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SOVIET PLANNING: EVOLUTION IN 1965-1980

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Chapter 1

INTRODUCTION

I have been in the United States since 1979. For almost 14 years before emigrating from the Soviet Union, I was employed at the Ukrainian Branch of the Scientific Research Institute for Planning and Norms of the U.S.S.R. (Ukrainskii Filial Nauchno-Issledovatel'skogo Instituta Planirovaniia i Normativov pri Gosplane S.S.S.R.). I headed a team of researchers who worked in econometric modeling and forecasting of national and regional economies.

Beginning in 1969, the team created a series of econometric models for the development of the national and republic economies from macrolevel to specific industries. The goals of this work included forecasting main planning indicators for the 1971-1975 and 1976-1980 five-year plans and the 1976-1990 long-term plan. Among models of different levels of aggregation, the one that proved the most practical included the main macroindicators such as national income, employment, capital stock, investment, etc., and indicators for the development of various sectors of the economy (industry,

agriculture and forestry, construction, transportation and communications, trade and distribution, and services) [10].

Although the Gosplan authorities have never included the results of any modeling or other research directly in plans, they can take them into consideration in preparing plan targets. In any event, the process of submitting modeling results to the authorities is always crucial and even potentially dangerous for researchers, who may lose their jobs if for some reason the Gosplan rejects the results. In the cases of this which come to mind, the quality of the research was very low.

Despite the Institute's subordination to the Gosplan of the USSR, its location in a republic meant that part of its research was performed for various republic planning committees. Thus, my team developed econometric models not only for the country as a whole and for the Ukraine, but for Belorussia, Latvia and Georgia as well. The information used was supplied by local planners or researchers, and the process of modeling and analysis was conducted in coordination with them.

In general, the Institute's research has been concentrated in the fields of methodological improvements in planning, introduction of new methods of economic stimulation, application of the normative approach to resource allocation, and computerization of planning calculations. While topics for research must be requested by the Gosplan departments, the initiative may belong to the Institute. A research plan is approved annually by the chairman of

the Gosplan. Does Gosplan make use of this research? We will try to answer this question and others in the general context of the present study.

The subject of the study is the activity of the Gosplan USSR and its interaction with the ministries, departments and republic planning institutions. Enterprises and the middle level of management (industry and industrial associations) will be considered only in the degree necessary to illustrate planning decisions and their implementation. The discussion of the evolution of the planning system will be based on such sources as main resolutions on planning, debates in Soviet economic literature, Soviet official statistics, and my own description and interpretation of Gosplan's performance.

The last point requires clarification. In all cases when an opinion is expressed, a reference to the source will be made. Otherwise, discussions reflect the author's opinion. Some of the assertions made may be rather evident to a person familiar with the planning system, and others may be less evident. But no claim is made that these are the only truths. Everything depends on one's perceptions.

We must distinguish of course between a planning system and a planned system, which in Western terminology means a Soviet type economy in general. The meaning of the term "planning system" that we will use is more narrow. Its organizational structure

comprises all the institutions which participate in the development of national economic plans.

My evaluations of the planning system have not changed essentially since my arrival in this country. Having worked with many planners in the Soviet Union, I consider most of them well qualified for their jobs, and some very competent. But the bad performance of the Soviet economy is usually blamed on them. Surprisingly, this attitude is popular both in the Soviet Union and the West. Only the reasons for it are different.

Two such Western stereotypes can be mentioned. One stems from thinking in terms of modeling, optimums, rational expectations, etc. The idea here is that there can be different models of economies, and that in any of them there is always room for improvement. Therefore, if improvement is not made in the Soviet economy, Soviet planners must not possess the necessary skills or do not use the appropriate tools, etc. Another stereotype results from an idealizing of the principle of socialization. Those economists who favor this principle consider Soviet failures a consequence of the distortion of socialism, and hold bureaucrats, and planners most of all, responsible.

The discontent in the Soviet Union is of another nature. Dissatisfied as consumers, people usually blame planners for everything. Concerning even professionals, one must realize that they have never studied or discussed openly the problems that the Soviety economy faces. This does not mean that they

accept the propaganda about the boundless advantages of a planned economy. But the spectrum of opinions as to causes of the problems is very broad. Facing numerous obstacles in their work, engineers and other professionals think that the authorities lack the talent to do anything about the economy. This feeling is owed especially to the notorious Communist Party methods for appointing staff (nomenclatura). Most professionals do not realize the interdependence of different economic problems and the role of economic principles. If the principles do not work, one cannot expect that a sage will do much better than a fool. So, the attitude of professionals in the Soviet Union toward failures of the economy seems to center too much on bad leaders and planners, etc. Even those favoring political changes, as far as we know, do not possess positive economic programs.

The official attitude toward the planning system is dual as well in regard to the advantages of the planned economy in general. The potentials are praised much more than the reality. If the performance of the Gosplan, not to mention other planning bodies, has been criticized periodically, the leaders are proud of planning as an institution. One may even get the impression that they are sometimes pleased that it still works. In this respect, it might be interesting to see how the system became involved with central planning and how consistent the latter is with Marxist economic theory. The role of Marxist ideology in Soviet society is well known and is described, for example, in [17]. We will approach the topic briefly from the standpoint of national economic planning.

Marxism has not produced a systematic theory for a socialist economy. Its original thought was that a socialist economy would overcome the "anarchy of capitalist production." The idea of a unitary plan followed from this as a logical consequence. Before Lenin seized power, he was little concerned as to how the economic system would be developed following a revolutionary victory. After the October Revolution, however, he realized that the task of building Communism would be more complicated than had been expected. Since he did not have any economic guidelines, he decided to retain the existing capitalist organization. But, in accordance with ideological doctrine, it had to be controlled both by the government and the workers (the tendencies of that time were syndicalistic). Very soon, in the summer of 1918, this approach was abandoned. The period from that time until 1921 is known as the period of "War Communism."

The aims of the new administration were expressed in a special resolution proposed by Lenin and drawn up at the conference of Economic Councils in January, 1920 [34]. It stated that "the centralization of the national economic administration is the principal means at the disposal of the victorious proletariat for developing the productive forces of the country and securing for industry the leading role in economic life." While bourgeois governments confined themselves to planning their budgets, the Soviet government had to make use of sanctioning plans for the most important branches of industry.

In February 1921, the Gosplan was created. It was at this time that a New Economic Policy (NEP) was announced (the essence of NEP was partial restoration of the market and horizontal economic relationships among enterprises). The Gosplan developed the idea of a General Economic Plan without which various individual plans might come into conflict with each other. In 1925, the Gosplan released an outline for such a plan, entitled Economic Control Figures of the U.S.S.R. for 1925-1926. This event was decisive in the further development of the Soviet Economy. In 1927 the First Five-Year Plan, for 1928-1933, was constructed.

Present national economic plans have exceeded the scale of those first naive plans. The contents of a plan comprise dozens of volumes with indicators and their values. The plan envelops all stages of resource allocation, production of goods and services, and income distribution. It regulates all aspects of society, from manufacture of heavy equipment and military hardware to the activities of prisoners and the handicapped.

We might mention several fundamental Marxist principles which are viewed as valid both for capitalist and socialist economies. The core of Marxism -- the theory of value -- has been praised more or less depending on changing attitudes toward the role of market mechanisms in a socialist economy. The process of the formation of value, nevertheless, has never been doubted. Labor is considered to be the sole means for creating net value added for any type of economy. Marxism does not recognize the role of other factors of

production. This has some impact on the planning calculations system, especially in the terminology used. In many cases the approach has not proved fruitful, for example, in calculations of the effectiveness of the economy. This is evident from the fact that a set of other indicators, besides labor productivity, is used for these purposes.

In planning, the Marxist practice of classifying all branches of the economy into two spheres -- productive and non-productive -- is used. Branches related to the production of material values are considered productive, and those related to the production of services are considered non-productive. While some branches can be classified easily, for others the process is overly complicated. This is true especially for transportation, communications and trade. Transportation and communications serving enterprises and organizations are viewed as productive, and those serving the public as non-productive. Although the same facilities can be used in both cases, the conventional Marxist division is made. The situation is even more complicated for trade. Operations such as packing and wrapping, which increase the values of commodities, are classified as productive. On the other hand, services of salesmen and cashiers are identified as non-productive. In this case, any conventional division would be senseless. Therefore, in deviation from Marxist classification, trade as a whole is included in the material sphere. In the first few years of the 1965 Economic Reform, there was wary discussion of these issues. Some economists tried to revise the

role of the non-productive sphere in general, but the discussion was soon stopped.

Marx divided society's total production into two departments -- means of production and consumer goods -- and considered conditions for the exchange between them [26]. Corresponding divisions play an important role in planning. In all annual plans, detailed calculations have been performed for all products manufactured by industry. This is a very complicated problem though the technology used is simple. There are some goods that people cannot possess and that are used only as means of production. Some others such as cars, for example, are conventionally considered as pure consumer goods. But many other products such as electricity, gasoline, nails, fabrics, sugar, meat, etc., serve a dual purpose. The Central Statistical Administration (TsSU) releases coefficients for these products based on estimates of their use as means of production or consumer goods. Taking into account these coefficients, two special subdepartments of the Gosplan divide the national gross social product into the two categories in question. The precision of this work, of course, is doubtful.

Marx's schemes of reproduction based on the above division of social production are very popular with Western Marxists. The schemes are interesting from an educational point of view, but, in application, are rather useless. The reason for this is that there are too many variables in the conditions derived, especially when extended reproduction is analyzed, and the system is underdetermined.

Therefore, the results depend to a great extent on the assumptions made, and all the difficulties will lie there.

A controversial conclusion derived from these schemes is that, to provide the right proportions for the development of the economy, the first department -- means of production -- must keep ahead in its growth relative to the second -- consumer goods -- (although this does not follow directly from the schemes). This "law" is considered to be one of the fundamentals of the planned economy. But we would say that Marxist theory has been used in this case only to explain actual developments. If it were necessary, an excuse could be found for violating the "law." For example, the assertion that it pertains only to the long-run has occasionally been made. As a matter of fact, an attempt to reverse this tenet was made in the 9th Five-Year Plan (1971-1975). Planned rates for manufacturing consumer goods were higher than those for means of production. Unfortunately for consumers, the attempt failed, and the "law" held as it had before.

These introductory remarks intend to show how some fundamentals of central planning are related to the principles of Marxism. As we have illustrated, these principles applied directly have not been very fruitful in planning. But more important is their indirect influence. Property ownership, social institutions, and economic decision-making are among the most decisive issues. Their role in the process of planning will be discussed throughout the present study.

The period of 1965-1980 has been chosen for several reasons. It begins at the time that the present Soviet leaders came to power and initiated the 1965 Reform. Further, the period was full of alterations in the organizational structure of the economy and methodology of planning. The changes may be more or less visible from a distance, but have an impact on the further development of the Soviety economy. Since, for biological reasons, a change in Soviet leadership can be expected in the next few years, it is important to attempt to look into the future. A discussion of the recent state of the planning system, the problems that it faces and the methods used can be very helpful in this respect. Analyzing the evolution of the planning system, we will emphasize its practical worth, motives for change, and the conformity of intensions and results.

Materials will be classified in such a way that the effects of all changes are attributed to one of three possible sources: (1) the economic principles of management and fundamentals of the system; (2) the organizational structure of planning and its institutions; and (3) the methodology of planning. We find that identification of various alterations with these groups can be helpful against possible confusion. For example, both the decreasing centralization of the economy and computerization of planning calculations are considered improvements. But they are of quite different natures and may even work in opposite directions. While the former is related to the principles of the system and is intended to increase

the efficiency of the economy, the latter is meant to increase the efficiency of planning itself. Obviously, requirements for better planning do not coincide with requirements for the decentralization of the economy. As a matter of fact, the current program of computerization of planning aims to increase centralization of decision-making. All these issues are discussed for each of the above three sources in Chapters 2 through 4. Our conclusions reviewing the materials are made in Chapter 5. The intent of that chapter is also to draw attention to recent developments which could create a bridge between the present and the future.

The author hopes that this monograph may provide the reader a better understanding of Soviet planning. Work on the monograph which was carried out in the summer and fall of 1981 was made possible by the support of Delphic Associates and the personal cooperation of R.T. Crowley and G. Guensberg. Valuable comments and suggestions by H.S. Levine were helpful at all stages of the project, especially in the improvement of the original version of the text. The editor and typist, B.L. Dash, did her best to make the product readable. I would like to thank all these contributors.

Chapter 2

THE ECONOMIC PRINCIPLES OF MANAGEMENT AND FUNDAMENTALS OF THE SYSTEM

2.1. The 1965 Reform and the Later Change in Criteria for Enterprise Operation

It is easy to make judgements looking back at accumulated materials and facts. Now, when it is clear that the 1965 Economic Reform failed to achieve its goals, we need not discuss in detail its pros and cons, particularly in view of the availability of pertinent literature in English (see, for instance, [24]). The goal of our study is not to deny the value of this reform for the Soviet economy even if it seems doubtful. It is rather to analyze the sequence of organizational and methodological changes in Soviet planning, tracing their ties to the fundamentals of the economic system.

The 1965 Reform was the first in a series of attempts by the present leadership to improve economic performance. As is generally known, party and government authorities believed that in initiating the Reform they could increase the economic options of enterprises and, as a result, the productivity of labor, while at the same time they could strengthen the centralization of management in industry. Usually only the first part of this proposition is stressed in the

literature, which can be attributed to the interpretation of the Reform by its creators and official sources. Thus, the Resolution of the Central Committee of the Communist Party of the Soviet Union and the Council of Ministers of the USSR of October 4, 1965 [38] explained the need for urgent action:

> "In planning too much attention is paid to administrative protocol, and economic methods are neglected. Plan targets orient enterprises toward the achievement of quantitative results. Their independence in the development and choice of production methods is unreasonably constrained. Employees have no incentive to improve the operation of their enterprises or to utilize reserves and expand profitability. The accountability of enterprises for violating delivery terms and for manufacturing products of poor quality is inadequate. Economic contracts do not play their due role in relationships between enterprises, and the cost-accounting at enterprises is, to a large extent, only formal. Such economic tools as profit, bonuses, credit, etc., are poorly used in planning and economic activity. There are essential shortcomings in pricing."

In our analysis, we will be concerned with five main planned targets: production, investment, labor, finance, and material and technical supply. Main investment plan targets - investment

financed by the state, capital put into use, and new productive capacities - were not changed by the Reform at all, i.e., were to be determined in the plan as before. The two crucial questions that the Soviet planning system has tried to solve in production plans are how to select the best indicator, reflecting the value terms of output, and to what extent output in physical terms must be dictated by the plan. Before the Reform, the gross value of output, which includes the cost of unfinished goods, was confirmed as the main value indicator. This approach was criticized for many reasons, e.g., that an enterprise can meet the plan by producing too few products and accumulating stocks of unfinished goods. Trying to create reserves for the achievement of plan goals and trying to guarantee wages, managers of enterprises underestimated the volume of unfinished goods in planning accounts and overestimated it in ex-post accounts.

In order to increase the role of the demand side of the economy, the decision was made to evaluate the activity of industrial enterprises according to the sales revenue. In contrast to the estimate of gross output, in which manufactured products were included, here only those accepted by the purchaser were taken into account. Enterprises were allowed a higher degree of freedom in selecting consumer products and adjusting their production processes to consumer demand. Thus, the list of products assigned by the Council of Ministers of the USSR in 1968 was half that of 1964 and included 615 items [52].

The number of confirmed indicators was reduced essentially also in the labor plan. This side of enterprise activity is

usually evaluated with many indicators, particularly the number of employees, productivity of labor, and total wage bill. While all three of these were employed before the Reform, following it the total wage bill became the sole controlled indicator. Managers of enterprises had to plan productivity of labor and number of employees independently by category in the interest of achieving the best results. That does not mean that these indicators did not have to be included in the plans. The enterprises and ministries had to compute all of them as they did before. The only difference is that now the emphasis was made on wage funds.

Total profit and profitability became the main indicators in the finance plans of industrial enterprises. Also, payments to the budget and allocations from it had to be considered. The most essential departure from the previous arrangement was that the cost of production was no longer an obligatory characteristic of enterprise activity. For most of industrial enterprises a new definition of probitability was introduced: the ratio of profit to the sum of fixed productive capital and "normed" working capital, not to cost as before. This indicator was expected to play a major part in the Reform provisions to intensify the role of profit in economic stimulation of enterprises and to increase the material interest of their personnel.

In order to increase the effectiveness of production, payments to the budget for fixed and working productive capital were introduced. This item was intended to replace other types of

payments, including turnover tax. Normatives had to be established for a number of years so that a properly functioning enterprise would have a profit to cover planned outlyas as well as for offering incentives. The more effective the enterprise's operations, the more profit it would derive and the larger the share of this profit (after payments for the use of capital, some fixed payments to the budget, and loan interest payments) would be at its disposal. These profits were to be the source of three economic incentive funds: the production development fund, the bonus fund, and the social fund.

As for material and technical supply plans, deliveries to enterprises of materials and equipment distributed by supervising organizations had to be approved. The role of economic contracts and material liability were to be strengthened. The 1965 Resolutions announced that there would be a gradual transition from the distribution of equipment, supplies and prefabricated materials (plany raspredeleniia) to the use of the wholesale trade system.

Whenever changes are made in the system of indicators, it is necessary to decide which of them will be used for the evaluation of enterprise operations. There have been many attempts in Soviet economic literature to introduce a universal criterion for the performance of enterprises, but these were far from practical planning. They either failed to consider many elements of enterprise operations or recommended that these elements be weighed. But the problem of weights can be solved only theoretically.

Further, what is most important, the experiments with criteria reduced the problem of economic foundations for the effective performance of the economy to a problem of planning methodology. They created a false sense that, when the right criteria are found and the optimal plan is computed, the economy will work in an optimal regime.

The Soviet planning system employs a multicriteria approach. Depending on policy, one or another criterion is given greater importance. Usually, each successive indicator introduced for such a role is declared some sort of remedy for the economy. The perpetual pattern of changes is approximately as follows: sometime after the introduction of an indicator or a group of indicators, the shortcomings become apparent and leading planning specialists begin to write memos on the subject. If the question is open for discussion, articles relevant to it appear also in economic literature. It takes a few years before changes are made (if they are made at all), and, since none of the indicators possess only advantages, the process repeats itself. The natural question is why the possible disadvantages are not discussed a priori.

Of course, there is no unique answer. When things go badly, planning authorities have to do something or propose something to be done within their spheres of responsibility. The rules of the game are such that an appearance of improvement must always be produced. On the other hand, many planners try to do their best, and, since they cannot propose a change of principle (one can guess

that some of them might want to), they substitute one indicator for another, believing that the shortcomings of the former are fewer than those of the latter. There is always room for hope.

From the very beginning, the hope to increase the role of the demand side of the economy by replacing the gross value of output with sales revenue was unrealistic. More will be said on this score in considering the system of material and engineering supply. For the present, we will note that purchasers have no economic rights and agree to any terms for the suppliers' convenience. They do not want to jeopardize their relations with powerful suppliers who could, by violating delivery agreements, hinder the fulfillment of purchasers' production plans. Every year the State Arbitration Committee (Gosudarstvennyi Arbitrazh) examines thousands of complaints concerning broken economic contracts. The injured party is always a purchasing enterprise or organization [3].

With the growing role of sales revenue, enterprise managers began to concentrate on goods and work which consumed materials and energy and received a large share of finished parts from cooperating enterprises. Enterprises could surpass plan targets in volume while underfulfilling them in quantity. (The situation was especially beneficial to machine-building plants). As a result, planning authorities gradually began to increase the list of products included in plans. But enterprises could still take advantage of the essential growth of prices on goods such as rolled metal, trucks, machines, cotton, etc. This growth was especially pronounced in

machine-building where the average price of machine tools increased just in 1975-1980 by 42.5%, forges and presses by 28.7%, trucks by 43.7%, etc. [12].

As elsewhere, price growth is not welcomed in the Soviet economy. The traditional approach to planning is to avoid including negative events in plans even though they take place in fact. The basis for this is the plan "mobilizing effect" under which, e.g., by underestimating planned prices, one will inhibit their growth. In general, the mobilizing effect plays a very important role in planning, and we will dwell on it below. Since prices grow in practice faster than in plans, the actual increase of weighted average prices is underestimated in planned targets, and, therefore, enterprises overfulfill their targets in money terms. As a rule, aggregate prices (gruppovye tseny) are .5-1% higher than those planned, and for some goods the difference is much greater [12].

There have been numerous instances of plan goals producing results quite opposite to those projected. For example, there was much confusion surrounding sales revenue in energy producing industries. Enterprises tried to sell to their customers, i.e., other enterprises, as much energy as possible, especially at the end of a year when there was a threat of not meeting the sales plan. A Western reader may find no fault with this, but anyone familiar with the working of a planned economy will know how much waste such practices produce. Not until the world energy crisis

were urgent measures taken. In 1974-1975, sales revenue was abolished as a confirmed indicator for electrical power and gas industries.

Planning authorities, gradually gaining experience, began to change their attitude toward the main provisions of the 1965 Reform. This had been impossible until the middle of the 1970's, i.e., after the first honeymoon years of the Reform. It became obvious that if one indicator was considered more important than another, and consequently gained influence on the bonus fund, then the values of the others took a turn for the worse. For example, according to the 1965 Resolution, enterprises were to plan their labor productivity and production costs independently. But within a few years of its introduction the new system began to deteriorate. The problem was that enterprises could increase sales revenue with the result of increased material expenditures or even wages as long as the total stayed within predetermined limits. In any event the bonus fund was growing.

For this reason the decision was made in 1973 to return to the practice of designating the labor productivity indicator, measuring it in growth rate terms. Along with the obligatory output goals which are the numerator of this indicator, that meant stricter control of the number of persons employed, which serves as the denominator. This is not equivalent to dictating employment limits, since with the fulfillment of productivity targets and the surpassing of output targets the number of those employed can even

grow. That is why it was decided also to assign employment limits for enterprises located in Moscow and Leningrad. In spite of severe restrictions on settlement in these and other cities, some industrial and, in particular, construction enterprises considered to be very important obtained special permission from the Central Committee to hire workers from outside areas. That measure was approved to create a single source of information about the process, to increase control over it, and to force enterprises to present well-founded requests.

The case of production cost is more complicated than that of productivity. Several memos by Gosplan specialists which I happened to read at that time, drew attention to the problem of the rapidly increasing cost of production. To prevent enterprises from simply finding excuses and to penalize them when the cost of production was moving in an undesirable direction, the authors recommended a return to the practice of stipulating production cost in plans. But there is another side of the problem over which those experts had no authority. That is the quality of goods and services, the well-known Achilles' heel of a planned economy. One of the reasons for not dictating cost is to encourage enterprises to include more new products which could be more costly in their production programs. The 9th Five-Year Plan (1971-1975) was proclaimed as the "period of quality" (piatiletka kachestva) in which the quality of all products was to be improved. It was not

the time to return to the problem of production cost. In the 10th Five-Year Plan all the omissions of the 9th Five-Year Plan were to be made up for.

The alternative decision was made to intensify efforts to set norms for expenditures of materials, energy and equipment at all levels of management, including enterprises, ministries and the Gosplan of the USSR. Within the Gosplan, norms were to be used by departments not only in computing the cost of products of their own industries, but also in planning the allocation of their products. In the latter case, one department calculates production use of resources which it allots to industries supervised by other departments. This applies, for example, to the department planning electrical power. It determines the output of electricity not only according to the total requests of other departments, but also according to the aggregated norms for expenditures per unit of output for all consuming industries. At the beginning of the planning procedure, all departments submit their projections for outputs. Possessing average norms for expenditures of electricity per unit of gross value of output for all industries, the department estimates the total demand and develops the balance of electricity.

Since in the process of this work material balances (material'nye balansy) and information about output in physical terms are used, the number of products whose output is confirmed in plans in physical terms has grown gradually. If one of the advantages claimed for the 1965 Reform was the reduction of

centrally planned allotments of products, in the 1981 annual plan their number was almost the same as in 1963-1964, i.e., about 4,000. (By comparison, in 1968-1970 annual plans that number was around 2,700) [52].

By tightening requirements for norms for material expenditures and controlling wages, planning authorities attempted to solve the problem of the growing cost of production. At first glance, such a solution does not eliminate the possibility of introducing new types of goods, as would overall cost control, because special "relaxed" norms can be used for new technological processes. As the 9th Five-Year Plan did not result in a dramatic change in quality, new goals were imposed to that end. Since 1976, the share of products in the high quality category has been planned and has become an additional indicator confirmed in the plans.

Another problem that concerned planning authorities was that of apparent "growth without real growth." The economy needs real goods and services. But any major indicator in money terms presents the possibility of choosing, within limits, the remunerative items in the controlled commodity list (nomenklatura) while neglecting others (due to variations in price growth, as described above, and to other factors as well). While output in physical terms was stipulated in plans, in 1967 ministries obtained the right to make changes for enterprises during the course of a year, after coordination of the problem with the Gosplan. Before that only direct action of the Gosplan could provide such changes.

And, what is most important, only an indicator measured in money terms can be used to evaluate an enterprise's operation and to form incentive funds.

2.2. The Evolution of the Incentive Provisions

In his book [6], Berliner suggests the following generalized formula for the bonus fund planned for Soviet enterprises:

$$B = \bar{B} + W_o[k_v(V-\bar{V}) + k_p(P-\bar{P}) + k_\ell(L-\bar{L})],$$

where B = the size of the bonus fund in the current annual plan,

$\bar{B}$ = the size of the current year's bonus fund as approved in the enterprise's five-year plan,

$\bar{W}_o$ = the total wage bill in the last year preceeding the current five-year plan,

V, P, and L = the current year's actual targets for increased value of output, for the profit rate, and for increased labor productivity, respectively,

V, $\bar{P}$, and $\bar{L}$ = the corresponding five-year-plan targets for the current year,

k_v, k_p, and k_ℓ = the corresponding coefficients.

Although the formula catches the idea, some details need clarification. The 1965 Resolution prescribed that the bonus fund would be computed as the percentage of the total wage bill

depending on the growth rate of sales revenue in constant prices (or profit in current prices) and the level of profitability provided in the annual plan. From the beginning, difficulties arose in the attempts to introduce a unified approach, not only among different industries but also within them. The reason was the varied profitability of enterprises.

For example, in the garment industry the ratio of the profitability of the best to the worst enterprises is about four to one. Evidently, pure manipulation of prices will not eliminate such a discrepancy. Sales revenue growth in this industry depends on the quality and prices of fabrics, not on the operation of enterprises. To reduce such dependence and corresponding fluctuations of the bonus fund, it was decided to compute it on the basis of total sales, not the growth rate.

At some enterprises of industries such as, for example, coal, oil, and ferrous metallurgy, sales revenue does not grow at all. Special systems of incentives were introduced for those enterprises, in some cases different from the incentive systems for whole industries. In the coal industry, special experimental prices (raschetnye tseny) were computed, for this purpose only, so that they could guarantee the minimum stipulated level for the bonus fund.

In general, depending on the conditions in an industry, one of the indicators -- total sales revenue, its growth rate, profit, or its growth rate -- was used for the determination of the bonus fund, separately or in combination with the level of profitability. Even

the latter was computed differently, as the ratio of profit either to the sum of "normed" fixed and working capital or to cost. The intention was to increase the bonus fund for unprofitable enterprises and to reduce its growth for those with high profitability. In the first situation, profit is usually the preferable criterion and, in the second, sales revenue.

In all cases, when the method applied deviates from the basic instruction, it must be approved by the Interdepartmental Commission for New Methods of Planning and Economic Stimulation (Mezhduvedomstvennaia Commissiia po Voprosam Primeneniia Novykh Metodov Planivovaniia i Ekonomicheskogo Stimulirovaniia) at the Gosplan.

The principles described were formed at the end of the 1960's. They were applied in calculations of bonus funds also in the 9th (1971-1975) and 10th (1976-1980) Five-Year Plans. But, since from the beginning of that period annual subdivisions of five-year plans were computed, it was decided to relate bonus funds also to successes in meeting those annual targets. Therefore, the above principles continued to be used only in fixing the basic yearly values of the fund in the five-year plan. The actual values of the fund, however, could be higher or lower than those depending on targets adopted by an enterprise in the corresponding annual plan.

Beginning from 1973, such a change in the bonus fund was calculated with fixed normatives depending on the discrepancy between the targets of the annual plan and the five-year plan. Several indicators -- the growth rate of the gross output, the

level of profitability, the growth rate of productivity, the proportion of high-quality products having a special "seal of quality" (znak kachestva), and, added in the 10th Five-Year Plan, the degree of underdelivery -- determined the fluctuation from the basic value of the fund fixed in the five-year plan.

The 1965 Resolution called for increasing the role of economic contracts and the responsibility to meet them. Stricter penalties were imposed, although they did not influence the bonus fund directly and, for this and many other reasons, did not succeed. Violating the "assortment plan," enterprises could meet the plan targets in total estimates, failing to meet the requirements for the quantities of goods produced. In 1976-1977, a methodology was developed for calculating bonus fund with a delivery plan account. The provisions of the method are as follows. The operation of an enterprise is still evaluated with an indicator in money terms. But all deliveries are both totalled and counted separately. Underfulfillment of the plan in one case is not concealed by surpassing it in other cases. The quantity of an "underdelivery" measured in money terms is subtracted from the planned sales target, automatically reducing the incentive fund. The idea can be illustrated with the following formula:

$$Q_a = \bar{Q}+S-U,$$

where Q_a = the actual sales revenue of the enterprise,

$\bar{Q}$ = the planned sales revenue of the enterprise,

S = the inflow of sales revenue resulting from surpassing some delivery contracts,

U = the losses in sales revenue resulting from underfulfillment of other delivery contracts.

Then the Gosplan calculates only that value of sales revenue, Q_c, which is in accord with the planned contracts for delivery:

$$Q_c = \bar{Q}-U,$$

and substitutes the result for Q_a in computing the bonus fund. Using this approach, planning authorities decreased the bonus fund by 128 million rubles in 1979, but that had little effect on delivery totals [51]. Numerous corrections to plans, changes in assortment and terms, price growth, etc. contributed to this. Planning authorities had serious problems trying to isolate cases of real violation for which enterprises could be penalized.

Some economists raise the question of why the Soviets do not use profit as a single reasonable indicator for evaluating enterprise operations. The above considerations demonstrate, however, that it does not appear so reasonable to them. Each time that it is necessary to improve the situation with an indicator, direct regulation is required. For this reason, the number of indicators influencing the bonus fund eventually grew. Different systems were introduced for enterprises in the same industry, and rates of deductions into the bonus fund for meeting the same target varied substantially over time [46].

A new change in the evaluation of industrial enterprise operations was introduced by the 1979 Resolution of the Central Committee and the Council of Ministries [44]. The sales revenue is no longer the major indicator determining the size of incentive funds and bonuses. Sales revenue is still dictated for enterprises, but only in annual plans, and only at the ministry level once approval is obtained from the Gosplan of the USSR. Now incentive funds depend on the growth of labor productivity, increases in quality, and success in completing contracted deliveries. As mentioned above, these indicators were used as criteria for computing the bonus fund previously as well. But their role was reduced to influence on the fund's growth, not its basic value. Sales revenue and profitability were considered more important for most industries. Since the 1979 Resolution, labor productivity is one of the major targets of the plan, and it is mandatory as it was before the 1965 Reform. Corrections for planned delivery targets are made as in the case illustrated above.

The 1965 Reform provided a reduction in the number of indicators used for evaluating enterprise operations and forming incentive funds. For these purposes, the 1979 Resolution introduced two indicators -- labor productivity and the proportion of high quality products -- but the first is the ratio of net product to the number of employees. Therefore indeed three indicators must be considered rather than two. Further, norms for deductions into incentive funds are defined in percentage of profits. Since, at the same rate of

deduction, the greater the profit the higher the bonuses, the profit can be viewed as the fourth indicator influencing the size of incentive funds. Finally, since deduction rates are reduced when delivery targets are not met, there are five such indicators in all. But this does not exhaust all the possibilities. In extractive industries, for example, the output growth in physical terms is the main contributor to the bonus fund. The 1979 Resolution mentioned also other criteria such as saving material resources, profitability, reduction in cost, etc. In combination, all these indicators, while applied in an industry, may play a role quite opposite to that projected. Maneuvering within limits of a few degrees of freedom, enterprises can anticipate compensation for failures in terms of one indicator, and corresponding reductions in bonus funds with successes in others. Methods considered most suitable for each industry will be set, probably, in the early 1980's.

Before and after 1965, labor productivity was measured as the ratio of the gross value of output (tovarnaia produktsiia) to the number of those employed. Now the numerator of this fraction has been replaced with the net value of output (chistaia produktsiia). Its economic sense is close to the Western definition of net value added measured as the net national product minus indirect business taxes. In a planned economy, the role of the latter is played by the so-called turnover tax imposed on consumer goods.

The net value of output was for a while the subject of debate. Its supporters stressed that the sales revenue indicator, besides

presenting the problem of double-counting, encouraged enterprises to produce more material-consuming goods. Many planning experts at all levels -- from enterprises to the Gosplan -- objected primarily for the technical reason that it would be difficult for enterprises to compute this indicator. Indeed, enterprises calculated material inputs and net value added only for direct productive processes, not for overhead payments. When direct net output calculations were introduced experimentally at some enterprises, there were problems with distribution of overhead and nonspecified payments for various production items. Therefore, it was decided to use net product as a normative indicator, i.e., to compute it on the basis of norms for the share of net product in the gross value of output [30].

The scheme of calculations is organized in the same way as for the gross value of output in money terms. The difference is that the quantities of goods produced are multiplied here not by weighted average wholesale prices, but by the net product norms fixed for each item. The scheme can be illustrated with the following formula:

$$N = W(1+K_m) + \pi_n,$$

where N = the normative of the net value of output computed,

W = the total wage bill of production workers,

K_m = the coefficient reflecting the ratio of total salaries of managers and other peripheral personnel to wages of production workers,

π_n = normative profit computed as the product of normative profitability and total cost net of the cost of material inputs.

The normative of the net value of output confirmed in the plan, N_c, is based on N and is usually lower than the latter. Thus this normative is much like a price which indeed, for a planned economy, is also a kind of normative parameter. Since fuel-extracting industries such as coal, gas and oil do not consume raw materials produced by other industries in their technological processes, they still will use gross outputs for calculating labor productivity.

At this stage, we will point out that this indicator, like others used in evaluating enterprise operations, will create problems. A serious technical problem arises because of the normative approach. Since the net output norm is an average, it must be changed continually throughout a year as goods are added or excluded from the basic product mix. Further, there is also a problem of principle. If sales volume encourages enterprises to produce material-consuming goods, the net value targets will orient them to produce more labor-consuming goods. Trying to block any such possibility, the 1979 Resolution imposed limits on enterprise employees as confirmed in the plans. But, even with a fixed level of employment, an enterprise can choose to produce goods merely because they require much labor.

2.3. The Principle of Payments for Resources, and the Role of Material and Technical Supply

Marx considered the growth of the organic composition of capital, defined as the ratio of fixed capital to wages, as an indicator of capitalist exploitation. In a planned economy, exploitation by definition does not exist, and the change in the above proportion in favor of capital is considered as intensive growth stemming from advanced technology. Rough calculation shows that for the Soviet economy this ratio increased 1.3-1.4 times from 1960 to 1978 [32]. The data in the following table characterize the growth of the national income and utilization of resources in recent years [48].

TABLE 2.1. National Income and Utilized Resources

Indicator \ Year	1970	1975	1978
National Income in Constant Prices, Billions of Rubles	289.9	382.7	443.5
Productive Capital,* Billions of Rubles	857	1256.1	1515.8
Wages in Material Production, Billions of Rubles	114.6	148.2	157.2
Capital Per Ruble of National Income	2.96	3.28	3.42
Wages Per Ruble of National Income	.40	.39	.35

*Productive capital is defined as the enterprises' fixed and working capital.

As we can see from the table, productive capital increased in 1970-1978 more rapidly than national income, with the consequence that the ratio of the existing capital to national income grew from 2.96 to 3.42, i.e., approximately by 16%. On the other hand, the share of wages in the national income declined by 12.5% over that time. Hence, the growth of expenditures of basic funds and material resources in industry outstrips the cost of labor.

Resources are the central focus of planning. Years of observation has convinced me that the real power of planning authorities lies in their ability to distribute resources. All disputes about delegation of functions among the ministries and the Gosplan concerning, for example, the latter's concentration only on perspective planning, stem from the problem of who will distribute the resources. Almost all resources were distributed in annual plans, prompting conflicts about short-term and long-term planning. The 1979 Resolution made an attempt to change the situation by increasing the role of five-year plans in resource distribution. We will discuss the features of various plans later.

There are many stages in mutual adjustment of production plans and material resources. To compose a production plan, an enterprise must form an idea of the resources that it might receive. After the production plan is compiled, based on resource limits and imposed targets, requirements for resources can be determined more precisely with direct calculations. The totals of these requirements represent the demand side, and production plan totals the supply side of the

economy. We observe that in such a scheme the demands are derived from plan targets, i.e., they differ from what one is used to in the supply-demand diagram. Once production plan alterations are made, coordinated and accepted at all levels of management and government, corresponding changes in derived demands follow. Resulting is so-called "satisfied" demand. When enterprises are informed as to what their actual resources will be, they must adjust their production plans to the changed conditions. This is to be done after the planning period starts. Gradually such adjustments influence the supply of other enterprises, as a result of which corresponding changes are made in their "satisfied" demands. And so the chain process goes.

The 1965 Reform introduced payments by enterprises for fixed and working capital. Previously profits from enterprises had been siphoned into the budget in two forms, as deductions from profits and as turnover tax on consumer goods which was considered independent of enterprise operations. As mentioned above, direct payments from enterprise profits for fixed and working capital replaced overall deductions in 1965. They were supposed to gradually become the main source of budget revenues, with a diminishing role of turnover tax. The rationale behind introducing payments from enterprise profits was to stimulate enterprises to use materials and fixed capital with care: the higher the payments the lower the remaining profits and, therefore, the bonus fund. We will not go into detail here as this approach was well publicized in

the West. What is important to note is only that the idea was abortive from the start, and that its role has decreased to almost nothing.

Theoretically, the idea looked attractive. However, it could not work because it was impossible to balance payments for resources and incentive funds. Industries make different rates of profit which depend heavily, among other things, on prices. The 1967 increase in wholesale prices when, for instance, the average price of coal grew by 80%, and of electrical power by 25%, did not change the situation dramatically. There were attempts to manipulate normatives of profitability in order to smooth differences among industries, but, as discussed above, this was impossible to accomplish even for enterprises in the same industry. That is why payments for resources could effect only poorly operating enterprises. These however received assistance from the budget. After making payments for capital and forming incentive funds, effectively operating enterprises faced large residuals of profits that they had to pass on to the budget. Sometimes this free residual was 8-10 times greater than payment for resources. What is more, there are about 30 special bonus funds for achievements in various areas, so that enterprise managers have ways to compensate for penalties.

The creators of the 1965 Reform concentrated their efforts on an incentive system for meeting a variety of planned targets. However, although it is possible to encourage careful utilization of resources, none of the incentives can take the place of economic

responsibility for use of additional resources in the production process. The crucial point is that incentives for high plan targets result only in a demand for more and more resources.

To some extent, the "incentive" philosophy of some Soviet economists stems from an erroneous interpretation of the problem of optimal mathematical programming. They applied to reality the conclusion derived from this model that it is possible to find an optimal solution subject to any constraints on resources. Much attention was paid to the investigation of possible criteria, in the belief that in this was the root of the problem. What is valid for the model never matches reality exactly, owing to the set of explicit and implicit assumptions. We would mention such "obvious" implicit assumptions as: (1) those who use resources accept risk proportionate to the profits that they want to make, (2) the market indicates real demand for goods and services that are to be produced, and (3) prices reflect, along with other problems of supply and demand, preferences of consumers. None of these assumptions is valid for the Soviet planned system. If a market appears to have been created through the system of material and technical supply, and artifical normative prices exist, no attempts are even made to imitate the mechanism of risk and economic responsibility for utilization of resources in the economy. Whether the question may or may not have an answer is another story. But the fact is that the 1965 Reform did not raise it. We will examine this important point in more detail later.

The capital investment plan is a well-known illustration of waste of national resources in conditions of complete absence of risk. According to Gosplan norms, the terms of construction for most industrial enterprises do not exceed 4-5 years, from which we may derive that the annual investment must be 20-25% of the total by estimate. But the 1970 average investment, for example, was almost three times smaller than this [13]. This means that the total of 35 thousand construction projects throughout the country was approximately three times greater than the capacity planned for the economy. In 1970, ministries and departments moved for more than a thousand large-scale construction projects, which are usually specified in the national economy plan, and more than 300 of these were approved by the authorities. In spite of all attempts to improve it, the situation has deteriorated in the 1970's. In 1975-1979, the accumulation fund (nakoplenie), two thirds of which is used for fixed investment, increased by 12.5 billion rubles, while the "unfinished" investment grew by 29.9 billion rubles [48]. Such an imbalance at the expense of other items in the accumulation fund indicates that the number of simultaneous construction projects has grown, with longer average terms of construction.

Nevertheless, investment is an indicator which is much easier to control than the numerous goods distributed through the system of material and technical supply. This system was a subject of controversy prior to and in the first years after the 1965 Reform. It is known that one of the Reform's provisions was a gradual

transition from the distribution of means of production to wholesale trade. Articles describing the shortcomings of distributing goods through the system of material and technical supply appeared even in newspapers, i.e., were accessible for popular reading, which means that they were approved by the Central Committee.

Common opinion held that such a rationing system was developed because of shortages of many products, but that the system, in its turn, perpetuated those shortages. The norms for material expenditures a priori had been overstated. Organizations supervising enterprise operations were incapable of checking technological documentation, so that Gosplan's approach to the problem was to approve norms for expenditures on the basis of actual expenditures in the previous year, with an obligatory reduction of these. Therefore, according to the rules of the game, the response of enterprises was to fix these norms at levels that could be reduced but still meet plan requirements and form incentive funds.

In the early 1970's, debate about the system of material and technical supply ended. The list of resources whose distribution was delegated to the lower levels of management shrunk, and the number of material balances and plans for distribution of goods developed and approved by the Gosplan and Council of Ministers increased dramatically. As a result, the Gosplan had already developed about 2,000 material balanced in the 1981 annual plan, more than three hundred of which were approved by the Council of Ministers. Ministries and Departments developed a total of 25,000

balances [16]. What is more, in order to strengthen the role of five-year plans, an attempt was made to develop some balances and allocate the most important materials in the 1981-1985 Plan. In the 1979 Resolution, the material deliveries indicator was assigned in both five-year and annual plans. The targets for reducing norms for material resource expenditures were to be designated in five-year plans.

Liberal economists usually blame planning authorities for such developments. We cannot agree with this. If the results of the slight decentralization of material supply by the 1965 Reform had been positive, probably more decentralization would have followed. As mentioned above, the main problem of economic responsibility was not solved or even defined by the Reform. It is interesting that Solzhenitsyn has understood this better than some economists. He called the situation "obezlichka" (an overall lack of any responsibility). If the system cannot work to create some risk for utilizing additional resources, and nobody takes material responsibility for it, we would say that resources are much safer when they are centralized. At this point, of course, we come full circle because the authorities who take care of resources are also irresponsible. But, at least, the process of decision-making is dispersed among several levels, and there are many stages of control there. Some protective measures developed by the planning system will be discussed later.

2.4. The Productivity of Labor and Stimulation of "Intensive" Plans

The main methdological change in computing labor productivity introduced by the 1979 Resolution was the transition from the gross to net value of output per employee. The net value was used for this purpose before, too, but only at the national and republic levels. Ministries and enterprises did not compute their net value added, and used only the measure of productivity with double-counting. Technically, this is only a minor change. But the attitude and philosophy on the importance of this indicator has changed essentially over the last 15 years.

Although planners have always paid attention to labor productivity, the 1965 Reform eased the requirements for its planning and accounting. Implicity it was considered too "direct" a target of control. The idea was to impose a set of incentives and to grant funds to enterprises which would force them to use resources in the best way so that labor productivity would grow as a derivative. Also important is that, in the first several years after the Reform, the average wages per employee were not under strict control, and some enterprises began to reduce the number of those employed and increase wages and salaries. This created two sorts of problems, political and economic. We will not discuss the political importance of the problem of employment and unemployment for the Soviets. What we would like to note simply is that the economy was not ready for such a development. From the beginning, party authorities opposed layoffs of workers, and the process was taken

under the control of the Central Committee. Only a few special enterprises were chosen to conduct "experiments" with productivity, employment and wages. Some of those results will be discussed later.

The economic problem of the growth of labor productivity with the consequence of wage increases is more interesting for our study. Paradoxical as it may seem, restricting wage increases is sometimes more important for the Soviet economy than letting production grow with increasing wages. Planners realize this better than some Soviet economists. The usual pattern of economists' thinking is that if both output and wages increase, and the labor productivity level stays ahead of the average wage per employee, the nation's welfare is better served. But there are no market mechanisms that could indicate even a rough estimate of equilibrium, so that generally speaking the pattern is wrong. For example, if the output of heavy industry increases sharply and those employed in it receive higher wages, but output in the areas of food and light industries and services fails to grow in the same proportion, then workers receive money that they cannot spend for goods and services. Shortages emerge, and so does inflationary pressure.

Moreover, this situation can arise even when the output of consumer goods increases. Ostensibly, the trading network buys such goods from enterprises, but, in fact, the goods are distributed through the supply system. In this process, trade organizations may receive products that are not in demand. Because of shortages,

consumers will purchase foods of any quality. But nobody can force them to purchase poor quality clothing or services. Of course, they often do not have other options. Without further detail, we can notice that consumers may spend less money for poor quality goods than was planned. When these goods lie on shelves for years, and the prices are discounted sharply or finally written off, it adds to the discrepancy between national income distributed and national product actually used in the economy.

The prohibition on layoffs and rigid control over average wages per employee after the introduction of the 1965 Reform made enterprises reluctant to set high targets for labor productivity. In response, in 1973 labor productivity was fixed as designated in plans, and associated targets became obligatory. Then the third stage followed. The 1979 Resolution was made the growth of productivity, along with targets mentioned above, the main indicators for evaluating enterprise operations and forming the bonus fund. The methodology of calculation was changed, and the normative net value added per employee became the major plan target.

In the late 1960's, the Gosplan Department for the Introduction of New Methods of Planning and Economic Stimulation (Otdel po Vnedreniiu Novykh Metodov Planirovaniia i Ekonomicheskogo Stimulirovaniia), created in 1965, initiated an investigation of what the "intensive" plan targets for enterprises must be. This was an admission of the failure to stimulate enterprises themselves

to set high targets. Behind this step was the following rationale. Managers and enterprise employees got incentive funds and bonuses for fulfillment and overfulfillment of plans. However, the question was to what extent imposed targets were high, and how much better enterprises could operate under other conditions.

This work got a great deal of publicity among planners and in special literature. The Scientific Research Institue for Planning and Norms (NIIPiN), which I worked for, was the major executor of the investigation. From the beginning the study took two directions. The traditional approach was to organize the overall inspection of production capacilities of enterprises, which has been almost completely abandoned with the introduction of the 1965 Reform. Special inspection teams were created at the Institute, with the responsibility to develop and perform such an inspection at representative enterprises. Getting ahead of our story, we can say that this approach was at least more successful than the other one.

The second direction was scientific. A special indicator and a method of calculating the degree of "intensiveness" of plan targets had to be introduced. Research was divided into two parts, the first for enterprises and their associations, and the second for Ministries and Departments. But the idea was fruitless from the very start. Behind its scientific verbiage there was nothing new. The whole history of planning has been an attempt to construct

and impose "intensive" plans for enterprises using one or more indicators.

Of course, to find a universal indicator which could solve the problem of commensurability of different plan targets was always an attractive goal. But each time attempts failed because of the non-existence of such an indicator. Usually the production possibilities of enterprises are measured by the degree of utilization of their installed equipment, labor force, raw materials and production capacities which are the theoretical maximum outputs. The relative importance of these indicators is different for different industries. For those producing consumer goods the most important is the problem of raw materials. For machine-building industries, where production capacity was traditionally the key indicator, the problem of utilizing metal gradually assumed first priority.

The investigation initiated in the 1970's attempted to replace these incompatible indicators with a universal one. Initially researchers looked for something completely new, but very soon they returned to the existing indicators, this time to seek a new way to measure them. The only problem was determining their relative weights. For instance, there were proposals to use the product of labor productivity and the coefficient of utilization of capacities, or the square root of their sum, and so on. Several times the Gosplan gave instructions to experiment with calculations based on these proposals. As could be expected, all attempts came to

naught. The "Instructions for Computing Intensive Plans" [29] adopted by the Gosplan in 1980 is evidence of this. A summary of the "Instructions" follows.

A plan is considered "intensive" if it ensures the fulfillment of authorized targets and efficient utilization of resources. Among the indicators used in evaluating the degree of a plan's "intensiveness" are: (1) utilization of production capacities; (2) labor productivity; (3) proportion of high quality products; (4) production cost. The degree (coefficient) of "intensiveness" is determined as a ratio of an actual value of an indicator to its normative value, and its optimal value is a unity. The criterion of "intensiveness" is usually one (or sometimes two) of the above, with the others serving as complementary. The selection must be made by the supervising organization according to the concrete targets of each industry and the specific character of its production. Also, it must be taken into account that, with the growth of production capacities, output also must grow. And this is the result of more than ten years of research.

The key to these problems of incentives and criteria are wages and their distribution among the employed. If the 1965 Reform stressed the importance of designating the total fund of wages in plans, the 1979 Resolution declared that labor productivity, limits on the number of employees, along with previously imposed limits on wage rates, were the most important targets of the labor plan. The policy on wage funds has been

changing. The following provision was made. Wage funds must be planned not in absolute values, but with normatives per unit of output (net value for most industries). This means that, with growing output, total wages can also grow within limits [31]. Of course, wage increases per employee are under rigid control, and possibilities for reducing the number of workers are restricted. Nevertheless, we think that an undesirable trend of wage increases will show up in those industries which have already shifted to normative planning of wage funds. As before, the authorities will be probably obliged to impose, besides the above normatives, absolute upper limits for wage funds.

The problem of wages growing faster than the production of consumer goods was discussed above. From discussions with planners, I gathered that, in an annual plan, a difference of several billion rubles between total wages and the supply of consumer goods is usual. The real effect is even more pronounced if we take into account that some goods are not sold for many years, and, eventually, their prices are discounted sharply relative to their costs. The accumulative effect of such a discrepancy is an important contributor to inflationary pressure in the economy.

In connection with the topic of labor productivity, let us touch on the widely-discussed problem of the insufficient work force in the USSR. By definition labor productivity can increase with the growth of output and/or reduction in the size of the work force. Party and planning authorities want enterprises to meet

high productivity requirements through increased output, while enterprises would be more interested in reduction of work force if there were a possibility of wage increases. Since the latter is not the case, enterprises are not interested in real layoffs. On the contrary, when the output targets get higher, enterprises demand that employee limits be raised. There is much evidence that such demands are artificial. An officially documented case was the "Shchekino Experiment" conducted at the chemical plant of the same name. Interestingly, such explicit information was available only in the first years of the development of the 1965 Reform.

The Shchekino Experiment was initiated in 1967. The idea was simple: to meet plan targets with a smaller work force when the only restriction on wages was that their total was fixed. Although, in fact, the degree of freedom was not so great, the essential growth of wage rates both for workers and managers was allowed. As a result, 853 persons were laid off in less than two years [47]. Although no information on the scale of the layoff was presented, a rough estimate of implicit data shows that this amounted to about ten percent of those employed at the enterprise. One of the preconditions was that those laid off would be hired by other enterprises, and the Ministry for the Chemical Industry of the USSR was involved in solving the problem.

The results of the Shchekino Experiment were discussed and approved by the Central Committee, which indicated the importance that was assigned to the case. The Central Committee authorized

continuation of the experiment at several other enterprises including machine-building plants, but this lasted only until the early 1970's. It was possible to place laid-off workers in other enterprises only in isolated experiments. The thought of such an experiment on a mass scale would be frightening. So the answer to the question of whether there is a labor shortage in the USSR is, as in many situations, yes and no. Everything depends on the assumptions made. Under present conditions, the answer is yes. But, we think, the answer should be negative for the potentialities discussed in Chapter 5.

2.5. Incentives, Control and the Problem of Economic Responsibility

As discussed above, there were during the last 15 years many attempts to arrive at a compromise between the economic methods of management and direct control by the central authorities. From this standpoint, the 1965 Reform was not of much help for the economy. Gradually, all the provisions of the Reform began to work in directions opposite to those projected. The cause of this was not only the reluctance of party and planning authorities to put into effect all the Reform's provisions, as some economists allege. The real problem was that the creators of the Reform attempted to build a structure without a foundation. It was a well-reasoned logical model on paper, but a failure in practice. Whether the Reform was a move in the direction of decentralization of the economy, as is widely believed, is another story. More will be said on this score in the next chapter.

The idea of the 1965 Reform -- to fix criteria for and constraints on resources, develop a system of incentives, and let enterprises find the best ways to conduct their operations -- was attractive, but not realistic. Enterprises will find ways to comply with directives, but will do no more. Important here is that incentives work in only one direction, as reward for achievement. But that is not enough. Managers of enterprises control vast national resources. Officially, the resources belong to all people. In fact, many small groups of authorities at all levels of party leadership and government are in command of them, although they take no economic responsibility. By economic responsibility we understand merely paying for resources from one's own pocket and incurring losses in the event of failure. From this point of view, it is obvious that the resources belong to no one.

It can be said that the central question of the Reform is how to encourage managers and workers to operate with the feeling that the resources they manage and use belong to them when, indeed, it is not so. This question is usually applied in the literature only to workers and other enterprise employees. Sometimes the opponents of the regime explain workers' low productivity as an implicit protest against the system. If the problem was only with workers, it would be much easier. Simplifying the matter, and excluding agriculture for the moment, we would say that, in industries where workers must precisely carry out instructions, wage policy still works.

There are numerous examples of this of which we will mention three that are better known: (1) Every year many teams of workers voluntarily go to Siberia for summer work, often having quit their jobs. They work there 16-18 hours a day, almost without a break, earning 1,000 and more rubles a month. (2) In the coal industry, two targets for production plans are set up -- a basic one and an extra one. For the fulfillment of the former, workers receive regular wages and for the latter twice as much. This system was successful in increasing productivity. (3) In some special work programs, ministries or enterprises themselves are permitted to use the so-called "for work" (akkord) system of payments. This means that a team of workers gets a stipulated sum of money when the work is completed, no matter how long it takes. Under such agreements workers sometimes try so hard that they even ignore safety regulations, and injuries often result.

Unfortunately, precise adherence to the instructions is not sufficient for the management system. The problem of responsibility of managers is a peculiar one for the Soviet system in general. While economic literature and daily papers mention numerous cases of mismanagement, reference is made only to individual managers. When something goes wrong, a person can be declared a bad manager even if he is not at fault. Somebody is always found responsible for shortcomings, whether a director, supplier, builder, or even a minister. There must be a scapegoat. But blame is never placed on management as a whole, i.e., the system.

Surprisingly, economists do not view the problem of spending national resources in the race to meet plan targets in terms of economic responsibility and do not pay attention to it. Discussing the problem with some lawyers working in economic law and arbitration, I found that they understood the root of the problem much better than economists. An interesting article of this type was published in 1974 in the journal Planovoe Khoziaistvo [45], and the case is unique in Soviet economic literature. The writer does not delve deeply into causes or derive conclusions, but he stresses that there is no personal material responsibility on the part of the managers of enterprises. Therefore they have no motivation, without outside enforcement, to reduce costs, investigate production reserves, introduce new technology, place personnel, etc. Further, the writer notes that present legislation provides responsibility for material damages, but only when it can be proved juridically. Since it is impossible to connect such damages with the results of enterprise operations, the legislation does not foresee the individual material responsibility of managers. The author adds also that imposing fines on managers for failure to meet plans does not work because the managers compensate themselves at the expense of other bonus funds. Although in talking about economic responsibility, we did not have in mind the pure juridical punishment discussed by the author, we can agree with his description in general.

In the 1970's, efforts were launched to change the formal interpretation of goals planned by enterprises. Thus, the decrease in labor productivity brought a return to the pre-Reform policy of designating productivity in plans. Undesired wage growth brought rigid control of average monthly wages. Serious problems with material resources supported a centralized approach to their allocation, a move quite opposite to the 1965 Reform's spirit. Improved quality of goods was made mandatory. The Reform's criteria for evaluating enterprise operations were altered, but to no avail.

It is obvious that enterprises have continued to meet their plan targets only in a formal way. One who knows how managers, engineers and other employees of enterprises operate would not blame them for that. Working conditions get more and more difficult, targets for production plans harder to meet, and supplies less adequate. To satisfy plan requirements, managers often must conceal reality, misuse their authority, and even break the law. For example, it is known that a well-trained worker paid on a piecework basis receives his monthly "rate" even when there is no work. In construction, production norms, especially for unskilled workers, are so unrealistic and wage rates are so low, that one task is often recorded several times. The result of such activities by managers may be classified by the authorities either as a success in meeting plan targets, or a direct violation. No one knows in advance. One more example. As we have seen,

relationships with suppliers are very important. There are many ways to maintain their friendship, from presenting "samples" of consumer goods to outright bribery. In situations like these there is much temptation for those offering bribes, and so breaking criminal laws, to benefit themselves as well. At least, the risk that they take becomes more understandable.

As mentioned before, it is impossible to invent an indicator that will summarize enterprise performance and possess only advantages. The real picture is multiform, and each indicator can reflect only a part of it. That is why, even though enterprises seem to be bound hand and foot, they still have enough freedom to emphasize those indicators which will allow them incentive funds and to hide their real capacities.

For example, when the sales revenue was the main incentive-forming indicator, enterprises were inclined to produce more material-consuming goods. If profit is the criterion, they tend to manufacture expensive goods. With the recently introduced net value of output, one can predict that emphasis will be put on output of labor-consuming products. Since the 1979 Resolution declared labor productivity measured with net output per employee as one of the criteria for enterprise operations, enterprises will be interested also in keeping assigned plan targets for the number of employees at the highest possible level. In this way they can provide some reserves for future improvements. This will present

the possibility of increasing productivity gradually by decreasing the number of employees slightly.

Another interesting example is the approach to production planning. Before the 1965 Reform, enterprises received large bonuses for overfulfillment of plans, so that they were encouraged to set low targets. In an effort to discourage this tendency, the creators of the Reform decided to use a new system for forming incentive funds using two different scales -- a higher one for production meeting plans and a reduced one for production exceeding plan targets. According to their arithmetic, enterprises did not have to hesitate to accept higher targets since, at the same level of actual output, bonuses would be larger the greater the proportion of planned target in this output. Nevertheless, enterprises began to set even lower targets. The first reason was that setting higher targets means acceptance of higher risk: enterprises were penalized, and managers punished, for not meeting plan targets. Second, since bonuses for excess production had been reduced, the loss could be eliminated by increasing the volume of over-production. The problem in this case is to set a lower basic level of output which will guarantee the high level of overfulfillment. Therefore, many attempts were made by planning authorities to determine the real capacities of enterprises and force them to accept "intensive" plans. But, as discussed above, all attempts came to nothing.

Chapter 3

THE ORGANIZATIONAL STRUCTURE OF PLANNING, AND ITS INSTITUTIONS

3.1. The Branch Principle of Management

It is widely believed that the 1965 Economic Reform was a move toward decentralization of the Soviet economy. There is reason, however, to doubt that this is true. Party authorities who directed the process seemed to understand it better than some economists. Of the two consecutive resolutions adopted at that time -- concerning the restructuring of industrial management and introduction of planning for efficiency and economic stimulation -- Western economists pay more attention to the second. Yet, the first resolution had more serious impact on the economy [38].

The first resolution abolished the territorial principle of management which had been initiated in 1957 with the establishment of local National Economic Councils (Sovnarkhozy). The vertical branch principle of management was reestablished for industrial enterprises, and industrial ministries were recreated, in some cases from existing state committees. According to this plan, all machine-building

enterprises were to be supervised directly by more than a dozen national branch ministries. Within a few years some of the most important industries, such as gas, oil and chemical, and many large enterprises from other industries, were supervised on the "union ministry-enterprise" principle. Other industrial ministries were created on the union-republican principle, i.e., having branches in all republics or at least in those with a concentration of supervised enterprises. The idea was to establish dual subordination of their enterprises to the corresponding union-republic ministries of the USSR, and to the council of ministers of each republic in which the enterprises were located. But in practice the idea was fruitless for reasons that we will discuss later. Very soon republican supervision became only nominal.

Not surprisingly, Soviet economists used official phraseology in explaining important developments. The following is the standard explanation of the rationale behind the reorganization of industrial management [24]:

"Reform of the system of planning and economic incentive in industry is inseparable from simultaneous restructuring of industrial management. The national economic councils did a certain amount of useful work, especially in local production coordination, i.e., on a territorial level. But, at the same time, administration based on the territorial principle has also had negative effects: it has hindered the introduction of a single-branch technological policy; it has weakened intrabranch specialization and cooperation which are

no less important than territorial cooperation; it has led to a certain irresponsibility stemming from the lack of strict distribution of functions among national economic councils and branch committees, etc."

This explanation is typical of the "Khrushchev style," explaining everything with generalities which have become anecdotal: "The conditions are ripe."

Our aim is not merely to indicate that the writer was wrong. Now these words can have only historical interest. But the question is of such importance for the Soviet political and economic system that it deserves special consideration. It is obvious that all changes in indicators for evaluating enterprise operations, lowering the number of plan targets, and introduction of incentive funds brought about by the Reform were possible also under the territorial system of management. Two events occurred independently and with little cause and effect relationship between them.

The national economic councils had enlivened the country's economy since they were able to pay more attention to production of consumer goods, building materials, housing, municipal services, road construction, etc. One of the reasons for this was that they were closely supervised by republic and regional (oblast') party authorities who required their enterprises to be more locally-oriented in the production of commodities. On the other hand, these territorial economic councils complicated to some extent coordination of large-scale national projects such as the space program and the

manufacture of military hardware and demonstrated shortcomings in the organization of heavy industry. But a well-developed system of priorities in the distribution of resources and wages in combination with personal responsibility of the highest local authorities for meeting related plan targets helped compensate for inadequacies.

Since it is quite well known that the reason for the 1965 Reform was political rather than economic, we will not discuss this theme. It should merely be noted that Brezhnev's administration reversed the increase in the role of local party authorities, especially since the new leaders did not trust Khrushchev's local associates. On the other hand, in centralizing control of the party apparatus it was necessary to provide adequate changes in economic management. Indeed, its standing was strengthened as soon as all economic power had been concentrated in Moscow. Since the reform, the Central Committee of the Communist Party has gradually become the highest economic authority, surpassing the Council of Ministers of the USSR. The place of planning institutions in this process will be discussed below.

At this point, claiming that the new leadership brought economic management in line with centralized party administration, we come to a conclusion which contradicts the widespread view of the decentralizing character of the 1965 Reform. The difference in opinion stems from the fact that two events took place simultaneously. While economic administration was concentrated in some 50 ministries and departments in Moscow, the economic prerogatives of the enterprises supervised by them were supposed to increase. Which of these two

provisions had a stronger impact on the Soviet economy?

We consider several circumstances important in this respect. First, although enterprises could themselves determine, in accordance with the Reform, a few of their plan indicators, the decision-making process for other indicators, approved by the supervising authorities, became more centralized than before. Taking into account the inter-depence among all indicators, it is easy to understand the limited charater of enterprise autonomy. Second, the distribution of resources, which is of utmost importance in planning, was from the very beginning of the Reform concentrated in the hands of central institutions. All-union ministries became the sole holders of funds apportioned for enterprises in cases of both union and union-republic subordination. Third, enterprises were never allowed the alternatives designated for them. As discussed in the first chapter, the decision to delegate some rights to enterprises failed because no provisions were made to establish the economic responsibility of their managers and employees. Given the complete lack of economic responsibility, the striving for higher and higher plan targets to produce higher wages and bonuses led to the expenditure of more and more national resources in the production process without proportional impact on the public welfare As a result, party and planning authorities eventually moved away from almost all the provisions of the 1965 Reform.

For the above reasons, we believe that the primary effect of the Reform was the centralization of economic management, with the long-term result of economic deterioration in the republics and

provincial regions of the country. Will Brezhnev's successors return to the territorial principle of economic management? We will also postpone the discussion of this topic for later.

What is important now is to stress that the mere delegation of some rights to enterprises is not a move toward decentralization of the Soviet economy. Under the existing political and economic system, in which the managers are not affected by enterprise losses because they are not economically responsible for them, the distribution of resources tends to be kept highly centralized. All important planning decisions will be made at the top level of management. Hence, this top level of decision-making holds the key to the problem. The idea of "the bureaucracy or enterprises" is far-fetched for the Soviet economy and results from the idealization of the situation in the enterprises. The real question is: What is the status of the decision-making bureaucracy?

In this respect, decentralization can be viewed as the distribution of the economic power of the top level decision-making bureaucracy by its branching and dispersion through the vast territory of the country. The national economic councils performed such a function, but of course many other models are possible. Two conditions are important in this connection. First, these new decision-making bodies must be close to the local centers of production and distribution of goods and services, i.e., organized on the horizontal territorial, rather than vertical branch principle. Evidently, the horizontal organization of decision-making can be more flexible than

a sole vertical structure. Second, they must correspond to the structure of the party hierachy which plays the leading role through the whole process of planning and management. This hierarchy is organized on the mixed vertical-horizontal principle, but decision-making is strictly centralized. In the horizontal structure, local party institutions will play a more significant role that at present. They will supervise economic management. Although theirs is not the best guidance, they will at least maintain some economic discipline if not complete economic responsibility. Further, horizontal party authorities would show more concern for the local population than would the depersonalized vertical structure.

3.2. The Distribution of Functions in the Planning Process

The general system of planning consists of three levels: (1) economic units in enterprises and production associations (proizvodstvennye ob'edineniia); (2) main administrations of ministries (glavki) transformed into industrial associations (promyshlennye ob'edineniia), the main apparatus of ministries, departments (vedomstva); and (3) the Gosplan system. The Gosplan is a union-republic institution, i.e., the gosplans of the Soviet republics are considered brandes of the central Body of Moscow[1].

[1]Since the English language lacks equivalents for some Soviet bureaucratic terms, we will use the word "departments" both for the subdivisions of the Gosplan (otdely) and administrative institutions such as state committees (gosudarstvennye komitety), the Academy of Sciences, sport societies, etc., which are united in planning under the name "vedomstva".

Plan construction is not the only function of the ministries, departments and Gosplan. Supervision of the meeting of plan targets is their second important function. After the 1965 Reform, control was limited to ministries and departments. Gradually, it was decided that the role of the ministries and departments was not great enough, and that the involvement of the Gosplan in the regulation of the production process was important. This function of the Gosplan has grown, especially in connection with new possibilities presented by the computerization of planning.

Another function of the planning bureaucracy which usually is not described in economic literature is the execution of special assignments from party and government authorities, in particular, providing them with information and preparing corresponding surveys and reports. Different departments of the Central Committee of the Communist Party and government, as well as republic authorities, may need information about the introduction of computers in various industries, production of certain kinds of goods, fulfillment of construction plans in an industry, training of new workers in vocational schools, occupational injuries, fulfillment of numerous resolutions, etc.

The functionaries of the party apparatus and government officials can obtain necessary information directly from the relevant departments of the Gosplan, who will prepare it in the required form and within stipulated deadlines. The information is used for preparation of resolutions, decisions and official speeches, in discussions at special

conferences, etc. Collecting and preparing this information, and the elaboration of corresponding reports, consumes a large part of the time of Gosplan experts. On the other hand, the policy is quite different toward research institutes asking for planning information, not to mention higher education institutions. They obtain the requested information only with special permission of the leadership of the Gosplan, and then only if the topics of their research have been ordered by the Gosplan departments.

Turning to plan construction as the major function of the Gosplan, we will mention its three general stages: establishing guidelines for a five-year plan or control figures for an annual plan (the name "guidelines" was changed to "control figures" for the five-year plan by the 1979 Resolution as well); working out a detailed draft plan; and assigning plan targets to executors. It is impossible to say which stage is of greatest importance, but most decisions do involve the second one. In an informational aspect, the whole process can be viewed as one-and-a-half iterations. A full iteration includes control figures for the movement of information from the top level to enterprises, and the draft plan for movement in the opposite direction. The stage of assigning plan indicators to executors can be considered as an additional half iteration.

Control figures are only rough estimates of plan indicators which must be determined more precisely at the next stage. But they are significant in the planning process as a whole because at this stage: (1) corrections are made in five-year plan targets for a

specified year; (2) the main targets of an annual plan are set up; (3) the limits for employment, wages, working capital, financial funds and other resources are fixed; (4) the priorities for further alterations in plan targets and distribution of resources are imposed.

Ministries, departments and republic gosplans are enlisted to participate in the development of control figures, but the real working body is the Gosplan of the USSR. The degree of participation by others depends on the size and relative importance of a ministry or republic. For instance, at the republic level, the Gosplan of the RSFSR takes a most active part in the development of control figures for the republic as well as in all other stages of planning. The period for developing control figures is too short. They must be computed and substantiated in the first quarter of a current year, i.e., almost simultaneously with the accounting work for the previous year. This is one of the reasons why ministries and republic gosplans can participate more actively in determining the main guidelines for a five-year period. Almost two years are devoted to the development of proposals and final guidelines, in periods when planning specialists are free from work on current plans.

Only the proposal stage for main guidelines of a five-year plan is free from constraints on plan targets and utilized resources. It therefore presents a unique opportunity for ministries and republican authorities to express their views on the outlook for their areas of responsibility. But for the same reason, they do not expect to see their proposals converted into plan figures.

Since the main guidelines of a five-year plan and control figures of an annual plan predetermine to a large extent the future values of plan targets, the decision-making process in this stage is very important. There are many intermediate step-by-step decisions made by the Gosplan authorities in the process of computation, and they influence the outcome as a whole. But the final decision-making is highly concentrated in the apparatus of the Central Committee of the Communist Party, whose departments supervise the whole plan development process.

While the activity of the Gosplan is supervised directly by the Department of Planning and Finance Organs (Otdel Planovykh i Finansovykh Organov) of the Central Committee, other departments participate actively in the planning decision-making as well. Their control of the plan targets is based on the sector-of-the economy or industry principle. They include the Department of Heavy Industry (Otdel Tiazhioloi Promyshlennosti), Department of Machine-Building (Otdel Mashinostroeniia), Department of the Defense Industry (Otdel Oboronnoi Promyshlennosti), Department of the Chemical Industry (Otdel Khimicheskoi Promyshlennosti), Department of Light Industry and the Food Industry (Otdel Legkoi i Pishchevoi Promyshlennosti), Agriculture Department (Sel'skokhoziaistvennyi Otdel), Department of Construction (Otdel Stroitel'stva), Department of Transportation and Communications (Otdel Transporta i Sviazi), Department of Trade and Services (Otdel Torgovli i Bytovogo Obsluzhivaniia), etc.

The Gosplan of the USSR informs ministries, departments and republic gosplans as to control figures authorized for

them which must be detailed and conveyed to subordinate enterprises. After that, the second stage of planning starts. Enterprises begin to itemize the targets set up for them, defining them more accurately and introducing amendments. They must follow the directives on control figures and limits for utilized resources. However, changes in detail are feasible, especially since control figures are only an aggregate version of a plan and may contain errors, omissions and points of contradiction. When deviations from control figures occur, an enterprise has to defend them to the supervising ministry, which, if it approves, must then defend them before the Gosplan. The process is both sophisticated and informal.

Enterprises would like to reduce the magnitude of plan output targets and increase the limits for resources. Their motivations can include the following: (1) the belief that the demands of supervising institutions are too high; (2) apprehension about a possible toughening of the targets and decreasing of the proportion of resources at higher levels of planning; (3) the desire to have a less intensive plan, with the consequence of higher incentive funds and bonuses; (4) low expectations of a satisfactory supply of resources, since experience has shown that fewer delivers may be received than planned, or that these may be late or of bad quality, etc.

Of course, the aspirations of the Gosplan are quite the opposite. High targets for the "common pie" which must grow as a result of the operation of all industries require setting up

correspondingly high targets for all economic units. Scarcity of all resources, together with high pressure from all sectors for larger and larger portions, must be taken into account as a second factor in the process. Gosplan experts are aware of the motivations of enterprise managers, and, unable to gauge whether their reported data coincide with true, are suspicious of their initiatives. The position of the ministries in this process is intermediate and, therefore, more flexible. While they demand that enterprises accept high targets, they are themselves responsible to the Gosplan for the meeting of those targets. So, in negotiations with the Gosplan, they usually support projections favorable to enterprises.

While the development of plan targets takes place in enterprises, work on the draft plan starts at both ministry and Gosplan levels. The institutional structure of the latter two is designed so that they may repeat all the calculations performed by supervised organization and oversee its activity. Since they possess only the information reported to them, they, of course, may use their own estimates. Important also is that an extended system of norms is used at all levels, which presents the possiblity of repeating all the calculations from the beginning. Another important consideration is that ministries and Gosplan staffs are comprised of the leading specialists familiar with enterprise methodology, capacities, and problems of communication in the production process. For this reason and because of a long tradition assigning pre-eminence to material production, engineers and technologists have priority over economists, who are in the

minority among the specialists of the Gosplan and ministries.

The above-mentioned duplication of calculations and functions at different levels of planning has an interesting effect on the process of plan construction. Usually a supervised organization wants to submit its draft projections at the stipulated time for fear that otherwise they will not be taken into account at all. Although, theoretically, a draft plan may be accepted without the information from a subordinate organization, this usually does not happen. The mutual verification and coordination of different versions, utilizing collective experience and knowledge, is considered important.

Each year a special internal order concerning the sequence and terms of the development of a draft plan is issued in the Gosplan. Analogous orders appear in the republic gosplans. The period covered is the second and third quarters of the year. The order regulates the interaction of all Gosplan departments in the process of planning and indicates the departments which will send and receive the required information. It also defines the inputs, intermediate steps and output of the system.

In general, all Gosplan departments can be divided into three groups: (1) summary functional, (2) summary resource, and (3) branch. The last group, the largest, is organized according to the industrial branch principle (the coal industry, machine-building, light industry, etc.) or sector-of-the-economy principle (agriculture, construction, etc.). Machine-building, in turn, is divided into a total of about twenty branches so that a department performing summary functions for

all of them is required. As indicated by their names, summary departments operate on the basis of information from branch departments. Summary functional departments perform planning calculations on the principle of one or several plan targets for all branches of the economy. Summary resource departments develop material balances and plans for distribution of material resources and equipment. The following structure lists the major departments that I could recall, with some possible errors and omissions:

I. Summary functional departments

1. Summary Department for the Perspective National Economic Plan (Svodnyi Otdel Perspektivnogo Narodnokhoziaistvennogo Plana).

2. Summary Department for the Annual National Economic Plan (Svodnyi Otdel Tekushchego Narodnokhoziaistennogo Plana).

3. Summary Department for the Instroduction of New Technology (Otdel Svodnogo Plana Vnedreniia Dostizhenii Nauki i Tekhnici v Narodnoe Khoziaistvo).

4. Summary Department for the Introduction of Computers (Otdel Svodnogo Plana Vnedreniia Vychislitel'noi Tekhniki v Narodnoe Khoziaistvo).

5. Summary Department of Capital Investment (Svodnyi Otdel Kapital'nykh Vlozhenii).

6. Department of Labor and Wages (Otdel Truda i Zarabotnoi Platy).

7. Department of Finance and Cost (Otdel Finansov i Sebestomosti).

8. Department for Territorial Planning and Placement of Production Forces (Otdel Territorial'nogo Planirovaniia i Razmeshcheniia Proizvoditel'nykh Sil).

9. Department for the Introduction of New Methods of Planning and Economic Stimulation (Otdel po Vhedreniiu Novykh Metodov Planirovaniia i Ekonomicheskogo Stimulirovaniia).

10. Department for Economic Relations with Socialist Countries (Otdel po Razvitiiu Ekonomicheskogo Sotrudnichestva s Sotsialisticheskimi Stranami).

11. Department of Foreign Trade (Otdel Vneshnei Torgovli).

II. Summary Resource Departments

1. Summary Department of Balances and Plans for Distribution of Materials (Svodnyi Otdel Material'nykh Balansov i Planov Raspredeleniia).

2. Summary Department of Balances and Plans for Distribution of Equipment (Svodnyi Otdel Balansov i Planov Raspedeleniia Oborudovaniia).

III. Branch Departments[1]

1. Department of Electrical Power and Electrification.

2. Department of the Coal Industry.

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[1]Since the meaning of the terminology is evident here, we do not give the Russian names

3. Department of the Oil and Gas Industry.

4. Department of Petroleum Refining and Chemical Processing Industry.

5. Department of Ferrous Metallurgy.

6. Department of Non-Ferrous Metallurgy.

7. Department of the Chemical Industry.

8. Summary Department of Machine-Building.

9. Department of Heavy, Power and Transport Machine-Building.

10. Department of the Electrical Engineering Industry.

11. Department of Machine-Building for the Chemical and Petroleum Industry.

12. Department of Machinery for Construction, Road Construction and Municipal Services.

13. Department of the Machine-Tool and Tool-Making Industry.

14. Department of Instrument-Making, Automation Equipment and Control Systems.

15. Department of the Automotive Industry.

16. Department of Tractor and Agricultural Machine-Building.

17. Department of the Ship-Building and Ship Repair Industry.

18. Department of the Radio Industry.

19. Department of the Electronics Industry.

20. Department of Light and Food Industry Machine-Building and Household Appliances.

21. Department of Building Materials.

22. Department of the Timber, Cellulose, Paper and Woodworking Industry.

23. Department of the Porcelain, China and Glass Industry.

24. Department of Light Industry.

25. Department of the Food Industry.

26. Department of Local Industry and Service Enterprises.

27. Department of Agriculture.

28. Department of Forestry.

29. Department of Building and Construction Industry.

30. Department of Geology and Mineral Resources.

31. Department of Transportation and Communications.

32. Department of Trade and Public Catering.

33. Department of Housing and Municipal Services and Town Development.

34. Department of Health and the Medical Industry.

35. Department of Culture and Science.

Although this list is not complete, it provides an idea of the departments participating in plan construction in the Gosplan.

There are several flows of information in this process regulated by the order mentioned above. One of them is directed from branch to summary departments dealing with annual and perspective planning, capital investment, labor and manpower, costs and profits, housing construction, etc. Its major function is to provide empirical data on finished work. Another kind of information flow consists of data required for computing substantiating resource input demands. For instance, we mentioned above the example that all industrial departments of the Gosplan must submit information about their outputs to the Department of Electrical Power and Electrification which, having norms for energy consumption per unit of output, can determine the demand for energy, by industry and in total, in manufacturing of goods and services. A third kind of flow circulates among industrial branch departments. It is acknowledged that none of the ministries produces goods that, according to the classification of industries and products, belong only to one industry, and none of the industries is concentrated only in one ministry. Thus, even a single-product industry such as coal has its own electrical power stations and machine-building and metal working enterprises.

Another important example is also an illustration of the peculiarities of the Soviet economy. It appears that all the branches of the economy which are non-productive, by Marxist definition, produce some material goods. Thus, the Academy of Sciences and the Ministry of Secondary Specialized and Higher Education (Ministerstvo Srednego Spetsial'nogo i Vysshego Obrazovaniia) have their production

shops, the operations of which are regulated by the national economic plan. Regulated also, for example, the output of prisons and camps of the Ministry of Internal Affairs and the output of the Societies of the Blind and Deaf, etc. Each Gosplan department with responsibilities for a specific kind of product has to account for its entire output throughout the economy. To that end, each department obtains information from each of the other branch departments for which a specified product is not in the latter's profile.

All the above and other flows of information must be verified and coordinated. When problems emerge in the process of coordination, the level at which they are resolved depends on their relative importance and degree of influence on the total result. Much of the interaction among different departmetns is of nonregulated character, e.g., exchange of preliminary data. In this case, decisions often can be made by the heads of relevant subdepartments and departments. In more important cases decision-making is strictly centralized, i.e., it takes place at the level of the department heads responsible for specific aspects of work or at the level of deputy chairmen of the Gosplan. The process of decision-making is also regulated by a special bureaucratic "visa" procedure by which every minor problem comes under the jurisdiction of one or several departments. Anyone wishing official approval for his proposal or request should obtain in advance the consent (visa) of the appropriate department heads. In cases of serious disagreement, a problem can be resolved only at a very high level.

This process intensifies in the final steps of the development of a draft plan. Representative delegations from all ministries and republic gosplans begin the siege of the Gosplan. Day after day, ministers and chairmen of republic gosplans, accompanied by their retinues, arrive at the Gosplan with arguments, diagrams, calculations and tables with the sole purpose of obtaining more resources. The Gosplan reserves a certain amount of resources for such situations, but of course not enough to satisfy everyone.

Sometimes differences in projections that have to be resolved at this stage can affect not only particular plan targets but also macroinicators as a whole. For example, in developing the 1976-1980 Five-Year Draft Plan, the Gosplan of the USSR and the Ukrainian Gosplan produced different projections of population for the Ukraine. Understandably, the estimate by the Ukrainian Gosplan was higher, as this indicator influences the volume of the consumption fund allocated to the republic. Needless to say, the final outcome was close to the projection of the Union Gosplan. This example illustrates also the above thought concerning mutually independent calculations of the same indicators at different levels of planning, as well as the control under which subordinate institutions operate.

After the materials of the draft plan are approved by the Collegium of the Gosplan, the apparatus of the Central Committee, Council of Ministers, Politbureau and Supreme Soviet, then the plan is official. At this point, assignment of the plan targets begins.

The information is sent to the ministries and councils of ministers of the republics and, finally, to enterprises and organizations.

In planning practice much importance is paid to this stage since major changes in plan targets and constraints are made at the upper level of planning after the information leaves the enterprises. As mentioned above, the informational aspect of planning can be viewed as one-and-a-half iterations. Control figures, the movement of information from the top level to enterprises, and the draft plan, with movement in the opposite direction, form a full iteration. At the final steps of this iteration a new set of macroindicators is made up. Changes in them may be great relative to the control figures to which all the enterprise targets were oriented. So, when indicators are assigned to executors, at the end of an additional half iteration, they may find that these new targets look quite different from their earlier projections.

One of the goals of this stage is to coordinate the indicators of the macro- and micro-levels of the economy in the process of detailing plan information. The root of all complications is the fact that plan targets for production in physical terms are computed in the grouped, i.e., aggregated, nomenclature, and direct calculations cover about 40 percent of all products. The indicators given to enterprises must be defined in detailed assortment. Of course, there are no mathematical methods for deriving unique solutions to the problem of splitting a total into its parts. While material balances used at this as well as at all other stages of planning do not provide

such a solution, they are, however, helpful in coordinating constraints on resources, their uses and sources.

3.3. Increased Centralization, and the Change in Relations Between the Union and Republican Gosplans

As noted in the first section of this chapter, the 1965 Reform centralized the decision-making process in the Soviet economy on a vertical branch principle. Resource distribution was centered in the all-union ministries, which gained sole control over material and financial allocations for industries with all-union and union-republic subordination of enterprises. Ministries in the Soviet Union receive allocations directly from the Gosplan, and the Council of Ministers oversees distribution of the most important materials and equipment.

Since the early years of the reform, centralization has increased dramatically. The number of items planned and distributed at upper levels has grown accordingly. For example, while 2,7000 items were listed in the production plans in 1968-1970, the number grew to 4,000 output items in 1981 [16]. The greatsst growth was in machine-building and ferrous metallurgy.

Research in planning methodology as well as organizational changes in the economy were directed toward further centralization. Two changes in methodology were especially important in this respect: the use of normative methods, and computerization of plan calculations. The availability of norms for expenditures of different resources per unit of output allowed planners the opportunity to avoid dependence for information on subordinate planning levels. The

Gosplan could perform most calculations itself, even without information from ministries and enterprises. Computers are also helpful in this process, particularly in combination with the data banks which are supposed to absorb the required information about enterprise operations. For example, when the Cosplan without the use of computers calculated the demand for rolled metal, it was able to take into account 2,500 items produced with this metal. With the use of computers, more than 9,000 items were covered.

The restructuring of management by the 1965 Reform had the greatest effect on further centralization. At this time changes were made in the middle level of management in a campaign to eliminate extra administrative links. In 1973 the Central Committee and the Council of Ministers adopted a resolution for the transition of industrial management from the existing system to a reduced two-or-three-links system [41]. This resolution summarized the results of several years' experiments at the middle level of administration, i.e., between all-union ministries and enterprises [9]. For example, the coal industry's six-link system (union ministry-republic ministry-combine of mines-trust-mine administration-mine) was changed to a three-link system (union ministry-combine of mines-mine).

The intention this time was to reduce the bureaucracy of the middle level of management which was often used by supervising authorities for increasing their administrative staffs. For years the number of employees in the central planning and economic apparatus was under control and expansion was strictly prohibited.

Ministries, departments, republic gosplans and even the Gosplan of the USSR circumvented the restriction by organizing special teams at the middle level of management, especially in research and planning institutes, computer centers and other establishments that were allowed staff increases. These teams worked on various specific assignments and numerous inspections, or directly in administration.

Did the Resolution of 1973 lead to a real decrease in the bureaucracy at the middle level? We doubt that it did. Two points are important here. First, in recent practice there have been no layoffs of administrative personnel. Instead, a universally employed term, "relative staff decrease" (uslovnoe vysvobozhdenie), is used in the sense that more work has to be done with the same number of employees. Second, during reorganizations, management is declared to have become more "consolidated." In the coal industry example, above, the middle link of management, i.e., combine of mines, absorbed the eliminated trusts, mine administrations, etc. So employees were not laid off but redistributed among organizations.

The same approach was used to create industrial associations corresponding to various branch main administrations of ministries (glavki). After the reorganization their leaders appeared to have become the top level managers of the union or republic industrial associations consisting of production associations and enterprises. The idea here was to introduce cost-accounting to main administrations and to exchange their supervisory role for one of direct involvement in productive units of the economy.

The real effect of restructuring the middle level of management was a further centralization of both industrial management and decision-making. Many republic branches and administrations of union-republic ministries were eliminated, with a resulting increase in the distances between enterprises and their supervising organizations. Considering also the highly centralized control of resource distribution, it follows that enterprise managers had to take frequent long trips to discuss each minor problem with their supervisors.

Actually the 1965 Reform brought a spiralling increase in the number of business trips, and such travel became a characteristic part of Soviet life. The usual direction of travel was from outlying districts of the country to Moscow. While increased centralization was the main cause of the rise in business trips, the human factor should not be ignored. Travel to the capital afforded opportunities to buy scarce foods and goods, and so reasons for many of these trips were invented.

The problem became so serious that numerous decrees and orders were issued to restrict the time and money spent on these trips. In 1973 the Central Committee adopted a resolution in which it was noted that more than 1.5 million people a year had travelled to Moscow on business.[40]. A stranger to Moscow could get the impression that this must be a daily estimate. This estimate, however, reflected only the number of persons while many of them made several or more trips each year. Most important is that the ministries and departments were reluctant to reveal the true extent of this type of travel. The

resolution noted that business trips had been used for personal reasons at society's expense and were a hidden form of theft of government funds. However, one could hardly believe that this resolution would change the practice very much.

As a result of steps to further centralize the economy, the role of republic gosplans in decision-making shrunk, and the relations between them and the Gosplan of the USSR changed. To a certain extent a republic gosplan plays the role of a ministry since the Gosplan allocates materical funds to all-union ministries and the councils of ministers of the republics, i.e., they are at the same level in the hierarchy. The republic councils of ministers control these funds only for the republic economic units that are subordinate to them. Republic gosplans represent their respective councils of ministers in planning and distribution of material funds.

By economic units subordinate to the council of ministers of a republic we mean the following: industrial enterprises of local industry (mestnaia pronyshlennost'); industrial enterprises and shops of "non-productive" branches of the economy; agriculture and forestry; part of the construction industry; automobile and river transportation; part of communications; trade, public catering, territorial organizations of material and technical supply, and state procurements; branches of "non-productive" services. It follows from this list that only one industrial ministry -- the Ministry of Local Industry -- is subordinate to republican planning authorities.

All the enterprises of the oil, gas, chemical and machine-building industries are subordinate to all-union ministries. With the exception of the Ukraine, coal industry enterprises are also subordinate to the all-union ministry. According to statute, such industries as electric power, metallurgy, timber, paper and woodworking, construction materials, light industry and food processing are of union- republic subordination. However, since the 1965 reform, many important enterprises, organizations, planning and research institutes, and even branches of these industries have been transferred to the direct subordination of corresponding all-union ministries.

What are the relationships between the all-union and republican planning and managing authorities in view of the threefold character of the entire economy? There are many authoritative sources in the West that describe these relationships (for example see [5] or [20]). Western economic literature seems to take the clearest view of the situation concerning the all-union industries. In studying economic and organizational problems, Western analysts are guided by officials Soviet literature, and first of all by legislative acts. Yet these acts reflect only the facade of the structure and reveal little about planning practice. Various directives, decrees, instructions and memos play an active role in the planning process.

For example, according to the planning laws adopted during the 1965 Reform, the republic councils of ministers could revise the plans of all-union ministries if they were found inadequate. These laws were not phrased in precise terms. However, from an order concerning

the sequence and terms of the development of a national economic plan, we can gain more understanding. It appears that republic authorities are to submit comments on the all-union ministries' draft plans. Since the republic gosplans analyze these projections and comment upon them only after their completion, it is clear that their criticism has no effect at all on the decision-making process.

At the same time, enterprises and organizations of all-union ministries are not as extraterritorial as they seem, for the following reason. While the economic bureaucracy is organized on the vertical principle, the party hierarchy involves horizontal local institutions: district, regional and municipal, not to mention republican committees. An interesting detail is that these institutions deal with enterprises and organizations at the administrative level, i.e., address directly to the directors of enterprises and organizations, not to the functionaries of their primary party organizations. A local party secretary's request for sending employees to work in agriculture, to clean up streets, participate in public events, etc., becomes a command for an enterprise director, particularly for the director of small enterprise. When such a command is tied to a service for a local area, then materials, labor and other resources are required from the enterprise.

Meeting all the demands of party authorities occupies much of the time of enterprise managers and their staffs. Naturally they consider these demands an obstacle to fulfilling their own direct duties. On the other hand, provincial cities and towns received almost no centralized capital investment at all during the 9th and 10th

Five-Year Plans. Their roads, sewage systems, housing, municipal services, etc., were in need of much improvement. Therefore, party authorities' requests, which enlist enterprises to help in solving urban problems, are beneficial to the population. At present there are no other authorities who can force the bureaucratic apparatus to pay attention to the needs of local consumers.

The most controversial situation arises when the union-republic industrial ministries have republican branches. Some of these, for example those concerned with food processing or light industry, have branches in all the republics, while other ministries have branches only in republics with heavy concentrations of their enterprises. In cases in which there are only a few of a certain type of enterprises in a republic, the industrial or production associations are subordinated directly to the respective union ministry in Moscow. Before the 1973 Resolution on the restructuring of the middle level of management, there were appropriate administrations or main administrations of these ministries in the republics.

It is customary to consider the union-republic industries closer to republic than to all-union industries. Indeed, in reporting aggregate republican data other than investment and material funds, union-republic are grouped with republic data, but all-union data are reported separately. However, this does not indicate the sovereignty of the republics over union-republic industries. Even though the 1965 Reform explains that the latter are of dual subordination -- to the union ministries and the councils of ministers of the

republics -- such a principle could not be effective in planning at all.

A well-known plan requirement is that plan targets and resource funds must be associated with a particular supervising institution (adresnyi kharakter plana), here with either a ministry or the council of ministers of a republic. Since union ministries are the holders of the investment and material funds for union-republic industries and allocate these funds to their branches in the republics, the branches must follow the directions of the union ministries. There is a relevant proverb: "He who pays the orchestra orders the music."

Again, as is true for national enterprises, the party hierarchy's involvement upsets the picture. For example, if machine-building enterprises interact with party institutions only at the local level, union-republic ministries, on the other hand, do so at the republic level as well when their branches are present there. This changes the basic pattern because republic party authorities can influence decisions for an industry as a whole. The degree of influence depends upon the industry, and there are difference among them.

The dependence discussed above is quite minor with ministry enterprises that have strategic value -- for example, coal or ferrous metallurgy -- and the connection between these enterprises and republican economies is not strong. Republic officials have often complained about a lack of attention of the part of these ministries [27]. For example, the Ministry of the Coal Industry of the Ukraine may not hold to the terms for submitting draft plan materials to the

Ukrainian Gosplan even though the terms are fixed by the republic's council of ministers. The materials, along with the completed draft plan, can be delivered to Kiev by ministry officials on their way from Donetsk to Moscow. Since the terms of work are the same for both the ministries and the council of ministers of each republic, the Ukrainian Gosplan does not have time to analyze the ministry's projections.

Other ministries, such as those for food and light industries, cannot take similar liberties with regard to republican authorities. Their agricultural, transportation, trade and distribution ties to the councils of ministers of the republics are much stronger than those of the above ministries. They depend also on local sources of raw materials and construction materials ince their limits on centralized investment are very low. Therefore, these ministries have to honor the directives of republic party and economic authorities, and must cooperate with republic gosplans.

The final division of this threefold economy is comprised of the local inductry and the above-noted "non-productive" enterprises and organizations subordinated to the republic councils of ministers. Let us ask an unecpected quesions: Is there full republican sovereignty over this part of the economy? The answer is by no means positive.

National economic plans have an objective character (tselevoi kharakter). Simply put, this means that from the very beginning plan control figures indicate concrete targets and directions for resource

spending. For example, investment control figures received by a republic are not provided only as totals that can be spent by the authorities in ways they decide are the most beneficial for the welfare of the public. These limits form an initial plan scheme and are separated into branch targets specifying the type of capital that must be utilized as a result of investment. Republic gosplans are guided by these directives. Some changes are possible, but they have to be justified and coordinated with the top planning level.

The following question emerges as a result of this: Are republic planning institutions necessary at all if their participation in decision-making is so limited? The official view is that the purpose of republic planners is to provide substantiated projections within the limits of their responsibility. Such projections are considered at the top level and then accepted or rejected. If rejected, an alternative will be offered, and republic authorities can express their opinions. Sometimes objections are taken into account, but often this is not possible since they are accompanied by demands for additional investiment and material resources.

It is interesting to note that a special slang has come into use reflecting the attitude toward republic planning authorities. Economic units subordinated to republic institutions become part of "the economy of a small Sovmin (council of ministers)" as distinct from the USSR Council of Ministers. When the politbureau of a republic communist party adops a set of projections, it is referred to as a "draft," since republic officials emphasize that their

responsibilities do not include making final decisions. Further, a production plan summarizing the total output of a republic economy is called a plan for "enterprises located on republican territory" (predpriiatiia raspolozhennye na territorii respubliki).

Is there dissatisfaction with the existing situation? Here we have in mind not consumers with complaints of shortages, but the planning authorities themselves. I have great respect for the professional abilities of many of the planners I knew personally. While these people are communists, it should be kept in mind that communist party membership is necessary to gain such positions, at least for the principal experts and subdepartment heads on up. And while better salaries and extra privileges (special hospitals and clinics, restricted food and consumer goods stores, resort facilities, etc.) encourage the recipients to resist changes in the status quo, these same planning authorities do have a responsibility to uncover problems and inform the leadership about them. In this connection they write numerous memos revealing actual conditions in various regions and branches of the economy, although these materials are often classified and never released to the public.

The following are several examples of such memos drawn from the Ukrainian Gosplan which I read in the 1970's. The Department of Agriculture (Otdel Sel'skogo Khoziaistva) complained about transporting food products out of the republic and further noted the low level of food consumptions, relative to the rest of the country, in its industrial areas. The Department of Municipal Services

(Otdel Kommunal'nogo Khoziaistva) reported that the water supply in the Donetsk Basin and other areas was poor, and that many cities and towns had inadequate sewage systems. The Department of Housing (Otdel Zhilishchnogo Khoziaistva) mentioned the chronic shortage of new dwellings arising from repeated failures to meet plan goals. All of these memos were signed by department heads, and we can again emphasize that it is these department heads and their staffs who must throw light on the real situation. However, it is impossible to say how much is done out of a sense of duty and how much from a genuine desire to solve serious problems.

3.4 Planning and the Role of Party Authorities in the Decision-Making Process

We would like to distinguish two changes in the Soviet national economy that have gained prominence in the Brezhnev era. These are centralization of decision-making, and the role of party institutions in economic life.

As demonstrated above, centralization took the form of successive organizational changes in the economy. First, the 1965 Reform introduced the vertical branch principle of management. Then, the 1973 Resolution concerning restructuring of the middle level of management, and many other directives, instructions and decrees, delegated major rights in decision-making to the very top level with respect to plan targets and distribution of resources. Local territorial problems have been neglected, and the rights of republican planning and economic authorities have shrunk dramatically. In general, the process

has meant reinforcement of the military industrial complex at the expense of the consumer goods sector which gravitates toward and depends on local sources of supply and distribution.

The influence of party institutions on the basic operation of all Soviet enterprises and organizations is well known. The notorious principle of party control of the administration of enterprises and organizations (partiinyi control' nad rabotoi administratsii), which had been eliminated by Khrushchev, flourished again after his removal. Party committees participate in solving all administrative problems. What is more, specially appointed "party informers" operate openly, although without publicity. Though not committee members, they participiate in all party committee conferences and in other activities of party organizations. They are responsible for "informing" the supervising party authorities as to general sentiments and individual attitudes in organizations, and so forth.

In planning and economic institutions, which are of great importance in Soviet society, the role of primary party organizations is much greater than average. Since employees there usually are chosen from among enterprise managers and engineers, they join these organizations as communists. Membership in party organizations is very high and can include 50 percent or more of the employees. All serious planning and management problems, not to mention ideological ones, are discussed at monthly party meetings which are carefully planned and for which speakers are carefully selected. Party secretaries for these institutions are appointed at the level of the Central Committee secretaries, and by Brezhnev himself. Party

committees are very powerful, and generally two of the most important administrative functions -- hiring and promotion -- are almost completely their responsibility.

It is worth mentioning in this connection that special directives concerning hiring policy, for instance, toward minorities and ethnic groups in the republics, rarely circulate in writing. High level administrators and party secretaries are instructed orally on these points usually in central party committees. Although the secret party mail system is used for the many special instructions that the Soviet people and, therefore, Western correspondents must not discover, widespread opinion holds that no incriminating materials are included in them. Since Stalin's era even party functionaries discuss many problems more openly, and there is a threat that, sooner or later, the truth may be disclosed. But this endless topic is beyond the scope of our study.

When we talk about party involvement in planning and management, we mean in the first place the system of administrative party institutions, from district party committees (raionnye komitety partii) to the Central Committee of the Communist Party. They, and not functionaries of primary party organizations, really stand above the economic administrative apparatus. If we compare two hypothetical leaders, party and administrative, of the same rank but at two different levels, let us say, enterprise and city, their relative significance in the ruling hierarchy varies according to the level. While the director of an enterprise is usually top administrator,

a city major ranks significantly lower than the secretary of a city party committee.

Planning organizations must acknowledge the instructions of party authorities at all levels, and must coordinate plan development as well as all intermediate and final results directly with the Central Committee in Moscow and the republics. Their general activity is supervised by the Department of Planning and Finance Organs of the Central Committee while plan development comes under the guidance of all other departments, according to the area or direction of the plan.

The significance of the Department of Planning and Finance Organs in the eyes of the Gosplan officials is that it can open or close vacant positions and determines appointments and promotions. The procedure may be described as follows. Leaders of all organizations are asked to choose "reserve" candidates for eventual promotion, taking into acount plans for retirement and possible new openings. Primary party committees are the most active in this process.

A candidate has to have impressive work experience in the productive sphere, i.e., at enterprises. Bureaucrats without production experience usually do not advance very far. There are different upper age limitations depending on the position; the higher the position the higher the limit. As a rule, candidates for high positions are males, but exceptions are possible. Active participation in the party organization is necessary, and previous work experience in local administrative party institutions is a great advantage. We will not discuss here requirements of social origin,

nationality, marital status, morals, etc. The list of candidates must be approved by the Department of Planning and Finance Organs. Although these appointments are important for candidates, they are only preliminary.

When a position opens, the leadership of the Gosplan chooses several candidates from the reserve list and proposes them to the Central Committee for consideration. The influence of the head of Gosplan department in which there is an opening depends on his position in the leading hierarchy. When we refer to the Gosplan as a planning institution, we mean the Gosplan and its apparatus. While several thousand employees work in departments, i.e., in the apparatus, the Gosplan itself is rather small. The heads of most departments are members of the Gosplan and those of the leading departments are members of the Collegium of the Gosplan, along with the leadership. The latter are the most influential. In the republics, the gosplans consist of the heads of all departments, and collegia are formed in the same way as at the national level.

After one of the candidates is approved preliminarily by the apparatus of the Central Committee of the CPSU, the nominee is considered successively by the Collegium of the Gosplan, an appropriate department and the deputy chairman of the Council of Ministers, again by the Central Committee, and, finally, by one of the Central Committee secretaries. In the event that the candidate is rejected, which, if it occurs, is most likely at the final stage, the procedure is repeated, sometimes at an accelerated rate. These are just

examples of possible situations. Many high level positions are filled by specialists from outside the Gosplan. The leadership of the Gosplan may or may not be informed in advance, depending on the rank of a position. The highest of them -- deputies to the chairman, department heads -- are usually appointed directly by the Central Committee.

In general, there is nothing new in the fact that party authorities appoint figureheads and control all the operations of planning institutions. What is new in the last decade is the change of the roles of government and party institutions in the economic life of the country. The significance of the Council of Ministers, which had increased greatly in the first years of the 1965 Reform, has diminished dramatically along with the unreasonable expectations connected with the Reform. The time has come for discipline, and the party authorities are the only force that high level administrators fear.

As a consequence, one can get the impression that the Gosplan has become more attached to the Central Committee than to the Council of Ministers, although this is not formally true. Its interaction with all the departments of the Central Committee responsible for development of the economy has become direct and informal. Each department of the Central Committee consists of sectors supervising various kinds of activities. Without approval of the appropriate sector, it is impossible to make any serious planning decision. This does not mean that planners do not make decisions. Guided by the requirements of the Central Committee, they must be creative in finding ways of

improving the economy. The apparatus of the Council of Ministers also supervises the Gosplan operations, but it pursues a policy that is coordinated with the Central Committee.

One can imagine that the departments of the Central Committee may be subject to conflicting demands for plan targets, for example, such as consumer goods and military hardware. But from the beginning leaders fix the control figures so that each department sees its limits. The role of the Gosplan in this process is preparation, along with substantiated proposals for the growth of the economy, of limits for investment, capacities for the production of raw materials, etc. The proposed control figures may be considered several times by the leading administrators of the Central Committee, with subsequent corrections by the Gosplan, until they are found satisfactory.

The confirmed control figures indicate to all party, government and planning authorities the new economic priorities. Although planning and economic organizations follow these priorities in setting up plan targets and resource distribution, there is some freedom in their interpretation. For this reason, the resulting draft plan is an indicator of the influence of relative forces in the economy. After a plan has been approved and a planned period begun, the recommended priorities continue to function. In an article published in 1976 in the journal Planovoe Khoziaistvo, the Minister for Light Industry, Tarasov, described the impact of official priorities on his industry [49]. His complaints follow in brief.

As of January, 1976, immediately after the close of the Ninth

Five-Year Plan, only slightly more than half of the 520 items of technological equipment planned for the industry had been manufactured. Delivery plans had not been regularly met. Only 70% of needed spare parts had been supplied, and the number of measuring instruments was insufficient. There had been difficulties in obtaining both cotton and flax, especially of good quality, as well as wool, synthetics, dyes, etc. The optimistic title of the article was "Efficiency and Quality are the Main Directions in the Development of Light Industry."

In plan targets, party authorities pay much attention to the "mobilizing effect." The idea is that the targets should be high enough so that, to meet them, enterprise managers will be forced to utilize reserves in the expenditure of resources and organization of production. This is not to say that party leaders want to promote unrealistic plans, but that for reasons discussed in the first chapter, i.e., the lack of economic responsibility, they do not trust management as a whole. Planners are to construct plans on the principle that targets should be higher than managers would set themselves. The following is an example of the above. The sector which I headed had developed a forecast for the republic's economy in the 1976-1980 five-year period. According to the forecast, Ukrainian agriculture could not grow by more than 16-18 percent during that period, in contact to the 25 percent proposed by the republican draft plan. I discussed the results with the assistant head of the Summary Department of the National Economic Plan (Svodnyi Otdel Narodnokhoziaistvennogo Plana) of the Ukrainian Gosplan. With high professional credentials, he was,

in my opinion, one of the best economists there.

He rejected our results. (On this point, I can say from my experience that qualified planners who perform detailed calculations for many years and know all the various branches of the economy, do not need econometric methods to derive an accurate projection for the growth of agriculture). The general idea behind his objection was that, even if I were right, such low growth could not be either justified or accepted. The growth rates had to follow the demand of the national economy and population. Forecasts must not be passive, and should be adjusted to the high economic requirements.

Of course, we do not claim to give a complete explanation here of why Soviet plans are unrealistic. We have discussed just one aspect of the problem. Our purpose is to show that when Western analysts, in line with official Soviet arguments, blame Soviet planners for shortcomings in the economy, they are not correct. Under the above conditions those who do not meet plan targets simply fail, but those who predict such failures by reducing plan requirements to a realistic level work against the mobilizing principle pursued by the party leaders. That is why negative tendencies, such as growth of material expenditures or capital per unit of production, cannot be included in projections even though they are inevitable. It is much safer to find reasonable excuses after the fact.

The head of the Department of Light Industry of the Ukrainian Gosplan lost his job as a result of a situation like that described above. He did not follow the instructions to raise the growth rate

for his industry in the 1976-1980 Five-Year Plan. Probably he could not find means to substantiate the high growth rate demanded, and hoped to prove that the department's 20 percent projection was the maximum possible, taking into consideration the lack of raw materials. It may be that there were other failures among his previous activities. The discontent of the leadership is usually of a cumulative nature, and high-level administrators are not dismissed just for one mistake. But nobody knows which mistake may be the last.

In our discussion wa have not wished to give the impression that planners are always right and party authorities always wrong. We would not venture such an oversimplification, but have tried to view the situation mainly from the planner's standpoint. Undoubtedly, it is possible to look at the matter from the other side, but this is beyond our topic.

Chapter 4

THE METHODOLOGY OF PLANNING

4.1. Major Relationships Among Indicators

As we have seen, there are three stages of planning: control figures, a draft plan, and the assignment of indicators to executors. Their flows differ with respect to direction, purpose, content and the degree of aggregation. The purpose of the first stage is to determine aggregate guidelines for all economic units with the use of hypotheses, assumptions and goals established through a normative approach. The second stage resembles a pyramid with detailed information at the bottom and flowing toward the top where it is aggregated in such a way as to satisfy the constraints of the first stage. The third stage is mainly movement in the opposite direction along the pyramid, when corrections must be made at the bottom to correspond to changes at the top.

There are essential differences between calculations for aggregate control figures and those for a detailed draft plan. The procedure for developing control figures has an iterative character due to the fact that industrial variables which start

the sequence of calculations depend on the output of the system as a whole. In other words, all economic units of the system need to consider the limits on resources which may be allocated to them. But the approximate output of the system must be found and resources resulting from it distributed before the sequence of calculations can begin. Further, initial output figures are corrected, and, on the next iteration, corresponding changes made in the values of all indicators.

To perform calculations at the control figure stage, then, constraints on major resources -- labor, investment and materials -- must be considered. But ordering and distributing material resources is a perpetual process which begins before and ends after the production plan is approved. For this reason constraints on material resources are virtually ignored in calculating control figures. This practice produces many complications and the need for numerous corrections at other stages.

To arrive at control figures for industry and regional units, anticipated limits on labor force and investment are necessary. While distribution of labor among various branches of the economy is determined on a territorial basis, investment is allocated on the vertical branch principle. Ministries, departments and republics are unable to develop plan targets until all such information is available.

How are limits on resources determined at the aggregate level? The key indicator here is labor productivity, which must grow even

when prospects seem doubtful. But the "mobilizing effect" of plans requires that productivity be planned at a level higher than its reasonable value. The gross social product (valovoi obshchestvennyi produkt) is arrived at on the basis of the anticipated value of labor productivity in the current period and an estimate of its growth in the planned period, along with an estimate of the size of the work force provided by the aggregate balance of manpower (balans trudovykh resursov).

Although production functions are used in Soviet econometric research, they are not employed directly in planning calculations, since Marxists do not recognize the theory of production factors. A well-known cornerstone of Marxist economic theory is the thesis about labor as the sole source of net value added. Because of this, capital does not participate in evaluations of the gross social product. But since capital must nevertheless be taken into account, the following circumvention is used. The growth of labor productivity is computed, along with other factors, on the basis of the growth of capital per worker (fondovooruzhennost' truda). Thus these two-part calculations provide an estimate of the gross social product resulting from the growth of both labor and capital.

The aggregate balance of the gross social product splits the latter into material expenditures, which are the sum of material inputs and depreciation payments, and national income. The estimate of material expenditures per unit of gross social product in a current year becomes the basis for a projection for a planned

year. Each year unsuccessful attempts are made to decrease the total growth of material expenditures, particularly in agriculture. With attention to corrections for the current year, the net value added is computed.

At the stage of utilization, national income is divided into consumption (fond potrebleniia) and accumulation of state enterprises and organizations (fond nakopleniia). To a large extent, these figures are based on the proportionate sizes of these funds in base (previous) and current years. This task is accomplished with the help of the aggregate balance of the national income. At this step, fixed investment can be separated from other types of accumulation such as growth of working capital and reserves.

Unlike a free-market economy where intended investment depends on personal and business savings, planned economic theory does not recognize the role of personal savings in the investment process. These are considered merely postponed consumption to be spent in the future, most likely for durables and services. State financing of the economy and enterprise profits retained for development are the sources of investment. These sources are planned in keeping with the production capacities of the construction industry and industries producing equipment and materials for new enterprises, i.e., at the level of capital goods production. Therefore, while planned savings are supposed to equal investments, in practice they exceed them because construction and industrial suppliers fail to meet their plan targets.

When the level of production of capital goods is determined and total limits on investment are computed, they are allocated to the various branches of the economy with directions for their development and outlines for the most important building projects. The system of priorities, with its many constraints, begins to work. For example, the past pattern of investment distribution among industries substantially influences planning decisions unless general changes in economic policy are made. The existence of many unfinished construction projects (perekhodiashchie stroiki) increases the inertness of the process since, in theory, they must be given first priority for investment funds.

But the system of priorities too has its fluctuations, and it is hard to gauge precisely the relative importance assigned to various economic goals. Probably, municipal services, including water supply, sewage, etc., and urban development problems are of lowest priority. Local party and government authorities are asked to assist in these areas with their own investment sources, such as profits from lotteries, free services of military personnel and free labor of citizens on weekends (kommunisticheskie subbotniki), etc. Medical facilities and public transportation and communication systems are also low on the list for investment, except for a few favored cities. Housing and children's day care facilities seem to have higher priority since these are considered important for keeping workers on the job. Funds for these purposes are allocated

directly to enterprises, which administer housing and day care within stipulated limitations.

Among non-productive services, science, which is viewed as a factor of growing productivity, is one of the highest priorities. There are two sources of research financing: funds from enterprises and ministries, and the state budget. Financing by enterprises and ministries of scientific and experimental work is very extensive and, in accounting, is included in the cost of production. The state budget finances important applied research. The increasing role of ministries and departments in the distribution of these funds means further centralization of management of applied research at enterprises.

To obtain funding for any type of research, a project must prove its positive potential effect on the economy with calculations of efficiency (ekonomicheskaia effektivnost'). Substantiations of this kind are commonly invented. Unfortunately, even this tactic is of little help with fundamental research in medicine, biology, theoretical mathematics, etc., which are not considered essential to the achievement of particular economic goals.

The order of priorities among industries is well established. For years, light industry and the food industry have received the smallest investment funds. But even these sums have not been completely utilized. Of the many reasons for this, one is that production by agriculture of the raw materials demanded by these industries has not kept pace with their planned expansion. This is

so even though, as is well known, agriculture has very high priority.

Finally we come to the military-industrial complex, which includes branches of machine-building and other industries dedicated in part or whole to the production of military hardware or the supply of raw materials, energy and finished parts to be used by in such production. Among these industries are aircraft, defense, electronics, radio, general machinery, medium machinery, and ship-building, along with producers of precision instruments and other control and measurement devices.

In addition to the above machine-building branches which produce only military hardware, all other machine-building industries fill special orders (spetszakazy) for the military complex. These include, for example, producers of machinery for building and road construction, and the automotive and chemical industries. Special military orders are welcomed by enterprises and design institutes to whom they mean higher wages, additional bonuses, lifting of wage growth limitations, additional funds for housing, hiring of better qualified personnel, and so on. Needless to say, the lion's share of materials, especially non-ferrous metals, rolled metal, fuels, chemical products, lumber and other construction materials are consumed by military projects.

With all this investment in military production and heavy industry, it is impossible to develop sufficient capacities for producing consumer goods. Because of this, "defense" enterprises

are obligated to manufacture also toys and cigarette lighters, hardware and home appliances. The higher-quality resources are designated for military hardware production, and what's left over is for consumer goods. Indeed, the original purpose of manufacturing consumer goods at military enterprises was to utilize wastes of technological production. Eventually special bonuses, varying with time, were established to stimulate consumer goods production at military enterprises.

Once limits on investment, along with personnel, are allocated to ministries, departments and republic gosplans, these economic units can perform the sequence of aggregate planning calculations. Figures on their main targets are issued them as well, although these may be computed on the basis of announced resource limits. Now the second stage -- the draft plan -- begins.

Of the roughly 20 targets in a draft plan, the major ones are:

1. Main indicators (balance of the national economy, effectiveness of material production, indicators of complex plans for republics).

2. Industrial production, by branch.

3. Agriculture.

4. Forestry.

5. Transportation and communications.

6. Capital construction (investment, construction, projection and surveying work (proektno-izyskatel'skie raboty)).

7. Geological surveys.

8. Scientific research and the utilization of technical advance by the national economy.

9. Labor and manpower.

10. Costs and profits.

11. Standard of living (summary indicators, repairs and maintenance, housing and municipal services, domestic trade, education, cultural services, and medicine).

These targets are grouped according to section (e.g., industry, agriculture) and function (e.g., investment, labor). The latter characterizes development in individual branches as well as in the economy as a whole. At this stage of planning, initial information flows from the production targets. There are two major calculation schemes, one based on the balance of capacities, as in machine building, and the second on balance of raw materials, as in light industry and the food industry.

Despite continual attempts by the Gosplan to define the concept of capacity, it remains a topic of investigation. The definition of capacity as a maximal potential output is obvious, but the problem is how to measure such output. Economic theory recommends the use of the "bottleneck" approach in which the capacity at a predetermined point is taken as the capacity of an

enterprise. Finding this approach vague, some economists suggest that capacity can be measured in terms of basic equipment or particular machines and apparatus. In planning, disagreements arise in the computation of production targets because of the desires of the participants to pursue empirical paths to differing estimates of capacity. An example of the weakness of the theory is that in the coal industry actual values of output for some mines are often greater than their capacities.

Estimated capacities serve as a basis for determining potential output, which must be projected at a level close to maximum. In these calculations capacities are transformed into average annual values. Thus new capacities are divided by four and multiplied by the number of full quarters from the date of inception to the end of a year. In five year plans, where such precise calculations are not possible, all capacities are taken to be 35% of annual value in the first year of installation. Thus they are expected to operate, on the average, for a quarter of a year. If they do not operate that long, plan targets will not be met either by those enterprises or the many others who depend on their supply. Analogous coefficients are used for worn and torn capital.

The simplified scheme for compiling production plans in physical terms is as follows: (1) evaluation of output with existing capacities, taking into account the coefficient of their use which must be 98-99 percent, (2) evaluation of output with

capacities put into use in a planned period, and (3) summary calculations [18].

Information concerning utilization of capacities and capital is obtained from investment plans. This is the primary link from investment to output. In its turn, an investment plan depends heavily on the production of capital goods. While industrial managers complain that the construction industry continually fails to meet its plan targets, builders can place the blame on management. Another kind of link, the discrepancy between estimated demand for a commodity and actual capacity, is an indication that new investment is required. Of course it's a long time before such requirements are noted and then until real investments are made.

Other connections in the initial step of production plan development are formed with scientific research and technical advance planning in the national economy. In mastering the production of new commodities, enterprises first perform experimental work and then manufacture the initial industrial series. As soon as this step is completed it is taken into consideration in corresponding production plans.

After output in physical terms has been estimated, value targets are computed in money terms. The sales revenue is determined on the basis of expected output and changes in inventories at the beginning and end of a planned period. Complications result from the need to correlate aggregate grouped prices with the industrial product mix. Another problem arises from the discrepancy

between scales of measurement for physical and value indicators in planning. On the one hand, value indicators must take into account the entire output. On the other hand, the listing of productions in physical terms included in the national economic plan is equal, on the average, to only 40 percent of the "broad listing" (shirokaia nomenklatura) used in planning material resource distribution. In such a situation errors and omissions are inevitable. While the 1965 Reform reduced the quantity of production in physical terms planned for enterprises, the new "Methodological Directions for the Development of National Economic Plans" approved by the Gosplan in 1980 [8] require to cover 80-85 percent of the gross output by direct calculation in physical terms.

Once the gross value of output of industries is known, requirements for labor, wages, costs and profits can be evaluated. Calculations based on output information start from estimates of labor productivity growth and cost reduction by factor. Such factors as technological change, improvements in management and organization of production, changes in product mix, prices, and mineral and fuel outputs, and the specificity of an industry must be considered. In the sequence of calculations, the initial number of those employed is determined first, with attention to preserving actual productivity. Then successive reductions are made for each of the above factors.

At this stage investments are allocated according to specifications (titul'nye spiski) for all large-scale constructions containing: (1) substantiation of the necessity for and

appropriateness of the structure and reasons for the choice of its location, (2) verification of completed documentation, availability of construction organization capacities, and contracts for the delivery of necessary equipment, etc., (3) information on requirements of the enterprise after completion for manpower, energy and raw materials and on their resources, and (4) an extensive demonstration of the contribution to be made by the project.

At this time an extensive system of material balances is developed by all industrial departments for their products. It consists of aggregate balances such as electrical power, fuels, oil products, ferrous metals, non-ferrous metals, chemicals and rubber technical products, construction materials, lumber, cellulose and paper products, textile and leather materials, equipment, machines and cable products, etc. In the resource part of a balance, output, imports, and changes in inventories are taken into account. The utilization part of a balance includes demands for production consumption including research and experimental work, construction, exports, market funds for consumers, reserves and stocks. Each balance must be supplemented by calculations of the demands of industry and construction, substantiated with approved expenditure norms. The primary condition for the latter is that they be "progressive," i.e., change from period to period in the direction of reduction. But there is the possibility of increasing expenditures by introducing "experimental" norms for new products and technological processes.

The mutual dependence of resources and production targets is important in balancing the main indicators in national economic plans. As we saw above, resources are calculated in accordance with production targets, although in the first stage output was based on estimated limits of available resources. Now, when more precise information on demands for resources has been obtained, corrections are made in output values. Theoretically, this convergence process can be seen as infinite, if a precise model is possible at all. In planning practice, however, there is an urgent need for empirically satisfactory results which may appear to be far from equilibrium.

An alternate system of calculations important for some extractive and consumer goods industries, unlike that described above, begins with reserves and the stock of raw materials. Capacities play an auxiliary role in this case. Since technological processes in light industry and the food industry utilize agricultural raw materials, planning calculations for these industries depend on a variety of balances for agricultural products and their distribution for further processing or domestic trade market funds. In the machine-building industry, metal availability has become a more decisive factor in many cases than production capacities.

Balances for agricultural products provide one of the most important links between agricultural and industrial indicators. They are employed by all departments responsible for the development

of consumer goods production targets. The latter are the most unstable of all plan targets because of fluctuations in these same balances whose distributional parts are continually corrected. Projections for the food industry and light industry change with resource estimates. On the other hand, calculations of agricultural output depend on information flowing from industry to agriculture. They reflect targets for delivery of fertilizer, equipment, metal, energy, etc.

If industrial calculations depend only in part on indicators resulting from the balance of the national economy (balans narodnogo khoziaistva), the character of the "non-productive" branches of the economy is based entirely on the final product of the "productive" sphere. The state budget indicators which are especially important for the non-productive sector are not used in planning calculations, but, in aggregate form, are reflected by the balance of the national economy.

4.2. The Relative Significance of Current and Perspective Plans, and the Role of Normative Methods

Official Soviet sources claim that their country possesses a thoroughly designed system for short-, middle- and long-term planning. In addition, the Academy of Sciences develops projections for technological change and for the development of the resource base of the economy in the future. These claims have found their way into Western economic literature. But does such a precise, interlacing set of plans operate so that plan targets follow

naturally, one after another? Or do the country and its leaders care only about day-to-day economic problems?

In order to gain an understanding of the true situation one must acknowledge the "directive" character of plans. In the 1970's, with the growing passion for forecasting, almost everyone in economics started to develop forecasts. But the question soon was raised as to whether there was a real need for forecasts, since thousands of people were already engaged in planning. What was the difference, if any, between forecasts and plans? To some extent, all planning calculations are predictions which must take into account technological change, growth of the resource base, weather conditions in agriculture, etc. As usual, it did not take long for "creative" writers to find an answer. The difference, they claimed, stemmed from the problem of "directiveness." Unlike plans, forecasts lacked a directive character. This meant that their fulfillment by any economic unit was not obligatory, and that they provided only preliminary information for planners.

Analyzing the long-term plan from this standpoint, we will come to the same conclusion about its character. As a matter of fact, there was only one attempt to develop such a plan, for the period 1976-1990. In 1972-1973 all ministries, departments and republics, as well as their enterprises and organizations, wrote proposals for the main guidelines for that plan. But work progressed no further. The methodology and, we might add, the goal of this work was unclear. Scientific recommendations were made in

appropriately vague terms and planners kept to their tested approach of "planning from the bottom up." This approach was a continuation of time series with some forecasted growth rates. However, there is an essential difference between imposing such rates for a coming year and extending them until 1990. For instance, what is the usefulness of this approach for agriculture if planners cannot even imagine its general state in 1990? Indeed, the growth of kolkhoz production was estimated without any certainty that kolkhozy will exist by that time at all.

To be effective a plan must contain targets and limits of resources on a strict annual basis. It is obvious that the 1976-1990 long-term plan does not meet that requirement. But what about the middle-term five year plans? To begin with, we must note that all five-year plans before 1971 defined their targets only for the ends of the relevant periods. The 9th Five-Year Plan was the first in the history of Soviet planning to determine its targets annually.

But plan targets are not real targets unless appropriate resources are allocated to economic units. As mentioned in the previous chapters, enterprises and organizations are more concerned with investment, material supply, etc., because these are plan targets that must be adjusted to available resources, while the reverse is not always true. Therefore, it is worth mentioning that neither the 9th nor 10th Five-Year Plan, which determined their targets on an annual basis, contained plans for distribution

of material resources among the main holders of funds, i.e., all-union ministries and departments and republic councils of ministers. All of those resources were allocated in annual plans which indicates the role and importance of these plans.

The 1979 Resolution has brought about essential changes in the distribution of resources, and in favor of five-year plans. The system of long-term normatives discussed below is to play the major role in that process. The 11th Five-Year Plan (1981-1985) was the first to develop plans for distribution, in this case of about 330 items of the most important materials and equipment [16]. This was a real attempt to include five-year plans in the set of mechanisms influencing the direction of national economic development.

Of special interest is the question of how the economy could function when its most valuable resources were allocated five years in advance, leaving party and planning authorities no room to adjust the allocations. Because of this, it is most likely that necessary changes will be made using annual plans and that in the future five-year balances will not play their projected leading role in the distribution of resources. Another reason for the relatively minor role of five-year plans has been the problem of their coordination with annual plans. Before the 9th five-year period, 1971-1975, it was impossible to compare five-year and corresponding year-by-year targets. The comparisons after 1971 demonstrated that the yearly projections made for the 9th and 10th

Five-Year Plan higher than those for annual plans. The difference became especially pronounced with third-year targets, when five-year figures became practically useless.

The 1979 Resolution provides for considerable changes in the temporal range of targets. The Gosplan must now develop the main guidelines for periods of ten, rather than five years. Targets for the first five years are to be defined on a yearly basis, and those for the second five years only for the end of an entire period. The main guidelines for five-year plans have been changed to control figures derived from the ten-year plan with appropriate corrections. Substantial changes are provided for annual plans. There is no longer a control figures stage for annual plans since their indicators must follow directly from five-year plans. The most impressive provision made in this respect is that the targets of annual plans must not be lower than the corresponding five-year projections. The only thing not indicated is how to accomplish this.

We might add here that the last two claims are contradictory. Since the resolution does not require the equality of targets in the two kinds of plans, corrections must be allowed for in the transition from five-year to annual targets. Therefore, a control figures stage for annual plans will be needed, regardless of what it is called, especially since it is doubtful that five-year-plan targets will in all cases be surpassed.

The persistent trend toward increasing the role of five-year plans was especially evident in the unprecedented decision to

dictate the limits of capital investment only in five-year plans, without any changes in annual plans. This means that decisions to invest can now be made only once in five years. Again, as in the case of material resources, we are skeptical on this point. Taking into consideration the intended "mobilizing effect" of five-year plans, one can imagine that they will be tough. On the other hand, chronic shortcomings in the construction industry and in mastery of new production processes, shortages in the supply of metal and agricultural raw materials, and the lack of resource reserves will contribute to failures in plan fulfillment. For these reasons, annual changes seem inevitable.

An interesting example illustrating the scale of changes made even in annual plans can be found in an article [21] which lists the following data on the number of enterprises that failed to meet their 11- and 12-month plan targets of three recent years.

TABLE 4.1. Number of Enterprises that Did Not Meet Their Production Plan Targets (Thousands)

Indicator / Year	Estimate For 11-month Totals	Result At the End of the Year
1977	4.2	1.9
1978	4.4	1.9
1979	6.6	2.8

If we take into account that there were 43,000 production associations and enterprises in the country by the end of 1979 [16], more than 15 percent of them did not meet their 11-month production targets in 1979. The writer explains the cause of dramatic improvements made by thousands of enterprises in the manufacture of commodities by the end of the year: their plan targets were reduced in December by supervising ministries and departments.

Why are planning authorities so eager to strengthen the five-year approach to plan targets even though annual targets are not met? The official explanation is that the country cannot get by, attending only to day-to-day problems, and that the implementation of long-term programs demands appropriate planning. To some extent, this is true as much as for any other nation. But there is more to it. Authorities hope that by concentrating more on five-year plans they can succeed in rationing resources on the basis of a well-designed, long-term system of normatives. One of the biggest problems in this respect is the enormous investment burden on the economy.

Investment and its growth in the USSR in three recent five-year periods and in the 11th Five-Year Plan is characterized in Table 4.2 [1]. The sharp decrease in the rates of investment growth over the observed period is caused by the above-mentioned factors of production of investment capital such as construction industry capacities, supply of metal and agricultural raw materials, etc., which we will not discuss here. But the fact is

TABLE 4.2. Investment in the USSR by Five-Year Period (Billions of Rubles)

Indicator / Period	Total Investment	Increase	
		Absolute	%
1966-1970	346	104	43
1971-1975	491	145	42
1976-1980	633	142	29
1981-1985 (plan)	709-729	76-96	12-15

that the growth of investment on the part of ministries, departments, republics and industrial enterprises is to be reduced dramatically. Another reason, already mentioned, for the wish to reduce the growth of new investment is the enormous number of unfinished construction projects. As explained in Chapter 2, with the normative term of building in most of the industries at about four to five years, annual investment must amount to 20-25 percent of the total estimates. But, indeed, it is on the average several times less than that due to the correspondingly large number of previously initiated construction projects.

Each year planning authorities have been pressed by demands for more and more investment. Since many of the demands are really well-reasoned and even urgent, it is difficult to resist in all cases. As a consequence, new investment has been growing in spite of the policy of strict limitation. Planning authorities believe that the

shift to a five-year term of investment allocation will improve the situation and strengthen investment discipline. At least pressure will be brought to bear on them only once in five years. Of course there is more involved in this intertemporal consideration. Time will tell whether the system of allocating investment funds once in five years will work. Up to now, planning practice has given a negative answer on this question.

Increasing the role of five-year planning in general is connected with the use of a set of long-term normatives imposed by the 1979 Resolution. To begin with, enterprise operations must be estimated with the normative net value of output. As illustrated in Chapter 2, this means that production in physical terms is to be multiplied by the norms of net output rather than, as in the case of gross output, by prices. The higher the normative the lower the share of material expenditures in total output. This approach will influence also the measurement of labor productivity as the ratio of normative net value of output to the number of employees. The transition by all ministries to planning according to the new principle of normative net value of output will come about gradually starting with the 11th five-year period, 1981-1985.

In five-year plans, the so-called "economic" normatives such as for wages and bonus funds must also be designated. The wage normative has nothing to do with wage rates, but is merely an estimate of the proportion of wages in the total value of output. The normative is computed per ruble of output estimated, as in the

planning of labor productivity, with net value of output in most cases. In the 11th Five-Year Plan, only a few ministries are to use this experimental approach [4]. The normative for the bonus fund, as we showed in Chapter 2, is defined in most cases according to labor productivity growth and manufacture of high-quality products, with a reduction in the value of output to penalize those failing to meet plan targets for deliveries.

Further, a gradual transition to the normative principle of distribution of profits is provided starting with the 11th Five-Year Plan. At all levels of management, financial plans must be developed with annual targets. The portions of profits retained by enterprises and associations for their own needs will be determined by long-term normatives differentiated by year. Since, as in the case of the bonus fund, retain profits vary with the results of the enterprise operation, it looks as if they may grow faster with the growth of profits than was foreseen by the 1965 Reform. On the other hand, the budget is protected by the guaranteed values of required advance payments to it.

Funds apportioned to enterprises according to normatives depend on their needs and profitability. But the profitability of many industries, for example, ferrous metallugry and construction materials, is very low. For some, such as coal and lumber, it is negative. New wholesale prices to be introduced in 1982 are intended to improve the situation by raising prices for those industries, but not to the extent of making them self-sufficient.

For this reason, experimental normatives, which have already been introduced in many industries, attempt to compensate for lower levels of profitability.

Thus the experimental normative in the 1979 plan for the Ministry of the Machine-Tool and Tool-Making Industry (Ministerstvo Stankostroitel'noi i Instrumental'noi Promyshlennosti), which had a high level of profitability, was 39.1, i.e., the ministry received 39.1 percent of its profit for the needs of its enterprises. For the Ministry of Agricultural Machinery (Ministerstvo Traktornogo i Sel'skokhoziaistvennogo Mashinostroeniia) that normative was 60.1, and for the Ministries of Heavy Machinery and Power Machinery, with low levels of profitability, 73.9 and 96, respectively [33]. Such differentiations mean that relatively unprofitable industries receive greater shares of profits for exceeding their plans than do highly profitable industries with correspondingly lower normatives. Taking into consideration numerous complaints in this regard, the provision is made that in the 11th Five-Year Plan all industries will receive the same rate of 50 percent of their excess profits, or 25 percent if they surpass their plans by more than 3 percent.

Overlooking the arbitrariness and inflexibility of the above differentiation of normatives, we would point out one problem that cannot be solved in this way at all. Even if a fair distribution among industries were arrived at, it would have to be based on averaged estimates, since each industry includes thousands of

enterprises with a tremendous spectrum of profitability. No one could answer the question of how such normatives could create incentives for all of them.

Among the other resources, an extensively increasing system of norms has been developed for the expenditure of materials and equipment. The Gosplan employs data on the total volume of materials used in production, and coefficients for expenditures of materials by specific goods and for each ministry as a whole. Although in setting norms for metal expenditures only 22 items are taken into account [35], very detailed norm-fixing takes place for expenditures of fuel and energy. Much attention is paid to the development of norms for expenditures of metal, cement and lumber in construction.

How are these thousands of norms and normatives being created?[1] The Department of Norms and Normatives (Otdel Norm i Normativov) of the Gosplan is in charge of setting norms at macrolevel and organizes the whole process of norm development. The Scientific Research Institute of Planning and Norms is responsible for preparing cross-industrial instructions which must be specified later for the

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[1]The difference between norms and normatives is not distinct in Soviet economic literature. Norms are usually set for expenditures of inputs in material production, though exceptions are possible. Estimates of the ratio of financial flows related to each other, once they are accepted officially, become normatives. Examples of this type mentioned above are the ratio of the net value of output to the gross output, wages to the net or gross value of output, the bonus fund to profit or wage bill, components of the distribution of profit to its total, etc.

various ministries by their technological institutes. In recent years, a large-scale project for computer processing of normatives (Avtomatizirovannaia Sistema Normativov) has been initiated. Despite large amounts of labor and money contributed, however, the project has proved relatively unproductive. As there is little interesting research to be done in this type of data processing, it is difficult to enlist skilled specialists. What is most damaging is that the institutes conducting the work are isolated from the production processes. Because of this the Gosplan and ministries still use their own approach to norm-fixing on the basis of actual expenditures in the past (po baze), with corrections for increases in efficiency. In such a situation this may be the only reasonable policy. The problem is that those for whom the norms are set, aware of this principle, take care that the norms are not "too high."

As discussed above, by increasing the role of long-term normatives, planning authorities expect to decrease yearly demands for resources. What's more, such developments represent a trend in the direction of further centralization of decision-making in planning. With the expansion of normative data in the Gosplan, which doubled between the 9th and 10th five-year plan periods [35], the Gosplan will cease to depend on data from ministries and will increase its control of them.

Surprisingly enough, the ministries and their enterprises are also interested in the development of normatives. Two major factors

are responsible for this. First, the availability of norms and normatives helps them to substantiate their demands for resources. Second, in the normative approach, profits, financial funds and, what is most important for enterprises, wages and bonuses are bound to the results of their operations. Thus, by increasing output, enterprises can receive higher wage funds, in contrast to the situation with inflexible wage limits. But, of course, with further development of the new approach more constraints and regulations will be imposed to regulate the process of wage growth.

4.3. The Role of Material Balances in Planning and the Use of Input-Output Tables

The use of material balances in Soviet planning has been thoroughly investigated in the West (see, for example, [23] or [6]). They are usually considered instruments of the material and technical supply system. Their role, however, is more important than that. The major task of the material and technical supply system in planning is plan development for the distribution of materials and equipment based on corresponding balances. Most of the balances are worked out in the development of production plans, with much broader purposes than those for the supply system.

Each industrial department responsible for planning the output of a line of products must collect information from other industries which manufacture any of the same products, and also must know about demands from other departments for these products. In such a procedure, the output of and demands for goods and services are

mutually adjusted. The two main demands -- for production use and for market funds for the consumers -- are evaluated differently. The former is computed on the basis of expenditure norms per unit of output and draft projections for output of goods. Computation of the latter is based on distribution data for market funds in the previous year, these being revised according to current information.

Thus, material balances have a great effect on the output plans in many industries. For example, the electrical power, coal, oil, gas, metal and other production plans cannot be compiled without balancing the resources with "satisfied" ministry and department demands for them ("satisfied" demand is usually lower than what the users ask for). The using-ministries must adopt their production targets to changes in supply. This is possible because all Gosplan departments, either producing or demanding a specific product, operate with the same norms for expenditure of resources per unit of output, which transforms corrections in projected supply into corrections in final output. Possessing confirmed norms for expenditures of its products per unit of output for all industries, each department performs calculations for product demand, both total and specialized. Personal and public consumption norms exist or are being developed for many products, and these norms are employed in analogous calculations. Consequently, there are repeated mutual verification and control over the work of different departments.

Links similar to those between production plans exist also between production and investment plans. Material balances indicate

the material, energy and equipment supply limits for new construction in all industries. Coresponding "satisfied" demand changes lead to fluctuations in construction industry capacities as well as in the output levels of affected industries. There exists also another type of relation between production and construction plans. When a discrepancy arises between production capacity and product demand, which, according to priorities, must be satisfied, then feedback from a material balance signals the necessity for new construction or expansion of the existing capacity.

Material balances are important also in establishing the above relations between agriculture and consumer goods industries. Prior to the calculation of balances for agricultural products used in production of consumer goods, accurate projections for the latter are impossible. Domestic trade is in a similar situation both with respect to balances of agricultural products and of consumer goods. These balances form the basis for preparing distribution plans for materials and equipment and, further, delivery plans. Thus they provide links also between transportation and all other branches of the economy.

Some Western analysts and Soviet economists in academic circles underestimate the regulating role of material balances and link them only with the supply system. Planners, however, take great pride in the balance method and consider it one of the greatest achievements of planning theory and practice. We have doubts about the theory since there is nothing new in this approach. But, for practical

purposes, the planners have indeed organized the system of balances so that they do make a positive contribution to the planning process.

For the 1981-1985 Five-Year Plan, the Gosplan had to prepare some 400 material balances and distribution plans for more than 80 percent of its products [8]. For the 1981 annual plan, there were more than 2,000 balances. In contrast, the number of balances being developed by republic Gosplans was only a two-digit number, reflecting the extent of centralization in the allocation of resources. As centralization increases, the number of balances has increased dramatically.

Two Gosplan departments organize the whole process of elaborating material balances -- the Summary Department of Balances and Plans for Distribution of Materials (Otgel Material'nykh Balansov i Planov Raspredeleniia) and the Summary Department of Balances and Plans for Distribution of Equipment (Otdel Balansov i Planov Raspredeleniia Oborudovaniia). As mentioned above, most of the balances are developed by industrial departments. The task of these two departments is to coordinate the work done on balances and to develop those balances that are not the responsibility of any particular department. In addition, these departments collect information about fulfillment of delivery plans, and draw up material resource distribution plans for use of the main holders of corresponding funds (fondoderzhateli).

In connection with production plans, we noted above the problem of coordinating the "broad" and "narrow" categories (nomenclatura)

of commodities. The latter, covering some 40 percent of all manufactured goods, is used to evaluate production plans in physical terms, while the estimate of the former is used to plan the gross value of output. The allocation plans for material resources are based, evidently, on the broad category, which is not yet known in the planning process. Thus, much confusion often arises further along in the process, especially when plan specifications are compiled, and so numerous deviations from the desired projections are inevitable. As a consequence of replacing required material with whatever is available, input amounts and costs increase and product quality decreases.

The discrepancy between planned and allocated resources exists not only for material inputs, but also for consumer goods. In a national economic plan, domestic trade sales (tovarooborot) are determined in money terms and then are itemized based on the broad category balance. In other words, in planning domestic trade, commodities flowing to consumers are not specified precisely until allocation plans for resources are developed.

The above examples show that allocation plans for resources reflect the results of enterprise operations better than production plans. The role of allocation funds has been growing in recent years since the deliveries indicator has begun to affect incentive funds. Now far more attention is paid to the methodological problems of developing material balances and computerizing their calculations. We will mention here two such methodological problems.

The first problem is related to the commensurability of indicators in material balances. Although the indicators are developed in physical terms, they must be aggregated. For example, even a monoproduct such as coal is an aggregate. The Council of Ministers approves the balances and allocation plans for coal resources as a whole, designating also the coal of particular areas, such as the Kuznetsk and Donetsk Basins, and then the Gosplan specifies the coal by grade and quality. Improving the measurement of material balances is a constant problem at Gosplan research institutes. Units in use, such as metric tons, meters, square meters, etc., do not reflect product utility. Conventional measures, such as calories, units of capacity and power, contents of a pure substance, etc., sometimes apply, but often the meaning of aggregate balances is arbitrary. Probably, the most important instance of this is in the case of rolled metal shortcomings of whose balances have been discussed in planning for many years.

The second of the methodological problems noted above involves the interdependence of material balances. The problem here lies in substitution among material inputs and in the fact that a product noted once as output serves many times as input. Therefore, a change in one of the balances has to be transferred to many others, and this chain of corrections can affect a large number of industries and administrative units. The Gosplan can handle this problem in two ways. One is by developing aggregate balances for mutually substituted resources (among them, the consolidated balance of fuels

and energy proved to be especially helpful in planning). The second is by developing input-output tables.

The ex post input-output tables for 1959, 1966 and 1972 were compiled by the Central Statistics Administration (TsSU) and its scientific institute. They were published in part and, in reconstructed form, are widely used by Western analysts (an authoritative source is the monograph [51]). Our interest is in the use of input-output tables in planning. There are special departments at two of the Gosplan research organizations -- the Scientific Research Economic Institute (Nauchno-Issledovatel'skii Ekonomicheskii Institut) and the Main Computer Center (Glavnyi Vychislitel'nyi Tsentr) -- which are responsible for developing the methodology, instructions, computer programs and data base for input-output tables.

Several models were created to bring these tables closer to the Gosplan classification of industries, products and output requirements. Included was a model for 18 branches of the economy as well as for the main aggregated branches of industry, and also a model containing the gross output in physical terms of some 260 products [17]. One of the Main Computer Center's models incorporated input-output tables and attempted to minimize target deviations between annual and five-year plans [52].

Calculations based on the above models are performed by the above institutes yearly and submitted to the Gosplan. Participation by Gosplan departments in such work is minimal and limited

usually to the analysis of projections. In 1972-1973, during the preparation of guideline proposals for the 15-year long-term plan there was an attempt to involve the major planning institutions in the development of input-output tables. All ministries had to furnish information on technological coefficients of material and energy expenditures by all other ministries per unit of output. The ministries' scientific and technological institutes were charged with computing these coefficients. However, from Gosplan's standpoint, the project was largely a failure [53]. Some reasons following in brief.

Although the input-output coefficients are called technological, they reflect the state of technology only in very detailed models. At a high level of aggregation, these coefficients express for each industry the vector of ratios of its inputs by industrial origin to its gross value of output. Branch institutes performed the sequence of calculations as follows: (1) verification of projected or desired plan targets for the ministries; (2) computation of corresponding input flows as requested by the ministries; and (3) division of the latter by the former. However, if ministry projections did not satisfy the Gosplan, or changes in plan targets were inevitable for other reasons, then the coefficients could not be used. The sequence of calculations would have to be repeated again and again, a process considered too costly for the promised gains.

It is not necessary at this point to discuss the disadvantages of input-output tables. Nor do we need to reexamine the assertion

that planners are too conservative to accept advanced techniques. We think that two successive stages -- illusion and disillusion -- are typical when employing mathematical methods in Soviet economics. Those who try to introduce these methods are to some extent responsible for this. Exaggerating the possibilities of mathematical methods, they confidently apply conclusions from model simulations directly to real economic situations. After the creation of such a new "remedy," a compaign for its use begins. If successful, then the decision to begin an experiment in the Gosplan is made by its chairman. All or some of the departments must assist the research institute running the experiment in collecting information and analyzing results. But once the planners become familiar with the suggested techniques, they begin to see the discrepancy between promised and actual results.

Let us examine this in the case of input-output. First, input-output tables cannot replace material balances, as some Soviet economists have presented. The major principle of a balance lies in the double-entry accounting of resources and outlays on the basis of two different information sources. In other words, resources and their uses must not be evaluated within the same model, so that some specified items can be used in balancing. The input-output model provides a one-sided procedure for computing industrial gross outputs beginning with demands for the various products. Thus, although the idea itself is fruitful, planners cannot apply this model directly to balancing material resources and their allocations.

Second, as noted above, planners use material balances to coordinate production capacities with production plans, as well as to coordinate the latter with investment plans, output indicators in physical and money terms, etc. So when they find in the input-output model that some of the above indicators must be fixed exogenously, and that only after that can their counterparts be found endogenously, they are disappointed.

For other reasons also, planners discover that the input-output model is not very useful to them. For example, the planners think that determining final demand components is even more difficult than determining gross output. Indeed, the Soviety economy is oriented on a sequence of calculations opposite to that for free-market economies. As we demonstrated above, the demand for goods and services in the Soviet economy is substituted with "satisfied" demand, which is derived from the level of output. Consequently, planners can determine production plans more precisely than they can components of final demand.

While the attitude of Gosplan specialists toward input-output is not favorable, there have been changes in the field due to increased computerization of planning calculations. Input-output tables are suggested for use at the macrolevel of the economy at all steps of this large-scale project. It is indeed difficult to imagine computerized planning calculations without input-output tables.

Finally, we will add the following. Although, as mentioned above, input-output tables were suggested for use in problems for which they were not suitable, their real possibilities for planning were never discovered. They were employed in forecasting models, but not in the economic analysis which is far more important for the Gosplan. As a matter of fact, the Soviet ex-post input-output tables have been used in the United States more than in the Soviet Union. There is no doubt that the unique information provided by these tables could be very helpful to Soviet planners were they developed regularly. For example, the analysis of the full input coefficients and expenditures could be fruitful in many fields, especially in evaluating the efficiency of different industries.

4.4. Computerization of Planning Calculations

Along with the more frequent employment of the normative approach and the greater role of material balances, the increased use of computers is one of the major developments in planning since the loss of faith in the 1965 Reform. It began in the late 1960's with the creation of Gosplan's Subdepartment of the Organization of the Automatic Planning Calculations System (Podotdel Organizatsii Avtomatizirovannoi Sistemy Planovykh Raschetov -- ASPR). Since the early 1970's this project has expanded at an unprecendented rate. Lists of organizations that have contributed to it are dozens of pages in length.

Planning technology is undoubtedly backward. Thousands of calculations are performed manually, and locating sources of information demands much time and effort. The standard attitude

blaming failures of the economy on shortcomings in planning, coupled with propaganda about the wonders of programming, created a feeling that much could be done to improve planning by introducing advanced techniques. While not naive on this point, planning authorities do consider this development positive. First, even if the vast improvements promised by scientific institutes do not occur, planning authorities expect that some data banks will be established and some informational flows will be processed with computers. Second, by encouraging the development of the ASPR, planning authorities demonstrate their willingness to improve the planning process. At the same time, the ASPR project does not create new problems for planners since their involvement is minimal.

Since Gosplan is a union-republic institution, the ASPR is set up at both the union and republic levels. Additionally, Automatic Control Systems (Avtomatizirovannye Sistemy Upravleniia -- ASU's) are developed for ministries and departments, territorial units such as economic regions, administrative regions, cities and industrial territorial complexes. Under highly centralized planning and allocation of resources, the interaction between the ASPR and the ASU's of the ministries and departments is most important. Besides industrial ASU's, there are the following specialized systems for state committees and departments: the Automatic State Statistics System (ASGS), the Automatic System for Processing Data for Prices (ASOITsen), the ASU for the Development of Science and

Technology (ASUNT), the AS for Financial Calculations (ASFR), and the ASU's for the State Committee for Construction, the State Committee for Material and Technical Supply, the State Committee of Standards, the State Bank, and the Construction Bank.

Within the Gosplan, the ASPR incorporates more than fifty subsystems divided into three levels: (1) the summary national economic plan, (2) the summary resource and balance systems, and (3) industrial and other branch subsystems. Among second-level subsystems are those such as Development of Science and Technology, Capital Investment, Labor and Manpower, Costs and Profits, Standard of Living, Territorial Planning and Allocation of Productive Forces, Foreign Economic Relations, Balances and Plans for Resource Allocation, etc. [7].

The development of the ASPR has three general phases of project documentation: (1) draft, (2) technical, and (3) working. The draft project documentation was created for the system as a whole and contains special volumes which describe requirements for the methods of calculation, problems of information supply, software specifications, computers and technical sources, organization of work, etc. The technical and working phases must describe schemes for solving planning problems, simulation models and methods, data bases, program packages, etc.

To circumvent the problem of meeting deadlines for completed portions of the project, its creators found it convenient to repeat their work for as long as funds were available. According to their

explanation, the above-described documentation addresses only the problems of the "first list" (zadachi pervoi ocheredi). The number of lists to come is not established. There are no set time limits for solving problems and, while the "first list" of planning problems is often developed in detail, much of the project is outlined in vague form. The development of project documentation thus becomes a repeatable process.

From the beginning, the ASPR was declared to be a powerful means for improving planning. Most planning calculations were to be replaced with the methods of optimal programming or, in Russian terminology, "optimal planning." Gradually, however, planners have adopted a more realistic attitude toward optimal planning, even though the official position on ASPR has not changed. Evidence of this new attitude is provided in an article [15] by the head of the Subdepartment of the ASPR Organization.

The author writes that, in annual planning, the problems of direct data processing and of primary concern. Direct planning calculations amount to 90 percent of the whole workload. More sophisticated models are used for five-year and long-term planning due to the complicated character of perspective plans and the greater role played by preliminary stages when different alternatives are investigated. Thus, 35 and 43 percent of the calculations in five-year and long-term planning, respectively, must be handled on the basis of optimal programming. The preciseness of these estimates, even if doubtful, does not matter. Important here is

the admission that in ASPR most calculations for annual plans will merely be replaced by data processing. Owing to this, classifications for manufactured goods, for industries, enterprises and organizations, assorted production processes, etc., have been created. A standard classification for technical and economic terms and indicators used in planning has been under development for many years, but is still not completed.

Another important development in connection with the ASPR is the centralization of control over plan fulfillment. Such control had previously been left to the ministries, but during the 9th and 10th Five-Year Plans, Gosplan's role here increased. Taking into account the tremendous amount of information necessary to exercise such control, planning authorities expect the ASPR to develop the appropriate data base and data processing technology. Along with the stages of planning such as control figures, draft plans, and assignments of targets, the ASPR also includes the control stage for all types of plans and all their indicators. The control functions include analysis of accounting data, forecasting results of enterprise operations and deviations from the plan, investigation of factors causing the deviations, and suggestions for ways to meet plan targets.

Information for the control stage is provided, in part, by ministries, departments and enterprises. It is worth noting here that when the ASPR concept was being developed, there were two different approaches to it. According to one, the Gosplan was

to be restricted only to information provided by ministries and departments. This approach was rejected in favor of one in which the Gosplan would process information coming directly from enterprises in order to increase the reliability of computations.

The explanation of the development pattern taken by the ASPR is clear: the ASPR cannot deviate from actual planning practice and its emphasis on centralization of decision-making, verification of calculations, and control of decisions made at ministry level. Indeed there is not much room for changes in planning techniques through the ASPR, even if its developers possessed the required skills. The ASPR must follow the existing planning methodology, and elaborate only such alterations as are approved by the Gosplan. Otherwise, the suggested techniques could not be applied, and the Gosplan would not pay for them. For example, to be useful for the Gosplan, the Subsystem of Material and Technical Supply must include all the features of the allocation system even though the latter is highly criticized by some economists. If such an allocation were replaced with some type of market mechanism, the corresponding part of the ASPR would have to be discarded.

As a matter of fact, calculation technology in the ASPR is based on existing planning technology. But the following question arises. Why conduct a large-scale project through numerous research institutes if the best they can do is to repeat this technology? It is necessary, however, to know the planning system to realize that such a question cannot be asked there. An important factor is

also that planning institutions do not include in their staffs computer programmers and analysts, who are concentrated in research institutes. Without going into further detail, we will note only that the Gosplan is not the place for experiments; these must be undertaken by its institutes.

In working on the ASPR, each institute spends tremendous amounts of time studying and describing planning technology. This work has resulted in many volumes of documentation. The creators of this documentation have developed it mostly for their own use and, since it describes the work's intermediate results, the documentation is part of on-going research. In 1976-1978, I reviewed some of the project documentation for industrial subystems in order to develop a "typical" (tipovoi) project for a model acceptable at this level of planning. The quality of what I read was very poor, and the corresponding parts of the technical project for the ASPR were not even prepared for computer programming. It was difficult to ascertain the purpose of these materials.

Another shortcoming of the project, a result of planners not taking part in it, concerns the problem of coordinating different parts of the system. Developing plan targets, planners use their own experience and personal contacts in coordinating many details of their work. Gradually, they find consistent answers to many questions. Experience and contacts, however, are not formalized. With people working in different fields and on different parts of the system, the development of a formalized approach is required. This is very difficult to do; it is a crucial problem for the ASPR.

As was admitted by the Gosplan Deputy Chairman Lebedinskii, who is the chief designer of the ASPR [22], the design process for the "first list" of problems suffered from serious shortcomings: The problems were solved in a separate regime and not coordinated within or among subsystems. There was a lack of methodological, informational and organizational compatibility of different instructions and methods. No data base for the ASPR was created. Information circulating among subsystems did not flow directly from one computer to another, i.e., some manual processing was still required.

Of course, much of this was not difficult to foresee. At a 1973 conference, for example, I had suggested that, before beginning the large-scale project, a macro subsystem, "Main Indicators of the National Economic Plan," should be created first. It would incorporate indicators flowing from all parts of the system. Once the subsystem began operation, other work could begin on the basis of the methodology derived from it. Otherwise, it would be difficult to know in what direction everyone should work. One of the leading designers of the ASPR sharply replied that all necessary subsystems were provided and there was no need for "inventions."

Nevertheless, seven years later, in 1980, such a subsystem, under the name "Central Complex of Planning Calculations," was officially initiated [18]. It incorporates the following groups of calculations: industry demands for material, labor and

financial resources; balances of the most important products, investment goods, fixed capital, productive capacities and manpower; production plans in physical and money terms by industry and ministry; variants for the development and location of industries and production associations; domestic trade supply with commodities in physical terms; exports and imports of goods and services; and some other indicators for the balance of the national economy. The number of problems handled by the subsystem will grow, and so will its influence on all calculations in the ASPR. Since problems in different parts of the ASPR had been solved separately, the designers decided that these problems would have to be revised and defined adequately for insertion in the above subsystem. This means that the process of formulating and solving the problems must start over from the very beginning.

As mentioned above, planning authorities know that millions of bits of planning information must be processed by computers. From this standpoint, they consider the ASPR project useful. But hundreds of organizations take part in developing the ASPR, making it a typical example of a highly ineffective large-scale Soviet project.

4.5. Methodological Changes and Economic Methods of Management

We have classified all significant changes in planning in the recent fifteen year period in three categories -- economic, organizational and methodological. Obviously, methodological as well as organizational improvements can be consistent with the

command principle in planning and management. The relative roles of the three categories have changed over time in relation to the strengthening of the command principle.

The 1965 Reform resulted in the radical reorganization of the economy and in centralization of decision-making and allocation of resources. The mixed branch and territorial economic structures were replaced with the direct vertical principle of management in most production enterprises. These organizational changes were accompanied by attempts to introduce some limited economic management methods at the enterprise level. These attempts were not successful. There were many reasons for the lack of success in this area, but, in our opinion, the conservative attitude of the planning authorities was not the most important. As explained in Chapter 2, enterprises were not prepared to make use of greater economic opportunities due mainly to the complete absence of responsibility for utilized resources.

With the failure of attempts to increase labor productivity and to meet the nation's economic needs, the role of methodological improvements has grown a great deal. The strengthening of both discipline and the command principle required an adequate methodology. The main methodological changes involved reassessment of the relative importance of five-year and annual plans, the increased use of material balances and norms in planning all economic indicators, introduction of economic normatives in the distribution of wages, profits and incentive funds, the changes in evaluating

operations, and the attempts to develop the computerization of planning calculations.

It is widely believed that, if planning methodology is improved, the Soviet economy will perform better. Such a belief stems from erroneously blaming failures in the Soviety economy on shortcomings in planning. Of course, Western analysts are not so naive that they accept this explicitly. But, accustomed to a free-market economy in which Adam Smith's "invisible hand" still operates in the face of various problems, Western analysts think in terms of decision-makers and believe that much in the economy depends on making the right decisions. Moreover, the assumption is made that, in a planned economy, the authorities are more powerful than those in a free-market economy. They possess control over national resources, and can direct the latter in the best interests of the nation, not having to worry about the popularity of their decisions. This is true with respect to the question of control and popularity, but not so concerning power.

When economic fundamentals do not work, the effects of a right decision do not differ essentially from those of a wrong one. One must emphasize the fact that forces other than the decisions of planners determine the economy's performance. Moreover, the concepts of right and wrong are arbitrary in general and depend heavily on the assumption of rationality. This concept, however, is too vague when applied to a planned economy. If planners' decisions are rational within their constraints, are the constraints

rational as well? Or, if planners put their best efforts into the material and technical supply system, is this system justified? Our answer to this latter question, under existing conditions, is yes. Eliminating this supply system would only result in increased theft in the economy as a whole. This, of course, does not mean that the system itself will favor economic effectiveness. Thus we see that a decision can be right from one standpoint and wrong from another.

It is obvious that the Soviet leaders do not want to make fundamental changes in the economy. They provided a general restructuring of the system in 1965 and staked new hopes on a reform that proved unsuccessful. We doubt they would initiate another reform of such magnitude, particularly since the options are limited if extreme changes are to be avoided. Obviously, a new reform might require a move in the direction opposite to that pursued by the present leaders. Under such conditions planners can do little more than try to fill gaps in methodology.

To a certain extent, the importance of methodological improvements has been exaggerated also by Soviet economic literature. The writers know what is open to discussion and what is taboo. The topic of introducing economic management methods was addressable only in the first years of the 1965 Reform. In describing the methodological problems of planning which do not touch upon the principles of the economic system, there is more freedom. But these are classified in two ways: open to comment in the press,

or restricted to the secret channels and special memos submitted to the Central Committee and republic communist party organs.

The topics open for discussion are always regulated, although attitudes may change over time. For example, economic literature in the 1970's was full of articles describing the advantages and disadvantages of the net value of output and its normative version. Yet once the Central Committee adopted the 1979 Resolution that declared the transition to evaluation of enterprise operations with this indicator, the dispute ceased. Since then, at least by official definition, the normative net value of output has no shortcomings. Of course, the official position on this could change in the future.

Economic censors regularly receive lists of topics forbidden for discussion. For example, I was once told by a censor that, for a stipulated period of time, I was not to publish the results of macroeconomic forecasts. The reason was that the main guidelines for the 1976-1980 Five-Year Plan were under consideration, and related comments were taboo until the guidelines were approved. The permission was later given, but with two reservations: first, forecasts were to be made only until 1980, i.e., not beyond those provided by the planning and party authorities. Second, the forecasts must not contradict the figures of the adopted guidelines.

It is considered a privilege to write a memo to the Central Committee. Most often these memos are the result of special assignments given to institutes by the Central Committee, Gosplan

or other authorities. The memos are concerned with the fulfillment of numerous resolutions or special inspections at enterprises. Sometimes a hypothetical research project is judged quite important by the heads of an institute, and they may ask for permission to write a memo concerning it to the Central Committee. Poor conditions in a specific industry or in the economy as a whole are discussed more openly in these memos than they would be in the press.

The introduction of methodological innovations takes the form of campaigns. Most of those initiated by scholars come from the West. In such cases a partial solution for a minor problem can grow to the scale of a remedy for the whole economy, often due to the efforts of dishonest or unqualified, but energetic figures. In such a way, for example, a resolution by the Council of Ministers on the introduction of network planning (known in the West as PERT) appeared in 1966 [3]. All ministers and departments were then obligated to use network models in planning and running large projects. Starting in 1968, the planning and financing of new construction had to be done on the basis of this new method.

One of the projects of my sector at that time was connected with the introduction of network planning in the Ukrainian Gosplan. We created a graph describing the development of the national economic plan which included more than 5,000 operations together with their complete characteristics. We reported to the Ukrainian Gosplan's Summary Department of the National Economic Plan (Svodnyi Otdel Narodnokhoziaistvennogo Plana) on the progress in planning operations. Actually, the process gradually fell behind

the schedule for the network, which soon lost its value. Although I received a document confirming the introduction of the network model and the success of the experiment, the Ukrainian Gosplan has not used network planning again. Network planning failed in construction work, too, as could be expected. Network schedules were not what builders needed. There were a few successful experiments, but only in cases of special construction projects (e.g., stroiki TsK or komsomol'skie stroiki), which had a high priority for material and equipment supply. In the end, the above resolution was completely forgotten.

This was just one example of the innovations which economic science has offered in planning and management. In general, the role of economic science in economic planning and decision-making is insignificant. There are many reasons for this, but we would like only to note at this point that while scientists usually are viewed as progressive and planners as conservative, the real situation is not quite so well-defined. Scientific institutes conduct their research in isolation from work done in planning. These institutes need the opportunity to experiment, but no such possibility exists in planning. Access to planning information is very limited for them. One exception is the Main Computer Center (GVTs), which has the privilege of being a Gosplan department. Not any of the four Gosplan research institutes -- Scientific Research Economic Institute (Nauchno-Issledovatel'skii Ekonomicheskii Institut), Scientific Research Institute of Planning and Norms

(Nauchno-Issledovatel'skii Institut Planirovaniia i Normativov), Council for Studies on Production Forces (Sovet po Izucheniiu Proizvoditel'nykh Sil), Institut of Complex Transportation Problems (Institut Kompleksnykh Transportnykh Problem) -- not to mention academic institutes, has privileged access to Gosplan information. For these and many other reasons, planning research results are often inadequate. As an example, we can mention a so-called system for optimal functioning of the economy suggested in [11]. After much heated controversy about this system, little emerged other than confusion over how optimal programming could be applied to the economy.

From our experience with planners we can say that they are skeptical about the application of econometric, optimal programming or any other mathematical techniques. We might add that the situation is the same in many other countries. But in the Soviet Union there is good reason for skepticism. Thousands of experienced people are involved in planning calculations, with mutual control and coordination at numerous intermediate steps. For this reason, methodological improvement derived from optimal programming technique does not seem too helpful for them. These people know how to substantiate plan targets. What they do not know is what to do so that the optimal plan will work. But this problem is beyond pure methodological considerations and lies at the heart of the economic system. Up to now, as we illustrated, the attempts to introduce limited economic methods of management have failed.

The attitude of planners to these economic methods is dual. On the one hand, many clearly understand that some changes in principle need to be made. On the other hand, they probably would not accept open-ended measures.

Chapter 5

CONCLUSION

5.1. The Role of Planning Resolutions and the Web of Inconsistencies

The present discussion covers a fifteen-year period in which numerous resolutions and decrees on planning were adopted. These were concentrated on the planning system as a whole, on its divisions, such as branches and regions, and on specific problems. In this respect, activity in this period was rather intense. It was encouraged by the Gosplan through special, newly appointed Interdepartmental Commissions (Mezhduvedomstvennye Komissii) and the Department for the Introduction of New Methods for Planning and Economic Stimulation (Otdel po Vnedreniiu Novykh Metodov Planirovaniia i Ekonomicheskogo Stimulirovaniia).

As mentioned above, the 1965 Resolution undertook overall organizational as well as some methodological changes in the economy. The 1973 Resolution declared restructuring of the middle level of management to bring the centralization principle closer to the level of material production. The 1979 Resolution provided major methodological changes in planning to make it consistent with the command principle in the economy. Besides these, many other

less general resolutions illuminate the situation and the workings of the planning system.

It is known that the adoption of a resolution signals a bad situation. Moreover, the same problem may be discussed repeatedly within a short period of time. This means not only that the previous resolutions failed but also that the problem is too important to be abandoned. For example, on the average one resolution per year adopted during the fifteen-year period in question called for improvement of consumer services and domestic trade, and the manufacture of more and better quality consumer goods. We will not discuss the fates of these resolutions, which are known. More important here is that a resolution, as the culmination of the planning procedure, is affected by the same problems as the latter.

The mobilizing effect of planning is important for an understanding of these resolutions. Each ministry or department touched by a resolution must do its best to comply with it, or at least to create such an appearance, whether or not the requirements of the resolution can in fact be met. To some extent, each resolution introduces some incentive in the form of additional wages, bonuses, staff, investment, etc. But for the leaders of the ministries and departments, the problem of their personal responsibility is more pressing. If things are going badly, the ministries or departments involved are always found guilty. Otherwise, everyone and, consequently, the system would be seen as guilty. In this way,

each additional resolution addressed to a specific economic body transforms the constant threat of punishment from implicit to explicit. That is why party and planning authorities find the resolutions helpful in maintaining some level of discipline in the bureaucratic hierarchy.

As discussed in preceding chapters, the mobilizing effect is considered fruitful in planning even when plan targets are not met. The resolutions in question are intended to play the same stimulating role for specified industries and for the planning system as a whole. In other words, everyone becomes used to the idea that resolutions are not compiled with. What is important is the degree of such noncompliance. Here again, as in planning, priorities begin to work.

Each of the resolutions is concerned with the improvements in a specific direction or branch of the economy. Resolutions concerning agriculture, of course, outnumber by far those in other areas. Nevertheless, much attention was paid to the development of construction, ferrous metallurgy, machine-building etc., not to mention classified resolutions related to the development of the industries producing military hardware. The major problem for all resolutions is that the improvements they call for require the utilization of additional resources which, in its turn, is possible only through the reallocation of resources throughout the economy.

Since resources are scarce and there are so many resolutions, resolutions must have different priorities with respect to resource allocation. As discussed earlier, these priorities range from industries working for the military complex to industries producing the means of production, including those serving agriculture. Then follow industries manufacturing consumer goods, and, last, consumer services. Again, these priorities are materialized in national economic plans because the ministries whose industries drew special attention have to adjust their plan targets to new goals imposed by corresponding resolutions.

Although resolutions cannot change completely the direction of resource allocation, they do influence planners' priorities within whatever limited leeway the planners may have. But their impact can be only temporary since with time other resolutions are adopted, and older ones lose their importance. Basic forces of the economy begin to reduce the effect of temporary improvements and reveal close relationships among different aspects of economic development and growth. Official attitude toward those resolutions is nevertheless positive since they play the role of injections into economic activity.

For example, several resolutions adopted by the Council of Ministers and the Gosplan on the introduction of mathematical methods and computers into planning proved essential to the operation of scientific institutes and computer centers who, as a result of these resolutions, were able to get funding for research.

In dealing with planners the institutes were able to quote the resolutions on the importance of mathematical methods. In 1969 the Central Committee and Council of Ministers adopted the Resolution on the Use of Mathematical Methods and Computers in Agricultural Planning, Accounting and Management. Agriculture did not increase its production, but the huge Institute of Cybernetics in Agriculture was created, providing many scholars with good jobs. Every cloud has a silver lining.

Regardless of the body adopting a resolution or related document -- the Gosplan, Council of Ministers, Supreme Soviet, Central Committee -- they are all prepared by Gosplan departments. Preparing resolutions and all types of information for the leaders at all levels, including their speeches, is a significant function of planners. When these assignments are considered of greater importance, scientists are invited to take part. But their role is often limited to taking part in conferences and discussions, which seems to satisfy all involved.

The main issues in all of these resolutions -- productivity and efficiency -- are directly related to the problems of centralization, decentralization, incentives and responsibility discussed in the previous chapters. The advocates of the 1965 Reform viewed the decentralization of the Soviet economy as a process of transferring economic decision-making from the top level of management to the enterprises, where material production takes place and it is easier to make efficient decisions. Such

an approach, which is widespread, seems inappropriate for the Soviet economy as it does not take into consideration the absence of economic responsibility on the part of enterprise managers.

A unit is said to have economic responsibility only if payments for inputs come from the pockets of its owners or equivalent parties. The 1965 Reform attempted to develop incentives which could stimulate the economy to move only in the direction of utilizing more and more resources, without providing any real possibility for balancing managers' targets -- higher wages and bonuses -- with their economic responsibility. What the economy needs is a system of "counterincentives," i.e., incentives not to use resources when the opportunity cost is too high. Private ownership, with the risk of loss and bankruptcy, may not always be socially attractive, but does serve a purpose. As a matter of fact, no economic theory can create the image that you pay from your own pocket if you do not.

A common objection to market economies is that most of their industrial firms are depersonalized, and their managers do not share in economic responsibility. Without going into a general discussion, a brief example will point up the distinction between the two systems. High interest rates, which dissuade Western businesses from investing, would be insignificant for a Soviet enterprise since its expenditures are covered in any event. The only problem would be getting investment funds from planning authorities.

Observing the operation of the planning system, I came gradually to realize that it had developed a system of administrative and regulatory measures to protect the economy from the lack of economic responsibility of its parts. Of course, these measures have worked as barriers and have not stimulated the economy. Planners are usually blamed for poor economic performance, but without their contributions the situation would probably be even worse.

In our opinion, the fundamental principle of these protective measures is the separation of the decision-making process from the possibility of personal gain. It has nothing to do with the managerial incentive system which works rather in the opposite direction. Centralization is a logical outgrowth of this principle since it increases the distance between enterprises, where decisions can be turned into material gains, and the decision-makers. Thus, managers of enterprises do not have much opportunity to regulate their own bonuses, and those making decisions at the top level of management are not rewarded directly by their decisions. Duplication of functions, mutual control, starting calculations from the very beginning at all levels, a strict normative approach to the allocation of resources, etc., are among the measures helpful in pursuing the above principle. Undoubtedly, the economy cannot perform effectively under such conditions. On the other hand, when nobody has economic responsibility and national resources

are free, stealing is a greater evil and one which can destroy the economy completely.

By stealing we understand here different possibilities to benefit at society's expense rather than direct stealing of commodities from enterprises and organizations. At a plenum of the Central Committee held in the mid-1970's, Brezhnev said that the economy loses 25 billion rubles annually due to theft of goods, and another 25 billion due to speculation by individuals. We know how unreliable estimates used in planning can be if they are not based on accounting data, especially estimates of this sort, but, unfortunately, thieves are reluctant to keep records. We can mention also, for example, the conclusion made following an inspection at that time in the Ministry of Municipal Services (Kommunal'nogo Khoziaistva) of the Ukraine that 40 percent of all appliances, parts and materials used for repairs were stolen annually. Again, it is difficult to judge if the estimate was accurate, but no one is interested in exaggerating a bad situation. Certainly the problem is very serious. Many social considerations are involved, but we are examining the situation only from an economic standpoint.

Although managers may participate in this kind of stealing, it is characteristic primarily of the lower levels in the hierarchy. Managerial theft is less explicit, and even legal. It involves the violation of the rules of the game of planning or "financial discipline." As mentioned above, such violations are

inevitable if managers want to fulfill their responsibilities. But this can be classified as stealing, from the society's point of view, if it is done for personal gain. Let us consider an example.

A shoe factory manufactures boots which are allocated to a trade organization. The latter cannot sell the boots because of their poor quality, and keeps them on the shelves of its stores for years. Eventually they are thrown away or sold for almost nothing. But the director and other managers of the factory are interested in manufacturing as many boots as possible, since the transfer of boots to the trade organization is a sale for them. If there were not constraints on wage funds they would continue to exceed the plan targets for boots, receiving additional raw materials from their suppliers by any means, including bribes, and paying their employees extra bonuses. In many situations, it is more important for planning authorities to limit wages than to plan additional output without such limits.

Here the question may arise as to why the above sales should be miminal rather than real. The standard answer is that the system of material and technical supply would be responsible for such a development. As we discussed earlier, this system is by no means effective. But what would happen if it were eliminated? The enterprises and organizations would not become more responsible for the resources they utilize. Nor would they stop selling the "boots" to each other. On the contrary, an appropriate choice of

contracts could benefit all involved (except, of course, the consumer). Since the elimination of the system of material and technical supply would not automatically increase the availability of commodities, for the trade organization poor boots will still be better than nothing. Indeed, all the incentive provisions of the 1965 Reform proved these arguments. Fulfillment of plan targets, resulting in the growth of wages and bonuses, grew considerably in the first years of the Reform without real effect on output in physical terms.

Despite organizational changes, inputs will still be free for enterprises and organizations. Without competition among products, it will not be possible to judge whether manufactured products are in real demand in the economy and whether the incentive funds flow in the right direction. We could continue along these lines, but do not want to depart too greatly from reality. We will emphasize only that the incentive provisions of the 1965 Reform came into conflict with the principle of separation of economic decision-making from possible gains.

All of this shows that the "separation principle" is important for a Soviet-type economy and therefore makes the concept of decentralization specific for this economy. It cannot be viewed straightforwardly in terms of the enterprises versus bureaucracy. Since enterprises are separated from the real process of decision-making, the structure of the decision-making level characterizes the degree of the centralization of the economy. If decision-

making is concentrated in one center, the economy tends to centralization. If it is distributed among many such centers, the economy tends, ceteris paribus, toward decentralization.

From this standpoint, the National Economic Councils (Sovnarkhozy) of Khrushchev's period, with decision-making powers dispersed among many territorial centers, represented a move toward some decentralization. They were more flexible in applying the command principle to the economy than the subsequent branch structure of management. The branch structure reestablished by the 1965 Reform was, indeed, a tendency toward centralization of the economy since it concentrated the decision-making process in one center. Therefore, the 1965 Reform with its restructuring of the economy and incentive provisions was self-contradictory. Only its first group of measures, restructuring of the economy, conformed to the principle of separation of decisions and gains, and these received further development in the 1970's. Almost all decisions related to the second group, incentive provisions, were gradually abandoned.

This explanation is important for understanding future developments in the Soviet economy. If we cannot expect radical changes in regard to the economic responsibility of industrial enterprises, it is senseless to talk about extending more economic prerogatives to them. As discussed above, the system of incentives directs all economic units toward participation in profits, while the economy needs participation in losses.

The only known principle of collective economic responsibility for enterprise operations with participation both in profits and losses is shareholding. It would, however, be unrealistic to try to develop any model of collective shareholding for Soviet enterprises since the problem of property ownership is too complex for such a simple approach. What remains is to think in terms of the distribution of decision-making among the levels of managerial hierarchy.

We do not declare this a solution to the problem of centralization and decentralization of the economy. Unfortunately, we do not think a solution exists at all. The decentralization of the decision-making process is merely a possible rational development under existing political and economic conditions. Horizontal structures, similar to Sovnarkohy for example, are a likely model for such a development. Important in this respect is that the structure of the decision-making process in the party hierarchy changes in the same direction, i.e., in favor of local party authorities.

5.2. The Slowdown in Economic Growth: Who is Responsible?

The slowdown in Soviet economic growth has become a popular topic for discussion. Analysts the world over seek to discover whether the phenomenon is temporary or permanent. Although the theme appears beyond the scope of our study, some of its aspects are indeed related. Of greater importance is uncovering the

reasons behind such a slowdown which could be helpful in examining the economy's prospects for the future. The table below, which contains official Soviet data, follows the growth of a few important indicators and shows targets for the present plan [14].

TABLE 5.1. Growth of Main Macroindicators (%)

	1966-79	1971-75	1976-80	1981-85 (plan)
National Income	141	128	121	118-120
Gross Value of Industrial Output	150	143	124	126-128
Gross Value of Agricultural Output (avg. annual data)	121	113	109	112-114
Fixed Capital Investment	143	142	129	112-115
Labor Productivity	139	125	117	117-120

The data show the scale of the general decline in economic growth in the observed fifteen-year period. They are especially interesting since the targets for the 11th Five-Year Plan are very modest, and we know that five-year plans traditionally are not met. However, the scale of the slowdown and its consequences are not the subject of our study. Nor are we going to explain why steady economic growth is much more important for the Soviety economy than for free-market economies. What we will do is analyze

briefly the main factors that are in our opinion responsible for the slowdown, and then proceed to a discussion of prospects for the future.

We do not claim, of course, to present all the factors responsible, if this is possible. Our aim is to explain the slowdown in economic growth from the standpoint of problems noted in the evolution of the planning system. We will proceed on a purely economic basis, ignoring the numerous social problems that also play a part. The following simple relationship is implied:

$$r_Q = r_\ell \cdot R_L + r_L,$$

where r_Q = the rate of increase in output Q in current period t,

i.e., $r_Q = \frac{Q_t}{Q_{t-1}} - 1;$

R_L = the growth rate of manpower L in current period t,

i.e., $R_L = \frac{L_t}{L_{t-1}}$;

r_L = the rate of increase in manpower L in current period t,

i.e., $r_L = R_L - 1;$

r_ℓ = the rate of increase in labor productivity ℓ $(\ell_t = \frac{Q_t}{L_t})$ in current period t, i.e., $r_\ell = \frac{\ell_t}{\ell_{t-1}} - 1.$

The above formula is an identity and, therefore, is always true. It relates the growth in output, labor productivity and employment, and shows that the rate of increase in output is the sum of two terms: the rate of increase in manpower and the rate of increase in labor productivity corrected by the growth rate of manpower. Concerning the two factors affecting the growth of output, only employment is a primary one. Labor productivity depends on output and employment, and the latter is important not only because it is in the productivity denominator: the output in the numerator is not an independent factor since it varies with the change in employment according to the above formula.

If employment does not grow, the growth rate of output is determined by the growth of productivity only. So, in industries with decreasing employment in which technological change is not very impressive, the decline in the growth of employment results in a corresponding change in output. This is exactly what happened in the 10th five-year period (1976-1980) in such industries as, for example, coal, ferrous metallurgy, construction materials, and woodworking. The output of coal, ferrous ores, steel, rolled metal, cement and cellulose remained at levels attained at the end of the previous five-year period. Of course, other factors besides manpower to affect these industries. For example, extracting ores and coal in overworked basins becomes more and more difficult. In the coal industry there is even a special fund provided to keep up output levels.

It is probably too early to consider the depletion of reserves as a factor in the slowdown of the above industries. It is evidently not a factor in the construction materials and woodworking industries. Concerning metallurgy, the Soviet Union has sufficient ferrous ores, even in its European sector. Nor are the future prospects bad for coal and natural gas. Indeed, the Soviets intend to place a new emphasis on coal and gas development after taking into account the worsening petroleum situation. The following table provides present and future production figures.

TABLE 5.2. The Growth of Output of Fuels in Absolute Values

	1976-80	1981-85 (plan)
Petroleum, million metric t	112	17-42
Gas, billion sq. m	146	165-205
Coal, million metric t	15	54-84

The planned growth in coal and gas production is possible only with increased expenditures on labor. Such expenditures are particularly important because of the decline in the number of highly productive fuel deposits in the total number explored [36]. Consequently, extraction consumes ever-increasing amounts

of labor and capital. Since investment is planned at the level of capacities of the construction industry and industries producing capital goods, it is influenced by labor considerations, too. In discussions of the Soviet economy, the shortage of manpower is one of the major topics, along with, for example, petroleum production and the role of weather in agriculture. The following table shows employment in industry (promyshlenno-proizvodstvennyi personal) based on 1965-1979 data [32].

TABLE 5.3. Industrial Employment and Its Growth

	1965	1970	1975	1976	1977	1978	1979	1980 (est.)
Employment, thousands of men	27,447	31,593	34,054	34,815	35,417	36,014	36,446	36,850
Increase over five years, %		15	8					8
Absolute increase during a year, thousands of men		829 (avg)	692 (avg)	761	602	597	482	354

Although the slowdown in industrial employment growth has stabilized in the last two five-year periods at a level of eight percent, the absolute yearly increases in the 10th five-year period form a sharply diminishing pattern. For 1981-1985, Soviet sources see industrial employment growth at a rate of no more than three percent [25]. Thus, economic growth will be determined

completely by the growth of labor productivity and will be almost equal to it according to the above formula. On the other hand, the Soviet economy depends highly on extensive factors of growth which will be restrained by scarce manpower. Having explained the role of manpower in limiting extensive growth, we will now return to the problems of productivity and labor shortages noted in Chapter 2. The concept of demand for labor cannot be defined for the Soviet economy in the same manner as for a free-market economy. Even if certain products manufactured by the economy are in demand, one cannot be certain that a derived demand for labor is justified: this depends on labor and wage policies and the effect on them of political and social considerations. If changes in these policies result in a change in the demand for manpower while other factors, including plan targets, are equal, then we can suspect that the level of demand is set artificially.

Many experiments, including the Shchekino experiment above, proved that under certain circumstances the number employed could be reduced dramatically. These experiments were conducted on a very limited scale and kept under strict control by the supervising ministries and local and central party authorities. The experiments were terminated in the 1970's and, as wage policies became more rigid, enterprises became increasingly reluctant to lay off workers. If they did so, they would be seen as refusing to accept intensive plans, with raised plan targets as a consequence.

We mean to stress here that the Soviet economy has the potential for decreasing the size of the work force without a decline in the level of output. The result would be a growth in productivity and in reserves of manpower. However, this potential will not necessarily be exploited or even discovered. Indeed, its existence matters little at present since the real problem lies in the nature of the system itself. We might point out that the country is not ready for large-scale layoffs, and the political and social implications of such actions are well known. Further, there does exist a sort of equilibrium of income among different social groups that would be distorted in such an event. Finally, if, due to a growth in productivity, more wages were spent in producing more goods, it would be necessary to have some evidence that the goods were in demand. Otherwise, with commodities allocated through the system of material and technical supply, output could grow, as explained above, without real impact on sales to consumers. This would mean that limitations on wages were more valuable than increases in output. Although all these problems form a closed circle, the mere fact of the existence of the potential for productivity growth without technological change may be of great importance in the future.

In the above formula the rate of increase in output depends on other factors which affect productivity as well as manpower. Technological change is, of course, the main factor in this case.

In our econometric research we tried to estimate the affect on output and productivity of technological change measured either as endogenous or exogenous with respect to a given model. Only in machine-building data, a pronounced effect of factors that could be associated with technological change, not with the growth of inputs, was observed. Yet even here one could not eliminate the role of increasing prices since goods of improved quality (tovary s uluchshennymi tekhniko-ekonomicheskimi svoistvami) are considered completely new. Put differently, when the growth of prices is hidden by the introduction of new products, it is impossible to eliminate their influence on the growth of that part of output which is explained by technological change.

The availability and quality of raw materials is another important factor influencing output and productivity. While we noted this problem for the areas of fuel, energy and metal, nothing was been said about industries turning out consumer goods. Their dependence on raw materials is fixed in planning technology: the sequence of calculations for light industry and the food industry begins with the determination of resources that are allocated to these industries. As the main supplier to the light and food industries, agriculture affects the national product directly and thoough these industries. Together with them, agriculture accounts for about half the national income. Poor performance in agriculture restrains the growth of half the economy and affects the whole economy by lowering the standards of

living. Our comments on agriculture will hardly be new, but are worth repeating here.

It is common to blame the failures of Soviet agriculture on the weather. When I first heard such talk from planning authorities at the beginning of the 1970's, I was surprised: it had always been held that there could be no obstacles to the meeting of high goals, and planning authorities could not violate this principle on their own. But we must note that in the 1951-1965 fifteen-year period, agricultural output declined only twice (1951,1963), while in the 1966-1980 period it was down six times (1969,1972,1974,1975,1979,1980). Evidently, the propagandists decided that it was better to blame the weather for the failures than something else. However, we do not believe that we have to accept without question the assertion that in 1966-1980 the weather was three times worse than in 1951-1965.

One may argue that, all else being equal, the better the weather, the greater the harvest. For Soviet agricultural today, "good" weather means no deviation from ideal weather conditions during all of the year's seasons. The probability of such ideal weather is low, and an American farmer would certainly not have the same thought in mind when speaking of good weather.

The poor agricultural records of the Soviet kolkhozy and sovkhozy are well known, but there are always new developments, some of which are of interest. Unintentionally, Khrushchev began a long-term trend of deterioration in the country's food supply

when he introduced a system of wage payments in kolkhozy. Khrushchev wanted to end Stalin's agricultural policy of robbing the peasant population. Indeed, he did bring a dramatic improvement in the peasants' standard of living and increased to some extent their incentive to work on kolkhoz fields. On the other hand, he destroyed their willingness to raise produce on private plots and sell it to state purchasing organizations. Until then the peasants had been allowed to buy goods from the stores of the state purchasing organizations only in exchange for their products. The positive impact of the new policy proved only temporary, since the cash incentives meant little to the peasants if they could not buy building materials, motorcycles, cars, etc.

The negative effect of a noncompensated reduction in the output of private plots (priusadebnye uchastki) is what the economy is forced to endure. While the output of the public sector of agriculture reportedly grew by 18 percent in 1979 relative to 1970, in the private sector it shrunk by one percent [32]. We usually accept such information with reservations. First, since according to doctrine the role of the private sector must by definition decrease, the truth may be altered. Second, figures on output in the private sector, consumption, prices in kolkhoz markets, etc., are obtained in planning by estimate rather than direct calculation, and so are very unreliable. Nonetheless, there are other indicators that support the conclusion that the private sector in agriculture is shrinking.

Undoubtedly, the nation could not survive without such a sector. According to official sources, which must be considered with the above reservations, in 1979 the private sector produced 59 percent of the potatoes, 31 percent of the other vegetables, 30 percent of the meat, 29 percent of the milk and 33 percent of the eggs [32] on only about one percent of the total agricultural land. One should also note that the productivity of Soviet peasants is usually held to be lower than that of farmers in the West due to a lack of skills, technology and other advantages [2]. In view of this, the productivity and skills of these people, mostly women, seem to work miracles. Farming the worst pieces of land after the main work at the kolkhoz has been finished, and toiling without benefit of machines or fertilizers, these peasants manage to feed with the above products nearly a third of the nation.

Soviet leaders have always been sensitive to the existence of the private sector in agriculture. Besides ideological and social considerations, the private sector pointed up the leaders' inability to improve the public sector despite numerous resolutions of the Central Committee, enormous investment in agriculture and forced labor contributed by students, army troops and urban dwellers. The leaders would probably attempt to abolish this sector once and for all if it did not play such a vital role in keeping the peasants on the kolkhozy: if no one in a peasant family works in a kolkhoz the family cannot have a private plot.

There is a new development in this area that could be important for the future. The continued sovkhoz and kolkhoz failures have forced the leadership to turn attention to the private sector once again. During 1977-1980, the Central Committee adopted several resolutions encouraging the development of private agriculture not only by peasants but by urban dwellers, too. Small plots of land (dachi) near forests, lakes and rivers are very popular with urban dwellers. However, it is difficult for the average person to get one of these plots: one needs either special privileges or the money to secure such a plot from a person who has one for his use (the land is not private property).

The 1977 Resolution of the Central Committee and Council of Ministers made it less difficult to get such plots and eased the restrictions on market-gardening [42]. Enterprises can receive land for their employees from the State Reserve (Gosudarstvennyi Zapas) and from surplus kolkhoz and sovkhoz lands. Those who have plots may also raise various domestic animals, including cows - which was prohibited before, and improve the land by building small houses. Enterprises may spend up to 25 percent of the social fund (fond sotsial'nogo razvitiia i zhilishchnogo stroitel'stva) on lands received by their employees for private use. In rural areas sovkhozy and other state organizations must help peasants to provide feed for their cattle and to plow their lands. Finally, those who sell products to state purchasing organizations have priority in buying goods which are in short supply.

Another development in this area is the creation of agricultural subsidiaries at industrial enterprises. Forced by the haphazard requests of local party organizations to send employees to work on agricultural projects, enterprises began to request permission to have their own permanent agricultural concerns. This would give them the possibility to coordinate agricultural work with production operations, not to mention buying cheap food for their cafeterias. Some ministries, such as those for coal, petroleum, and non-ferrous metallurgy, organized the subsidiaries themselves, but other ministries were reluctant to do so. As it turned out, however, organizing these subsidiaries did not free enterprises from sending large teams of employees to kolkhozy and sovkhozy to "help" with agricultural work.

In 1978 the Central Committee and Council of Ministers adopted a resolution forcing all the ministries to create agricultural subsidiaries at their enterprises [43]. Beginning in 1980, the Gosplan had to allocate tractors, combines, fertilizers and other resources to the agricultural subsidiaries of industrial enterprises. Enterprises were also allowed to hire additional employees for agricultural work according to limits and norms determined by supervising ministries.

These developments introduced some new tendencies in recent agricultural policy even though they are not new in principle. It is too early to judge their direct effects. Much depends on whether they will merely retain an appearance of activity or turn

into a long-term strategy. Evidently, the present leadership is not interested in creating complications for itself by running risky long-term experiments. But, for their successors, the trend may be an attractive way of solving the kolkhoz dilemma.

5.3. Some Speculations on Prospects

In analyzing tendencies in the development of the Soviet planning system, we tried to point out factors that might provide insights into the future. This takes on greater importance as Soviet leaders grow older. The easiest approach to the Soviet economy would be to say that everything is wrong and must be changed. But such assertions usually stop at that since the mechanisms for such overall changes are unknown. Moreover, while large-scale transformations may be attractive in theory, their implementation can be disastrous. Another complication stems from the fact that economic alterations are subject to political principles and personal changes in leadership. We hope that an evolutionary change of leadership will take place. Only someone with the worst motivations would desire radical change with its possible bloody consequences. In any case, in discussion expectations we will consider the possible development of events rather than ideas for what should be done in the economy. By development of events we mean only a tendency, i.e., something that is true on the average and by direction.

Recent Soviet history demonstrates that, in an effort to eliminate high-level bureaucracy (nomenclatura) created by

predecessors, new Soviet leaders begin their terms with economic reforms. In keeping with these objectives, the most critical aim of the last two reforms -- in 1957 and 1964 -- was organizational. Along with major organizational changes, the problem of inefficiency was examined. In each case provisions were made to consider efficiency strictly within new organizational structures.

What direction will an economic reform initiated by new leaders take? The foundations of the planned economy leave practically no room for organizational restructuring. Only two principles of organization -- the vertical branch and horizontal territorial principles -- have been employed. Mixed structures are possible only in the sense that some industries are organized on the vertical principle and others on the horizontal. But a single industry cannot use both at one time. This is a consequence of the "addressing character" (adresnyi kharakter) of the plan according to which resources for enterprises are to be allocated to their supervising organizations which are the resource holders (fondoderzhateli). This eliminates the possibility of double supervision of industries and their enterprises. Based on these considerations, we can expect a new economic reform to be directed toward horizontal, regional organizations.

Evidently, for reasons of prestige, such a reform cannot be a complete replica of past models. Khrushchev's National Economic Councils were based on the regional administrative units (oblasti) of large republics. Of course, many other divisions are possible,

for instance, based on the major economic regions of the country. There are ten such regions in the RSFSR -- Northwest, Center, Volga-Vyatka, Black Earth Center, Volga, North Caucasus, Ural, West Siberia, East Siberia and Far East -- and three in Ukraine -- Donetsk-Dnepr, Southwest and South. Other economic regions include the Baltic, Transcaucasus, Central Asia, Kazakhstan, Belorussia, and Moldavia.

In recent years, discussion has taken place, at least at the level of methodological and organizational problems, on territorial-industrial complexes (territorial'no-promyshlennye kompleksy) and agrarian industrial complexes (agrarno-promyshlennye kompleksy). These are groups of industries in an economic region of the country related to a dominant industry which determines, to some extent, the final results of their operations.

Criticizing Khrushchev's structure of National Economic Councils, economists emphasized that these were unable to pursue the unique branch technical policy which is the only way to technological progress. But shortly after the 1965 Reform discussion began on the coordination of the branch and territorial principles of management and planning. One reason was that a duality had been created by the vertical administrative hierarchy and horizontal party subordination of enterprises, if we take into account that the latter assumes administrative supervision as well. Further, the branch principle of planning fails to take into consideration inter-industrial dependence on local sources

of labor, water supply, opportunity cost of lands, sewage systems, transportation, road construction, pollution problems, etc. Last, local authorities became dissatisfied with their minor role in decision-making in industries of union and union-republican subordination. As is typical in propagandistic exercises, the same "unique branch technical policy" has gradually been turned against the branch principle: industrial operations are isolated from each other, and their technological decisions are not coordinated.

The above-mentioned territorial-industrial complexes became fashionable as a solution to the problem of coordinating branch and territorial principles of management. Large-scale projects for extracting petroleum and gas in Siberia required coordination of the operations of different ministries. Because of their common goals, the projects were declared to be the developments of the territorial-industrial complexes. The largest of these are the West Siberia Petroleum and Gas Complex and the Kansk-Achinsk Fuel and Energy Complex. Several other chemical complexes, such as the Tobol'sk, Tomsk and Achinsk, are planned. In addition, plans for the development of various machine-building complexes have been suggested. These examples illustrate the confusion resulting from the dominant role of the branch principle of management in the classification of complexes. If the territorial principle were followed, the West Siberia Complex, for example, would include, along with petroleum and gas industries, chemical

production, machine-building for the industries involved, and construction, transportation and consumer good industries.

At present, there is no specific planning or management at the interindustrial level within territorial complexes. As is customary, the Gosplan attends to these questions in the process of planning and allocating resources. The only difference is that more funds for housing and social measures are allocated directly to the ministries whose industries are associated with the complex than would be otherwise. But such complexes may play an important role in the future restructuring of the economy, especially when the specialization of an economic region is pronounced. In this respect, even the manufacture of military hardware would not create problems because, with few exceptions, all economic regions are specialized in this field.

Would the territorial principle of management be more efficient than the existing branch principle? The history of organizational changes demonstrates that they did not bring much improvement. On the other hand, a system based on a complete lack of economic responsibility provides almost no flexibility. Its possibilities for decentralizing the economy are limited to redistributing decision-making among the various levels of supervision and control of enterprises and organizations. We formulated above the principle of separating decision-making from possible gains, which helps to protect against lack of economic responsibility. According to this definition, the territorial

principle is a move toward a certain amount of decentralization since it means the division of decision-making among several levels of management. Thus, its implementation would mean re-distribution of decision-making in favor of local authorities. Therefore, the territorial principle may be the lesser of two evils.

Along with organizational restructuring of the economy, new leaders will have to demonstrate their willingness and ability to solve serious problems. Among them is the growth of productivity and manpower. As we discussed above, the problem of productivity growth is specific to the Soviety economy. Usually analysts conclude that a lack of advanced technology is responsible for the low level of Soviet productivity. This is a standard explanation in terms of production functions, but these can be used for international comparisons only if other conditions are equal. Certainly that is not the case here. Besides the state of technology and levels of capital and manpower used, productivity in Soviet industry is a function of the policy of planning the size of the work force, wages, and wage rate control. To put it simply, such a policy may be responsible for an enterprise's meeting its plan targets with a given number of workers but not a lower number.

The paradox in the planning of manpower was explained above. On the one hand, the economy needs a larger work force in eastern regions and in specific industries. Therefore the limit on

employees is one of the main planning indicators designated by the 1979 Resolution (In the 1965 Resolution it had been considered only as a reference for substantiating wage fund demands). On the other hand, the policy of planning and wage rate control contributed to unwillingness on the part of enterprises to reduce the size of their work force. With such reductions they would make their plan targets tougher without the possibility of increasing wages for the remaining employees. Moreover, from the beginning of the 1965 Reform party authorities at all levels opposed large-scale layoffs of workers.

What we tried to make clear in this respect is that the Soviet economy possesses potentials for productivity growth which have nothing to do with the state of technology. An analyst familiar with recent Soviet employment policies will find many indicators of overstated demands for labor. Numerous experiments, like the Shchekino one discussed above, proved that under special provisions for wage rate growth enterprises were able to meet their plan targets with significantly reduced numbers of workers.

The normative approach to planning of wages and incentive funds introduced by the 1979 Resolution can have some impact in the future. Despite strict control, the possibility for wage funds to increase in relation to the growth of output will probably result in the increase of average wage rates. This in turn will augment the demand for scarce raw materials and their role as a deterrent to the growth of productivity.

These and other aspects of the problem of productivity and manpower illustrate the difficulties that new leaders will face. Unlike organizational changes, this problem cannot be separated from others at the heart of the economy. New leaders will be able to reduce employment levels at existing enterprises and keep the output unchanged only with substantial raises in wage rates. But if manufactured goods are distributed through the system of material and technical supply, it will remain unknown whether they are in real demand and, therefore, whether wage growth is justified. On the other hand, the supply system cannot be eliminated if enterprises do not share in economic responsibility. It is senseless to imitate even limited markets and competition when national resources belong to no one.

Most likely the new leaders will not undertake fundamental changes in the economic system, but will pursue a policy of reducing manpower at existing enterprises, continuing regulated "experiments" like the Shchekino one. The experiments, of course, will be very costly. Their regulation is another concern. Reductions in manpower are desirable in some industries but undesirable in others such as coal production, metallurgy and construction. The national system for redistribution of unassigned workers (the unemployed) among industries and regions must operate. One of the questions in this respect is how to influence someone to go to work in Siberia when he or she would prefer not to. The question was easy to answer in Stalin's time, but not at present

and, we would hope, not in the future. Soviet leaders have tried unsuccessfully to find its solution for the Central Asian Republics where there is a large potential reserve work force. The law "social mobility" of the local population negates projections by the central planning authorities.

All of these points help to show that the Soviet economy possesses the potential for growth of productivity and, from that, economic growth in general. Everything will depend on how this potential can be realized in the future. From this standpoint, we can say that the present slowdown in Soviet economic growth is not necessarily permanent.

As stressed above, the involvement of unassigned manpower in the production process will not guarantee productivity growth. In other words, it is not always possible to make use of additional manpower. The reason is that the scarcity of raw materials, especially those supplied by agriculture, may become the decisive constraint. That new leaders will attempt to find a final solution to the agriculture problem is not new. The question is, of course, how they will do so within their political and ideological limits.

In our opinion, recent developments in agriculture can have some impact in the future as their scale is expanded. These developments are the growth of land in private use and the spread of agricultural subsidiaries of industrial enterprises. Their future consequences include a decline in the dependence of the population on the supply of foods by kolkhozy and sovkhozy:

increased involvement of the urban population in agricultural work; gradual elimination of kolkhozy by distributing their lands for private use and transforming them into sovkhozy; specialization of sovkhozy in production of meat and commodities such as grain, cotton, sugar beets, etc., which are not grown on plots in private use.

The incomparably higher productivity of the private agriculture sector is acknowledged by Soviet leaders. They accept also the fact that kolkhozy and sovkhozy are unable to supply the population with vegetables, milk, eggs, meat, etc. The logical step for new leaders would be to convert the privilege of using a piece of land in a rural area (dacha) to common practice. Most workers are peasants by birth, and, if land id distributed, will work willingly for themselves.

There are no official statistics on how much of the work force from urban areas is used in agriculture. From April through November thousands of people are sent each day to kolkhozy and sovkhozy. Having participated in this work for many years, I can say that its productivity is very low. Even while responsible for research projects, I spent an average of two weeks a year in manual labor (as compared with three months when I was in the lower social position of students). Sometimes, however, when enterprises are able to create good working conditions and pay more than regular salaries, young people participate in agricultural work without outside pressure.

Finding it difficult to secure large teams for kolkhozy and sovkhozy, especially during weekends and on a weekly or monthly basis, administrators at enterprises and organizations have already begun to consider this component in hiring. From this standpoint, the most desirable candidates are single young people, and the least desirable are mothers with small children and the elderly. Some enterprises would find it beneficial to run their own farms. They could keep special teams for that purpose rather than sending their employees to kolkhozy at the request of local party authorities. Rural settlements are collapsing, and agricultural subsidiaries of industrial enterprises can become, at least, a weak remedy. While a solution to the problem would be to attract people to settle in villages and work in agriculture, such a large-scale program is beyond the powers of Soviet leaders in the foreseeable future.

The increase of land in private use and agricultural subsidiaries of industrial enterprises would increase the participation of urban dwellers in agricultural work. By the same token, it would make the urban population less dependent on kolkhozy, sovkhozy and "weather." Highly specialized sovkhozy will, probably, replace kolkhozy in all areas. In the future they will have to use seasonal workers, hiring them at competitive wage rates.

None of the changes in the Soviet economy discussed here seem too encouraging for the long run. They do not address the fundamental weaknesses of the economic system as a whole. Not

wishing to indulge in fantasy, we did not present long-term solutions based on the changes in the system. Our fragmentary speculations are founded on several assumptions. The main one is that the transition of political leadership will be accomplished smoothly and from the top. The next assumption, which is a consequence of the first, is that new leaders will preserve the fundamentals of the existing economic system. Given this and assuming that new leaders will be rational, we developed a scenario of some possible alterations in organization, methodological and economic principles of planning and management.

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