased social result has a different basis, a social basis, and reflects a decrease in expenditures from sources (above all the consumption fund) formed on the basis of the mechanism for distribution and redistribution of primary income. A savings on such expenditures is more likely to be evidence of more efficient use of the consumption fund (national income) than growth in the fund.

We believe that the savings from an increase in social results cannot be compared at all, in any form, with a cost savings (comparative or absolute). It must be used as an independent indicator to substantiate the socioeconomic result of new technology (in cost form), social norms and the order of their introduction, technical policy in the field of the development of production and use of new technology for social purposes, new consumer goods and services, and the like.

The second component of the final socioeconomic impact of new technology is the cost savings calculated for a given socially useful result. This is linked to production efficiency and the level of rational use of resources. When determining the socioeconomic impact of new goods and services in the sphere of final personal consumption, the expenditures necessary for this may have two evaluations: from the national economic standpoint (calculated costs for development, production, transportation, use, and repair), and from the standpoint of the personal consumption sphere (personal expenditures for purchase, delivery, use, and repair of goods and enjoyment of services). These evaluations are interrelated. Thus, goods and services in the sphere of final personal consumption are a concrete expression of the proportions invested earlier at the national economic level. In other words, the consumption of goods and services signifies realization of the national economic socioeconomic impact, its conversion into a personal use effect.

Because national economic impact is widely used to select the most efficient alternatives of new technology, it is important that at the same time the socioeconomic result itself is formed because the amount of the increase in this result depends on the technical-economic and social parameters of the new technology. This is an iterative process and should reflect the inverse effect of expenditures to form the socioeconomic result.

A number of problems in the methodology of determining the national economic socioeconomic effect of new consumer goods have been worked out in the sector on efficiency of scientific-technical progress at the Institute of Economics of the USSR Academy of Sciences.[13] The essential feature of the methodology is that such new elements as additional calculated expenditures for measures to attain the normative socioeconomic result with the use of the traditional consumption goods and expenditures for measures to eliminate or compensate for a certain negative social result must be included in the sphere of calculations of the socioeconomic impact (in comparison with the economic impact). This makes expenditures in the stages of the manufacture and use of new and traditional goods comparable in terms of socioeconomic result.

The amount of the socioeconomic use effect as a savings of personal expenditures for the purchase, transportation, storage, use and repair of all possible consumption goods and enjoyment of services depends, on the one hand, on the technical-economic parameters and properties of these goods (durability, reliability, electricity consumption, and the like), and on the other hand, on the level of retail prices and rates.

The impact of scientific-technical progress on the personal consumption sphere naturally appears as a systematic decrease in costs in all stages of the manufacture, purchase, and use of consumption goods and services. At the same time, the real changes in retail prices and rates must be taken into account. Despite the level and the changes in retail prices (rates) however, they are an essential indicator for determining the use affecting the sphere of final personal consumption.

The transition to substantiating the socioeconomic efficiency of new technology not only in material production, which is envisioned in existing methodologies and done extensively at the present time, but also in the sphere of personal consumption creates a basis for: using efficiency calculations to study variations of new consumption technology, goods, and services more completely; formulating uniform technical policy for the development of material production, the nonproduction sphere, and the sphere of final personal consumption; raising the efficiency of capital expenditures to broaden and renew the assortment of consumption goods and the service sphere.

The 26th CPSU Congress identified the socioeconomic problems of scientific-technical progress as one of the research areas in which social scientists should concentrate their efforts. One of the research areas within the field of the socioeconomic impact in the sphere of personal consumption should be development of norms of cost savings for similar types (groups) of new consumption goods and services. This is essential to substantiate an optimal assortment of consumption goods and services.

Work on the questions of determining the socioeconomic efficiency of new products and services in the personal consumption sphere is a further and more concrete step towards solving these problems and will promote work to carry out the policy of the Communist Party with respect to solving the problems of raising the well-being of the Soviet people.

FOOTNOTES

1. See L. A. Kostin, "Proizvodstvo Tovarov Narodnogo Potrebleniya (Sotsial'no-ekonomicheskiy Aspekt)" [The Production of Consumer Goods (The Socioeconomic Aspect)], Izdatel'stvo "Ekonomika", 1980, pp 189, 208.

2. See the statistical yearbook "Narodnoye Khozyaystvo SSSR v 1979 g." [The USSR National Economy in 1979], Izdatel'stvo "Statistika", 1980, p 433.

3. See "Materialy XXV S"yezda KPSS" [Materials of the 25th CPSU Congress], Politizdat, 1976, p 114.

4. See Kostin, op. cit., p 52.

5. See "Narodnoye...," op. cit., p 457.

6. See A. M. Izuktin and G. I. Tsaregorodtsev, "Sotsialitisticheskiy Obraz Zhizni i Zdorov'ye Naseleniya v Svete Resheniy XXV S"yezda KPSS" [The Socialist Way of Life and Public Health in Light of the Decisions of the 25th CPSU Congress], Izdatel'stvo "Meditsina", 1977, p 173.

7. See "Nauchno-Tekhnicheskaya Revolyutsiya i Chelovek" [The Scientific-Technical Revolution and Human Beings], Izdatel'stvo "Nauka", 1977, p 114.

8. For greater detail, see "Ekonomika Razvitogo Sotsialisticheskogo Obshchestva (Osnovnyye Cherty, Zakonomernosti Razvitiya)" [The Economy of a Developed Socialist Society (Basic Features and Developmental Patterns], Izdatel'stvo "Ekonomika", 1977, pp 277-278; "Osnovnoy Ekonomicheskiy Zakon Sotsializma" [The Basic Economic Law of Socialism], edited by V. N. Cherkovets, Izdatel'stvo "Nauka", 1978, pp 174-175, 179.

9. See L. M. Gatovskiy, "Voprosy Razvitiya Politicheskoy Ekonomii Sotsializma" [Issues of the Development of the Political Economy of Socialism], Izdatel'stvo "Nauka", 1979, pp 465-466.

10. See T. S. Khachaturov, "Effektivnost' Kapital'nykh Vlozheniy" [The Efficiency of Capital Investment], Izdatel'stvo "Ekonomika", 1979, p 183.

11. Gatovskiy, op. cit., p 373.

12. We do not consider here the question of the formation of personal needs under the influence of individual tastes, preferences, motivations, and the like.

13. See "Methodologicheskiye Voprosy Opredeleniya Sotsial'no-Ekonomicheskoy Effektivnosti Novoy Tekhniki" [Methodological Issues of Determining the Socioeconomic Efficiency of New Technology], Izdatel'stvo "Nauka", 1977; "Osnovnyye Metodicheskiye Polozheniya Opredeleniya Sotsial'no-Ekonomicheskoy Effektivnosti Novoy Tekhniki" [Basic Methodological Principles of Determining the Socioeconomic Efficiency of New Technology], draft version, Institute of Economics of the USSR Academy of Sciences, 1980 (rotaprint).

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