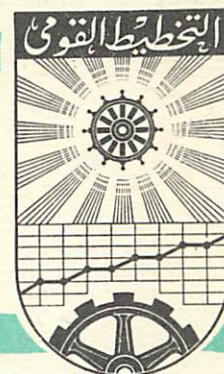


UNITED ARAB REPUBLIC

THE INSTITUTE OF NATIONAL PLANNING



Memo. No. 1104

SYSTEM OF INDICATORS OF ECONOMIC EFFICIENCY
OF SOCIAL PRODUCTION USED IN PRACTICE
OF THE USSR PLANNING

BY

G. GALAKHOV

June 1975

G. GALAKHOV

SYSTEM OF INDICATORS OF ECONOMIC
EFFICIENCY OF SOCIAL PRODUCTION
USED IN PRACTICE OF THE USSR
PLANNING

1. Determination of economic efficiency of planned decisions adopted is a fundamental problem of planning at the present stage of development. Data on economic efficiency provide possibilities of measuring ratios of expenditures to results and selecting the most rational ways of national economic development.

Significance of economic efficiency indicators increases particularly in conditions of scientific and technical revolution. Technical progress influences all the aspects of economic development and requires the achievement of high efficiency indicators corresponding to the society's modern development, contributing to the achievement of efficient external economic relations on the basis of high quality and low cost-price of the produce.

A comprehensive system of economic efficiency indicators reflecting all the spheres of production activity has been worked out in the USSR.

The main principles laid down in the system of indicators for determining the efficiency of enterprises' and organizations' economic activities are stemming from the requirements and the clauses of the Socialist reproduction and planning theory.

The system used in the USSR of economic efficiency indicators of national production proceeds from the following stands :

- (a) all-sided characteristic of the development process;
- (b) inter-coordination of indicators for all the levels of planning, viz.: enterprise, sector, national economy.
- (c) application of consolidated efficiency indicators and indicators of efficient use of separate kinds of production resources.

The general system of national economic plan indicators consists of indicators reflecting both intensive and extensive production factors.

Referred to the extensive factors are the ones contributing to the production extension on account of increasing a number of labourers, putting into operation new enterprises and heightening the consumption of material resources at the modern level of using the fixed and circulating assets.

Referred to the intensive factors are the following ones, viz.: application of more effective production means, improvement of technology and usage of material, labour and financial resources, viz. those which provide the growth of social labour productivity.

Economic development of society is always followed by simultaneous influence of those two factors. At the present stage of the country's development the intensive factors have acquired decisive importance.

Due to the fact that time saving is the most important factor in economy development the productivity of labour is considered to be the main indicator of efficiency. Here we discuss expenditures and the results of labour in the sphere of material production. Live labour is a productive one. We proceed from the fact that the society is interested in saving the whole labour embodied in the product in both live and materialized labour.

Out of three elements of production, viz.: manpower, means and objects of labour, the rational use of manpower (i.e. live labour) is the most important factor although all these elements are inter-connected.

At present on account of growing labour productivity the USSR provides 85-90% increase of the industrial produce.

The summary indicator of social labour efficiency on the national economy scale is determined on the basis of national income which is the final result of developing all the sectors of national economy.

At the level of national economy sectors this indicator is a net product estimated as a difference value between the commodity produce and material outlays, including depreciation deductions.

Productivity of labour is approved for the Ministries and enterprises as an indicator estimated on the basis of gross output.

The system of social production economic efficiency indicators used in the USSR includes sections reflecting the efficiency of labour utilization, funds, material

resources, and a summary section.

Indicators characterising the pattern and the production quality are specifically emphasized. Summary indicators for the levels of the national economy and a Union Republic are based on the national income, and for the industrial spheres, agriculture, public transport, communication, construction, as well as for separate enterprises and corporations they are based on the net produce; for some other indicators -- on the basis of gross output.

The principal scheme of efficiency indicators, their content and inter-relation could be seen from the following table :

System of Economic Efficiency Indicators	Formula for Estimating
1	2
1. Summary Indicators	
1.1. Per capita (N) national income (D) growth rates for enterprises and sectors	$\frac{D_1 \cdot N_0}{N_1 \cdot D_0} \quad \text{where :}$ <p>l- index of planned period o- index of base period</p>
Rates of production growth Total :	
(a) net output (P)	$\frac{P_1}{P_0}$
(b) gross output (P ^b)	
of which : for sectors - - production growth is isolated on account of operating enterprises	$\frac{P_1^b}{P_0^b}$

1	2	66
1.2 Per capita (N) growth rate of consumption fund resources (D^P)	$\frac{D_1^P \cdot N_0}{N_1 \cdot D_1^P}$	Where : $D_1^P = A_1 + B_1$ $A_1 - \text{consumption fund}$ $B_1 - \text{non-productive accumulation}$
1.3 Production of national income (D) per 1 rouble of outlays (S) (Analogically for sectors and enterprises - net output per one rouble of outlays)		$\frac{D}{S}$
1.4 Relative saving of :	<u>General Formula</u>	
(a) fixed production assets	$E_1 = R_0 \cdot K_1 - R_1$	
(b) rated circulating assets	E_1	- relative saving of resources in plan period in monetary terms
(c) net material outlays (without depreciation)	$R_0 \text{ \& } R_1$	- average annual value of resource
(d) wages and salaries fund	K_1	- index of national income growth (for enterprises and sectors-index of gross output) as compared to base period
1.5 Total profitability ratio of accumulations (H) (profit and turnover tax) to average annual value of fixed production assets (V^P) and circulating assets (V^S)		$\frac{H}{V^P + V^S}$
1.6 Production and distribution costs (Z) per one rouble of		$\frac{Z}{Pt}$

national product (P^t).

For enterprises estimated are outlays per one rouble of commodity output at total cost price.

2. Live labour utilization efficiency

2.1 Labour productivity growth rates for national economy and republics are calculated through national income (D). For enterprises and sectors - through net and gross output

2.2 Share of national income increment on account of improving labour productivity; for enterprises and sectors it is estimated by net and gross output

2.3 Saving of live labour in planned period (annual number of persons employed) as compared to the base year conditions.

3. Efficiency of using funds and capital investments.

3.1 Output-to-assets ratio (fund output) - Production of national income (D) per one rouble of average annual value of fixed production assets (V^p)

$$\frac{D_1 \cdot N_0^m}{N_1^m \cdot D_0}$$

Where:

N^m - number of people employed in material production

$$\left(1 - \frac{K^N}{K^P} \right) \cdot 100$$

Where:

K^N - rate of increase in the number of employed

K^P - rate of growth of national income or net output

according to formula in item 1.4.

$$\frac{D}{V^p}$$

For enterprises and sectors it is estimated by production of net and gross output per one rouble of average annual value of fixed production assets.

3.2 Circulating assets turnover.

Production of national income (D) per one rouble of average annual value of rated circulating assets (V^H).

$$\frac{D}{V^H}$$

For enterprises and sectors it is estimated by net and gross output per one rouble of average annual value of rated circulating assets.

3.3 Ratio of annual national income increment (D) to capital investments that caused that increment (W)

$$\frac{D}{W}$$

For enterprises and sectors it is estimated by ratio of net and gross output to capital investments.

3.4 Specific capital investments (W)

(a) per unit of production capacity commissioned (X) (by main types of product)

$$\frac{W}{X}$$

(b) per one rouble of output increment (P^B)

$$\frac{W}{P^B}$$

3.5 Payback ^{time} term of capital investments - ratio of capital investments (W) to the accumulation increment (H) received on account

received on account of those investments.

For enterprises and sectors - profit increment (HP) is used instead of total accumulation value.

$$\frac{W}{P^B}$$

4.0 Material resources utilization efficiency.

4.1 Material outlays (M) (without depreciation) per one rouble of social product (P^T).

$$\frac{M}{P^T}$$

For enterprises and sectors - they are estimated per one rouble of gross output.

5.0 Indicators of production pattern and quality of products*.

5.1 Share of products depending on quality categories (P^K) in the total volume of output (P^B):

$$\frac{P^K}{P^B}$$

- first category
- second category
- third category

Share of products manufactured for the first time in the USSR (P^I)

$$\frac{P^I}{P^B}$$

* These indicators are considered in the science and technology development section of the plan

Besides the above-mentioned indicators by sectors technical and economic indicators are used. They are specific for each sector, but in most cases they are calculated according to the following pattern: amount of material resources of different types and live labour inputs per unit of output of a certain commodity or type of work; in other cases indicators show the degree of production capacity utilization, equipment productivity, etc.

4. The indicators given in the above table are fixed on the basis of data of relevant sections of the plan.

National income growth rates per capita are estimated proceeding from the data of the plan section: "Planned balance of national economy of the USSR and the Union Republics" in constant prices. Average annual population number while estimating the indicator is taken from statistical data and plan balance of manpower.

For determining an efficiency of using the resources newly involved within the planned period an indicator of ratio is worked out of national income increment (or net produce) to the increment (separately for each type of resources) of fixed production assets cost, rated circulating assets cost, wages and salaries fund and material outlays for the sphere of material production. These indicators are compared with relevant indicators of the base period.

The aggregate evaluation of efficiency is effected by means of the indicator: of national income (or net produce) per one rouble of production costs taken into account in the estimates of the production cost-price (indicator 1.3).

A very important indicator for evaluating effectiveness

of plan decisions is an indicator of relative saving of all types of resources in monetary terms (1.4). Indicators of overall profitability (1.5) and costs of production and circulation per one rouble of national product (1.6) are financial indicators of economic efficiency.

5. Indicator of live labour productivity growth (2.1) is determined on the basis of calculations of labour inputs saving according to the number of employed. In this case a unified (for all the sectors and enterprises) classification of factors is used, that is:

raising technical level of production (especially the impact of mechanization of production), improvement in the organization of production, labour and management, change in the volume and structure of production as well as shifts in the location of production. Special account is taken of specific factors in individual sectors:

- changes in mining and geological conditions, contents of minerals, methods of their extraction, influence of season works. Technical measures providing the execution of tasks on the labour productivity growth are worked out for each factor.

For the last five-year period (1966-1970) the specific weight of these factors on all the industries reached according to the rated data as follows: increase of production technical level - 51%, improvement of production and labour arrangements - 29%, changing the production volume and structure - 17%, sectoral and other factors - 3%.

To substantiate the plans of improving the productivity of labour the estimates of assets-to-labour indicator are used

as well. This indicator is estimated as the ratio of average annual cost of fixed production assets (V^P) to one labourer:

$$\frac{V^P}{N^{MP}}$$

Where:

- V^P - average annual cost of fixed production assets;
 N^{MP} - number of labourers.

It is our striving to have the rates of productivity growth somewhat higher than the rates of labour fund availability. However, in separate spheres, e.g. in agriculture, temporarily quite the reverse ratio might take place.

6. Calculations of economic efficiency of capital investments are made with a view to choosing most effective channel for investments as soon as they have their bearing on overall social production efficiency.

The most important summary indicator of capital investments efficiency at the national economic level of planning is the production of national income per one rouble of capital investments (indicator 3.3) as it characterizes total amount of resources both for consumption and accumulation. To evaluate capital investment efficiency by individual sectors besides the fund return (indicator 3.1) payback time (indicator 3.5) as well as specific capital investments (3.4) are used. For industry as a whole payback time coefficient is determined to be 8 years.

In carrying out pre-plan estimates which require comparing economic and technical variants of decisions, calculations of comparative efficiency are used.

Indicator of comparative economic efficiency is the mini-

sum of imputed outlays. Imputed outlays for each variant are the sum of current outlays (cost-price) and capital investments multiplied by efficiency standard, which is reverse to the payback indicator.

$$Ci + En \cdot Ki = \min$$

where:

Ki - capital investments for each variant

Ci - current outlays (cost-price) for particular variant

En - standard coefficient of capital investment efficiency equal to 0,12 for industry as a whole.

Standard coefficient of capital investment efficiency is a reverse indicator to the payback time coefficient.

All these indicators will be considered while indicating methodological base of planning the capital investments.

7. All the increasing importance in improving the production efficiency is attached to the saving of material outlays, which share in the total value of spendings is continuously growing and in 1973 it reached in the sphere of industry - 75%.

Therefore we are providing for in plans permanent lowering of consuming the most important types of raw materials, materials, fuel, electric power per production unit which is secured through the execution of measures for each sector of the national economy.

To characterize the usage of the most important resources there are used physical, monetary and mixed indicators of consuming the material spendings. E.g.: consumption of metal per 1 kw of turbine capacity, per 1 automobile, or consumption of power per 1 rouble of a sector's produce - these are

mixed indicators of the consumption. Monetary indicators include: the indicator of production consumption of chemical industry sector in roubles per 1 rouble of gross output of construction materials sector.

These indicators are reflected in general form in the material intensity indicator of production (indicator 4.1), which reflects on the national economic level a volume of material outlays per 1 rouble of the gross national product, and for sectors - per 1 rouble of gross output accordingly.

So as to express properly the change dynamics of the material spendings level the indicator is estimated in constant prices.

8. At present while characterising the efficiency much attention is paid in the USSR to the production pattern and quality.

This is provided for by the population's growing requirements, higher technical production level and the targets of expanding the commodity exports.

A system of certificates for high quality of products has been introduced: some high grade products are awarded "High Quality Mark", economic incentives have been introduced to stimulate output of such produce.

Indicator 5.1 characterizes the share of produce of various quality categories in the production total volume.

9. Estimates of social production efficiency are determined in the following succession:

- Selection of alternatives of better use of running enterprises resources
- Selection of alternatives of new enterprises based on