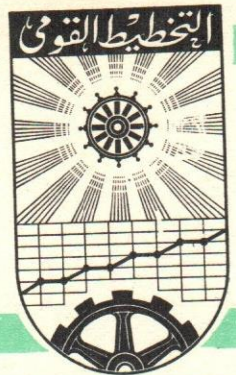


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On A Few Theoretical Questions Of  
Prognoses And Long-Term Plans For The  
Development Of Agricultural Production

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## On a Few Theoretical Questions of Prognoses and Long-Term Plans for the Development of Agricultural Production.

Right at the beginning the fundamental differences between prognoses of development of agricultural production, and research into long-term tendencies of economic social development should be appreciated. Prognoses do not deal with examination of the dynamics of given methods of production. Prognoses deal with the dynamics of the structure of the social product, at various rates of growth of the national income, and investigate the quantitative dependence of this movement. The aim of prognoses is not to get a survey of the objective state of the economic and social process but to scientifically justify the quantitative dependence of this movement. The aim of prognoses is not to get a survey of the objective state of the economic and social process but to scientifically justify the quantitative growth of social production at a given time, and the dynamics of the movement of the most important factors of production.

The development of statistics of social production, the improvement of technique in their processing, the increasing knowledge of causes and results of economic phenomena were the conditions of the development of prognostic works. In advanced capitalist states substantial moderation of the production cycle produced the objective situation, that especially after World War II The short-term business outlook prognoses changed to long-term prognoses - to prognoses of growth. In this sense there are much more favourable conditions for prognoses in socialist countries than in the advanced capitalist states. Prognoses are of great significance for theory itself (they elucidate the reality of the regular relations of factors in production, thus enforcing new economic research) as well as for economic practice (optimal adjustment towards probable positive development, or optimal defence against probable negative development).



A very important matter is the problem of reliability of the prognosis. The reliability of the prognosis is given by the econometric quality of processing data. A further guarantee is the elucidation of the relation of past development to the starting position. The perspective is valid if the starting premise - the assumption - contains two important elements: the ascertainable relation between future and past, and minimum irregularity in the past, which we can project into the future. Different variants of prognoses provide the possibility of deliberation on development when fulfilling certain pre-requisites. Practice has shown that a prognosis is all the more reliable, the greater the number of accumulated factors and results it is operating with, because these magnitudes behave with more stability (the influence of negative correlations resulting from substituting the factors is eliminated here.)

### 1.1 Types of prognoses in agriculture

In testing the kinds of prognoses we can see the various types according to the purpose for which they are used. The first thing is the aim of the prognosis. Here we notice three basic kinds of prognoses: a) the prognosis of demand for agricultural products, : b) the prognosis of the growth of agricultural production and c) the synthetic prognosis. Experience in advanced capitalist countries but mainly the very character of agricultural production (biology, climatic influence, extension, utilization of general means of labour and the like) show, that agriculture is a branch directed by supply. Agricultural production, in view of the long term production cycle, the objective tardiness of the results for the input of production expenses, the large number of agricultural enterprises, cannot react quickly enough on the demand (anti business-cycle in agriculture) neither can it meet the demands because of the considerable influence of the climate.



a) The Prognosis of Demand for Agricultural Products:

Share of expenditure on food and drinks in the total expenditure of selected capitalist states and the CSSR

	1960/63	1970
Austria	33,2%	-
Federal Republic of Germany	37, %	-
France	31,1%	30,1%
Denmark	22,2%	-
CSSR	42,--%	34,1%

We see that on an average and in comparison with advanced capitalist countries expenditure on agricultural food products is high and has a slightly falling trend. It can, however, be fulfilled by attaining the optimistic prognosis of agricultural expansion. In a long term expansion there will be an increase by 33% at a purchase of 1000 kcal, or course at a faster rise of personal incomes. The rate of growth of food purchases will be lower than that of industrial goods. The price increase of 1000 kcal stems from better quality foodstuff (increase of animal protein, and vitamin nutrition). For instance: 1000 kcal in white bread represented in 1967 a retail price of kcs 1.04 in sugar of kcs 2.09, in pastries of kcs 2.52, in milk kcs 3.85, in pork kcs 9.18 in sausages kcs 13.40 and in beef kcs 19.40.

The fast rate of increase in food sales indicates that for the next decade the food requirements of people in the low income bracket will be fullymet.

The comparison of the incomes of the population and the purchases of food are expressed by what is called coefficient of income elasticity of demand

$$ED = \frac{\frac{\Delta q}{q} \cdot M}{\frac{\Delta M}{M} \cdot q}$$

Ed - flexibility of demand in the coefficient



- q - the quantity of food consumed
- $\Delta q$  - increase of quantity of food consumed
- $\Delta M$  - size of income
- M - increase of income

By comparing two periods or the whole chronology the relation shows the movement of personal incomes and the quantity of various foodstuffs purchased. A prognosis of the demand can also be constructed based on the extrapolation of these indices and when the movement of incomes of the population is known. If this coefficient approaches or is higher than 1 in its development, we see a high elasticity of the demand for foodstuffs, in view of the movement of the income. This means that while personal income increases the consumption of the respective food will rise rapidly, when it decreases the consumption of this food will rapidly decline. As the coefficient approaches 0, the elasticity of consumption decreases, which, according to experience, is inflexible at a state of 0,2 - 0,4. This means that any movement of income will not influence the height of the demand for food, and food consumption will rise only in consequence of the changes in the number of the population. In Anglo-Saxon literature two basic stages of satiation with food are mentioned from the view of income elasticity of the demand for food: a) the engelov situation means elasticity or high elasticity of the income demand for victuals e.g. the developing countries), b) the post - engelov situation, when the inhabitants reach a satiation point with victuals and we note an inflexibility in the demand for victuals with the decisive number of inhabitants.

It is a world-wide trend, that in advanced countries energy-producing food, such as bread, flour, potatoes, rice, fat have a far lower coefficient of elasticity than protein and vitamin foods such as meat, poultry, ham, tropical fruit and the like.



b) The prognosis of supply, i.e. of the growth of agricultural production must take into consideration the possibilities of the national economy, and economic policy must create favourable economic conditions for agricultural expansion. Although experience from advanced capitalist countries shows that agricultural development is highly dependent upon manufacturing branches, in the socialist countries, in view of the high consumption of high quality food, it tends towards planned expansion of the national economy; concerning the existence of large scale production or its preconditions, attention should be drawn to the high input connection of delivering branches. Defining the influence of technical progress as the most effective form of the economic development of agriculture causes considerable difficulties in the supply prognosis, when demand for the continuous growth of the productivity of social labour can hardly be accepted in view of the process of production intensification. The supply prognosis defines in its results not only the volume of production but it gives an approximate estimation of the requirements of the means of production and labour power, thus indicating the connection necessary between the supplier and purchaser in agriculture. The supply prognosis develops from the appraisal of the task, the significance and place of utilisation of the decisive resources: a) movement of agricultural land, b) changes in the structure of tilled soil, c) increase of the yield, d) replacement of draught animals by engine power, and use of the areas no longer used for fodder growing, e) increasing stocks of farm animals, f) improving the quality of fodder and increasing the productivity of live stock, g) raising production of foodstuff as a consequence of a drop in the production of industrial non-nutritive raw materials of agricultural origin and other resources.

If we disregard the impossibility of expanding farm land as a source of raising food production, so the decisive resources for advancing agricultural production in the socialist countries (with the exception



of the USSR) are:

- a) raising the intensity of crop production
- b) raising the effectivity of fodder consumption (i.e. production of fodder in optimal nutritious relationship to breeding.
- c) replacement of draught animals by mechanisation
- d) structural change which are hard to define, originating from the influence of the structure of crop and live stock production upon production results, transition to large scale production and specialisation.

This was a significant factor during World War II and after.

Fifty years of agricultural development in the USA have their roots in the use of chemicals, biological products (if we understand breeding, cultivation, improvement as its inseparable part) mechanisation and production specialisation. With regard to our conditions it is mainly based upon the application of chemicals, biological products and production specialisation.

It is with these factors that the prognosis must operate in this country.

- c) From this point of view the last type is the synthetic prognosis, comprising the prognosis of demand for agricultural products (here the income of the population, the birth rate and the income flexibility of the demand for foodstuff) and the supply prognosis for agricultural products. The synthesis is obtained by making an aggregate of supply and demand where imbalances on the prognosticated market are optimized. In this case one operates with the coefficient of price flexibility of foodstuff and investment into production. The synthetic type of prognosis will be of great significance for long-term perspectives in agriculture of the CMEA countries.

As regards the length of the prognosticated epoch we differentiate between short-term prognoses of 2-4 years, medium term of 3-6 years and long term of 8-20 years. The short term should not be understood only



from the time point of view, but also from the time lag of maturity of certain circulating means, labour power and the like. The medium term prognosis of 3-6 years concerns both time and prognoses and maturity of means in long term production cycles. These are important for directing central and enterprise institutions for testing the effect of the economic instruments in use. Long term prognoses of 8-20 years abstract from short term and medium term natural and economic deflections. In countries with a planned economy they show the objective production trends, possible irregularities and disproportions and the essential long term operating economic instruments. Long term prognoses based upon the knowledge of the approximative aim, make it possible realistically to fix medium term aims.

The economic prognoses determining the results of production and production factors must be strictly separated from the prognoses of the progress of natural, technical and social sciences. The aim of these prognoses is to determine the targets of scientific research, interstate scientific cooperation and information and the taking over of the findings of foreign research. They are changing continuously as science advances, and it is very difficult to determine the time for their fulfilment.

### 1.2. The necessity of scepticism towards prognoses

Although prerequisites for the elaboration of prognoses are improving considerably, some authors are, from experience, somewhat sceptical about prognoses, and particularly in agriculture. There are objections against both long-term and medium-term prognoses.

Long-term prognoses have to disregard certain biological and social phenomena and just in this disregard the necessary scepticism must be seen. It is a matter of the influence of world politics on world politics on world and national economy (forms of coexistence,



local, interstate and civil wars). The biological influence on the course of development according to the prognosis is not affected only by extraordinarily extensive natural catastrophes, but also by the movement of the population, which may reach a state of population explosion. We are at the beginning of the expansion of the scientific technical revolution, where significant findings from the sphere of biology, chemistry, physics and the marginal science of these disciplines may be expected. These findings, when applied in production, can substantially change the conditions, pre-requisites of the prognosis and thus also its results. Even though the prognosis of the production functions of the decisive production factors assumes a probable closeness in the relation of results and production factors, so this objectively necessary correlation connection drops with the length of the prognosis. With the increasing length of the prognosis its errors also increase. A medium term prognosis must pass from a higher level of aggregation of results and factors to a lower level, also to lower levels of correlation contingency of phenomena and so, to a less exact result of the prognosis. In agriculture the outcome of the prognosis results are considerably influenced by changes in weather which are not so far scientifically worked through. For this reason the prognosis results should be evaluated as an estimate of future development.

#### 1.4 Transition from long term prognoses to long term plans of the extension of agriculture

Various and the same pre-requisites, conditions and methods of processing prognoses result in many variants of prognostic effects of agricultural production and consumption of agricultural products. Prognoses thus give probable results (estimates) and also probable findings, which decisions should be taken today, so as to ensure the perspective probable development in an effective satisfactory use of social labour. They also allow us to create conditions for a situation in which to prevent disproportions from arising and expanding.



In March 1968 the CMEA Permanent Commission for Agriculture held a conference in Prague on the problem of long term prognoses and plans for the expansion of agriculture. A very serious question was the transition from long term prognosis to a long term plan for the expansion of agricultural production.

Prognoses should be understood as a phase in the drafting of a long term plan. This is so because they are elaborated with the cooperation of planning bodies. In this way the planning bodies acquire information about the problems of prognoses.

A very important phase in transition from the prognosis to the plan is the scientifically founded reduction of the number of variants in the prognosis; what is known as "the planning solution" in prognoses. The number of variants of a supply prognosis, for example, are reduced with the help of a demand prognosis, which in this country means that demand, during a stagnation of imports of agricultural products - raw materials from the temperate zone, can be met only by an optimistic supply prognosis of agricultural products.

It is on the basis of the planned solution in prognoses that work begins on the long term plan of expanding agricultural production, which proceeds as follows:

- a) from the basic findings of prognoses by determining the optimal prognosis
- b) from the world situation of production and consumption of foodstuffs and their estimate
- c) from the balance check-up of relations of agricultural primary production to suppliers and purchasers.
- d) by making a more detailed analysis of the structure of gross production, market production in crop and livestock production, import



and export of foodstuff, and feed

- e) by determining the decisive factors of growth
- f) by determining the basic problems of economic policy for the realisation of a long term plan inside the Stat, Within CMEA and other countries.

In what do long term prognoses of agricultural expansion (estimates), differ from long term plans for agricultural expansion (sometimes called outlook)?

Prognoses provide information by an econometric system of calculations about the probable possible expansion of agriculture in a number of variants. The long term plan of agricultural expansion is the intentional solution of the expansion - the fixing of aims and condition for reaching the target. It is a decision of the state centre, approved by the highest bodies of State.

In its results a long term prognosis provides information on the proportional and non-proportional connexions inside the branch as well as in relation to other branches. These contradiction are solved by the long term plan.

The variants of the prognoses indicate the problems of orientation, the inner and outer structure of enterprises. Long term plans directly propose the main and secondary tasks of the enterprise.

Another very important question is that of experience regarding the possibility of continuous control of the probable veracity of the prognosis. The resulting indices of the prognosis originate from the assumptions on which the prognosis is based. The fulfilment of the prognosis is therefore then possible, if the prerequisites (use of production factors) upon which it is based are fulfilled chronologically.



The prognosis and the production movement are determined exactly according to defined conditions. If the conditions change, the movement of the indices of the prognosis must change too.

Therefore control of the possibility of the prognosis being fulfilled is given:

- a) through the continuous control of the prerequisites - premises from which the prognosis proceeds (for example, quantity, exhaustively appraised composition of nutritive substances in industrial fertilizers, their productive effect and the like).
- b) through continuous control of the prognosis conditions (for example weather deviations from the average, adherence to the relation of nutritive substances from manure and industrial fertilizers and the like).

Particular attention should be given to the influence of world politics, world market and the application of science in agricultural production.

- c) if no substantial differences exist in the prerequisites and conditions of the construction of a prognosis and reality, then an approximate fulfillment of the results of an approved prognosis can be expected. If in reality there are differences and if other variants are approaching, it can be expected that this prognosis will materialize. It will be necessary either to change the long term plan or to take measures to create conditions for the approved prognosis to become fact. The control of the quantity of the prognosticated results is simultaneously the control of the fulfillment of the long term plan of expansion of agricultural production.