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Trends of Development and Some Topical Problems In Czechoslovak Agriculture

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Czechoslovak agriculture has been the centre of attention of the whole society, especially during the last twenty-five years of its development.

Various questions were, of course, points of interest of the national economic policy.

The years 1949-60 were noted for the efforts made by society to turn small individual peasant production into cooperative production. The main task of the Sixties was to strengthen the cooperative sector and to establish conditions for its rational functioning. We are well aware that any attempt to define stages of development is always relative. At all stages it was necessary for agriculture to fulfil its main functions - to ensure the production of use values with a declining consumption of social labour per unit of production.

A view into the past is not only of theoretical, but also of practical importance, because it provides sufficient instruction for the future formulation of aims and pre-conditions for their achievement.

In my report I should like to concentrate on the following questions:

a) The development of agricultural production and changes in its structure,
b) Combination of production factors and its influence on the growth of live labour productivity,
c) Territorial differentiation problems,
d) Some problems of economics of enterprises.

It is very often stressed that the present rate of growth of agricultural production in the long-term development was inadequate and did not correspond with the requirements or even with the potential possibilities of our agriculture. In this respect attention is drawn to the fact that we were not able, until very late, to surpass the prewar level of production and insofar as the rate of development alone is concerned we are lagging behind other socialist and some capitalist countries.

In connection with this it is necessary to answer some questions: what was the real development in the long-term period, whether and to what extent it differed in the inter mediary stages, what was the initial state (1949) which was the basis for production in the following period of reconstruction, and, finally, what were the probable causes of this development, in other words what lesson it gives for the future.

It is true that after World War II it took us too long before we reached the 1936 level of gross agricultural production and that only in five years of the period 1945-69 did we manage to surpass the production level of the given pre-war year.

On the basis of analysis we arrive at the following conclusions:

1) during the years 1948-59 production was on a slow, nevertheless continuous increase.
2) in the period 1960-65 a slowdown in development appears
3) the period 1966-69 shows a remarkable rise, although the last year (1969) meant a standstill in the promising development
4) in 1970-73 there was a considerable growth in agricultural production, the impact of the years of crisis was annulled. The gross agricultural product increased by 30.6 per cent and even greater was the increase of agricultural marketing production (by 50.3 %).

This significant increase, which is evident since 1966 can be explained as the result of the realization of the aims of the economic policy in this and the preceding period. Cooperative economy was strengthened, the increase of the number of qualified workers and their long experience in production, the mechanization of agriculture, applied chemicals and so on, all played their role in these results.

Of course, it is indisputable that the post-war development (i.e. compared with 1950) in CSSR was slower than in all the European socialist countries. While in 1957 compared with 1950 our production rose by 31%, at the same time production in Bulgaria rose by 151%, in Hungary by 43%, in GDR by 86%, in Poland by 57%, in Rumania by 122% and in the USSR by 95%.

Very different was the development of agricultural production on the territory of the Czech lands and in Slovakia. While in the Czech in 1967, compared with 1936, gross agricultural production reached the level of 107.3%, at the same time in Slovakia it was 160.1% (including 130.5% in crop production and as much as 204.9% in livestock production). This can be explained by a different initial state of the intensity of production (the intensity of production in Slovakia has not yet reached that of the Czech lands), and also by a different migration of workers and even by a decrease in the area of arable land. The number of workers employed in agriculture in 1969 compared with 1936 decreased to 33.4%, in Slovakia to 42.2%. At the same time the area of arable land dropped by 13.4% in the Czech lands, and only by 4.3% in Slovakia. Nevertheless, I am aware that this is by far not an exhaustive explanation.

Generally speaking, a certain development of agricultural production (fast or slow) may be given either by an even development of all branches of production (or groups of branches) or by such a change in the structure of production that would, on the one hand, lead to a

marked increase in some branches, and, on the other hand, to the existence of stagnating branches. The final outcome then depends upon the weight of the individual branches in the total value of production. In our development the second case is most typical. The gross crop production is in fact the result of the area under crops and yields. In livestock production it is the result of the number of animals and their productivity.

After the analysis of these facts we can draw the following conclusions:

1) First of all a marked limitation of the production base appeared in crop production, i.e. a decrease in the area of arable land. In the period 1936-48 this accounted for 560,000 hectares (10.3%) and during the period 1949-68 there was a further decrease which accounted for another 186.000 hectares (3.7%).

2) A significant feature of development is the big increase in the area under forage and fodder root crops and a decrease in the area under grain, hence the change in the utilization structure of arable land comes later- from 1965.

3) Gross crop production in 1968 rose by 8% compared with 1936. The sharp increase in the value of grain production (plus 37%), sugar beet (plus 70%), has been offset by the drop in potatoe production value (minus 37%) which accounts for a rather large proportion of the total value of crop production.

A much more favourable development was noted in livestock production. There was only a slight increase in the number of cattle (the number of cows is even below this level), but there was a large increase in the number of pigs and poultry. In 1957 livestock production surpassed the pre-war level and in 1968 its index was 132.4%.

Here the uneven development leads to a change in the structure of production, which especially modified the composition of fodder requirements.

An analysis of the development of agriculture in 1966-69 deserves special attention. This period is unusual from the point of view of overall development for its continuous rising trend, the annual increase being quite big: 10%, 5.5%, 5.5%, and almost 1.0%. In reality this is a start to a normal development rather than an exceptional occurrence. The last year, however, showed that we cannot count on a continuous high annual growth. By no means is it a matter of chance that for the years 1971-75 (5th Five-Year Plan) an average annual increase of 2% in gross agricultural production would be appropriate, of which 3% would be market production. The period 1966-69, is also marked with the appearance of some negative factors and their impact can be seen already. A decrease in the number of livestock, decrease in the area under intensively cultivated crops i.e. sugar beet and especially potatoes. There was a drop in the number of cattle in 1968 by 188,000 animals, including 25,000 cows, the number of pigs dropped by 405,000. This tnedency continued to a lesser degree even in 1969. The decrease in the number of cattle was 27,000 and 99,000 pigs. The area of land under potatoes decreased in 1968 alone by 36,000 hectares and sugar beet by 11,000 hectares.

Further significant growth of agricultural production in 1970-73, means also further improvement of the people's standard of living - not only in the countryside. Agriculture is becoming a stabilizing factor of the national economy. These achievements must not lead to selfsatisfaction, neither must they distract attention from very serious problems that exist in agriculture and demand a solution more than ever before.

When evaluating the overall results we cannot limit ourselves to global figures. It should be seen that the factor which is decisive for the growth of agricultural production, especially in recent years, have been new strains of seed for sowing (wheat and barley), especially Russian strains, and the fast growth in the use of mineral fertilizers which enable an unheard of increase in the production of grain. This higher grain production (since 1973 by more than 70%in comparison with 1965) was almost fully used as fodder which had its effect in higher livestock production.

From what we have said so far we can see that there was a considerable decrease in arable land in Czechoslovak agriculture (of almost 14%) if compared with the pre-war situation. There is no need to analyse the reason for this. The fact is that this decrease is an important decelerating factor, which considerably limits (or may limit) the effectivenese of intensifying the agricultural reproductive process. If we evaluate the decrease in agricultural land from this aspect i.e. as the decelerative factor, of the development of intensification, then this influence may be qualified by the decelerative index which is:

$$f_p = \frac{\frac{HRVn}{pn} \cdot pn}{HZVo} \cdot 1{,}25 = \frac{HRVn : Pn}{HZVo : Pn} \cdot 1{,}25$$

(we calculate the proportion of crop production in percentage that could be produced in the n-th year on land no longer used for agricultural purposes, of the total production in zero year).

Abbreviations:

fp - index of deceleration caused by decrease of land

HRV - gross crop production

n - year for which we ascertain the decelerative influence of the decrease of land.

o - the year with which we compare the functioning of the decelerative influence.

p - the area of arable land no longer used for agriculture
P - total area of arable land
HZV - gross agricultural production
1.25 - the coefficient of the higher level of production on the most fertile land.

I'm not giving a concrete calculation here because at present the causes for the decrease of land are being analysed. At the same time an evaluation is being made to what extent the individual forms of the continuing decrease in the area of farm land, including arable land, are acting as a decelerative factor, which is unfavourably influencing the growth of gross agricultural production.

We have already said that the overall economic results and the level of agricultural production were greatly due to the increase of the grain areas and the structural changes now favouring highly productive strains of wheat and barley, which began in 1965. For instance, the area of land under wheat and barley increased in this period by 461,000 hectares (30.9%), compared with the year 1965 and the production reached on this bigger area 2,874,000 tons higher than in 1965 (74.5%). This development allowed a considerable increase in the proportion of high protein fodder, in the fodder dosage, thus being one of the decisive factors for the livestock production level.

The correlation coefficient between the area of arable and agricultural land, of land under crops and the real crop production of the main crops, on the one hand, and the actual total agricultural production on the other, prove this fact.

t	r_{xy}	r_{xz}
wheat and barley	0,9563	0,9532
other grain	-0,9403	-0,2426
Potatoes	-0,9071	-0,0323
sugar beet	-0,5144	-0,1172

other technical crops	-0,9243	-0,0914
forage crops	0,8467	0,7004
vegetables, fruit and grapes	0,6196	0,5096

r_{xy} - correlation coefficient of interdependence of the gross agricultural production (x) and area (y)

r_{xz} - correlation coefficient of interdependence of the gross agricultural production (x) and real production (z)

The calculated correlation coefficients prove quite unambiguously that the increased growth of the social product in agriculture is due to orientation on crop-production towards the highly productive strains of wheat and barley, and the increase of the area of land under these crops. The correlation coefficients only of these two crops are near to the figure one. There is a great, though not so close, positive interdependence of the fodder crops and the gross agricultural production, it is even less so between the production of fruit, vegetables and gross agricultural production. The other crops have a negative interdependence /indirect/ due to the decrease of their area and production. The correlation coefficients between the production of these other crops and the gross agricultural product is almost nil, which only proves that between then and between the real gross agricultural production there was at the given time an insignificant interdependence.

Substantial changes have been noted in the 20 years of the development of Czechoslovak agriculture in combination with factors of production. Here reasons can be found for such things as the growth of live labour productivity, growth of the amount of materialised labour in the value of total production and lastly the positive and negative points in the development of branches of crop and livestock production. We shall not go into details regarding the theoretical questions of substitution, but will deal with only a few of them.

The problem of substitution has two sides - the natural - technical and the value. A certain amount of materialised labour represented, for example, by mechanical power sources, means of production, is, for example, substituted by a certain amount of dispensable live labour. If we consider the same quality of machines (determination, output) then irrespective of the country the effectivity of a substitution is, or may be - from the material point of view - the same. Though, from the value point of view, the substitution effect may be very different. This depends on the cost of the means of production, the wage level and/or personal incomes, on the cost of labour. The value relations between live and materialised labour may aid the substitution or hinder it. In this case we are mainly concerned with the material aspect. Here a question arises - whether, when live labour is substituted by materialised labour, by chemicals, this substitution is sufficient? What are the criteria for evaluating such a process? To what criteria is substitution subordinated from the national and enterprise point of view?

The most outstanding feature in the post-war development in Czechoslovak agriculture was the replacement of live labour by materialised labour and substitution of the decreasing area of land by an increasing imput of chemicals. Numerous cases exist which prove that both of these processes were insufficient for the following reasons:

1) the average rate of growth of agricultural production did not correspond with the society's requirements or with the possibilities of Czechoslovak agriculture, and
2) in production of a number of products requiring a lot of manual work there is a stagnation (i.e. potatoes, sugar beet, cattle breeding, etc.). Above all it is probable that in our agriculture these substitutions were performed ex post instead of ex ante. (A faster drain of labour than mechanisation of agriculture).

If we look into the future we can see that Czechoslovak agriculture is very limited in its possible combinations of production factors. There is no other solution but to replace decreasing manpower with increasing agricultural mechanisation and substituting the decrease of the land area by rising intensification of inputs. There is no doubt that the whole process of substitution must be socially regulated, because the reaction of enterprises at a certain state of usable factors of production may not be in keeping with the interests of society.

The internsity of agricultural production and labour productivity are two of the most important criteria for evaluating agricultural work as a whole and also the individual agricultural enterprises. It would be an error not to differentiale the enterprise and the national-economy aspects of these two sides of economic activities. The society, under our conditions, is primarily interested in the maximum intensity of production in all regions of the country, while, at the same time, this requirement obviously presupposes a significant differentiation among enterprises working in different production areas. For the enterprise, interest in a high level of labour productivity predominates, because that is the condition for the economic situation of a given enterprise. However, the question that still remains to be answered is whether and to what extent, under our conditions, the level of production intensity and the productivity of labour are directly interdependent. Theoretically we can well imagine an enterprise with an average or even subaverage intensity of production and high productivity of labour, and vice versa. But what is the real relation, is there a direct connection or not?

On the basis of combined grouping of agricultural cooperatives according to regions we arrived at the following conclusion:

a) in the group with the lowest intensity of production there are mostly districts with the lowest and lower than average productivity of labour. The same conclusion applies in reverse - the group with the highest intensity of production, which does not include districts with the lowest productivity of labour, and only one district with labour productivity below average.

b) in the group with the above average intensity of production the highest number of regions belongs to the same category of labour productivity.

c) representation in all sub-groups according to productivity of labour can be found only in the group with under-average-intensity of production.

As society is dependent on the production of those districts belonging to the category with the lowest intensity of labour productivity and as we may presuppose that the differences in production intensity and labour productivity are due mainly to objective management conditions, so this fact must be respected in the sphere of costs, subsidies and grant policy. It is quite out of the question to allow the differentiation in labour productivity to have its effect on the differentiation of wages. Our situation is even more complicated by the continuous discrepancy in the supply and demand of agricultural products. Probably the most difficult problem in this sphere is to find such a price system and other non-price instruments which would respect the varying level of the socially necessary costs, in various products on the one hand and, on the other, simultaneously exert pressure on the producer- in the sense of a socially favourable territorial distribution of production, specialisation at enterprise level and decrease of costs per unit of production. It will depend on this and numerous other measures taken in the economic policy, whether and to what extent we can make agriculture a stabilising factor of the national economy also in the future.