ECONOMIC GEOGRAPHICAL PROBLEMS OF THE POULTRY-PROCESSING INDUSTRY OF THE SOUTHERN PART OF THE GREAT HUNGARIAN PLAIN

by

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One of the most dynamically developing branches of our food economy is poultry raising. The processing industry connected with it and its trade have a great tradition in this country. The first processing plant was founded in Kecskemét in 1870. In the century passed since then the products of this industry earned a good reputation and became much sought-for articles even in the most demanding foreign markets. Hungarian poultry was of outstanding quality. Acknowledgement of this quality is reflected also in the fact that in the 1930's Hungary was in the first place among the poultry exporters with 40% of the poultry exports in the world.

After the Liberation by the Soviet army the development of our meat poultry production got a great impetus with the nationalization of the processing industry. The process was accelerated by the concurrence in the world market and the greater quantitative and qualitative demand of the home market.

The present study is only concerned with the poultry-processing industry in a narrow sense.

In 1969 the purchasing of meat poultry was 110 600 tons, the production of slaughtered poultry 71 000 tons, and the export of slaughtered poultry 44 770 tons *(Fig. 1.)*.

These figures had risen threefold as compared to those of 1959. (The purchase of meat poultry had risen 3.7 – fold, the production of slaughtered poultry 3.3 – fold, and the export of slaughtered poultry 2.7 – fold.)

The importance of the poultry-processing industry of the economic district of the southern part of the Great Plain

The poultry raising and processing industry of the southern part of the Great Plain (Csongrád, Bács-Kiskun, and Békés Counties) plays a leading role in the country. Of the 11 factories of this branch of industry 5 work in this

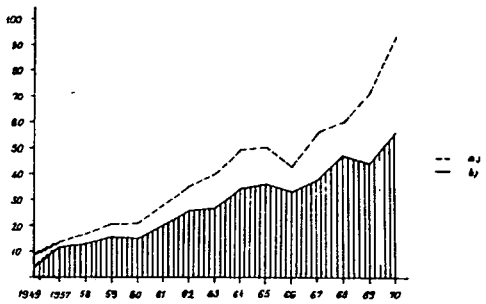

Fig. 1. Hungary's slaughtered poultry production and export. *a)* production, *b)* export. Unit of measure: 1000 tons.

district and in 1969 they gave 42.9% of the slaughtered poultry of the country and nearly one-half of the export, 45.7% of all those employed and 46.8% of the workers if this branch of industry work in this district.

As the poultry-processing industry works up nearly exclusively agricultural raw material, it belongs to the branches of industry that owing to their location are in close connection with their geographical environment.

The poultry-processing factories of the southern part of the Great Plain mostly rely on raw material produced in the same area. It was especially in the area bounded by the Kőrös rivers and the Maros and in the southeastern part of the land between the Danube and the Tisza that poultry raising had for a long time surpassed the national average. During the past decade poultry raising was the most rapidly developing branch of our agriculture. *(Fig.* 2a. and 2b.). From

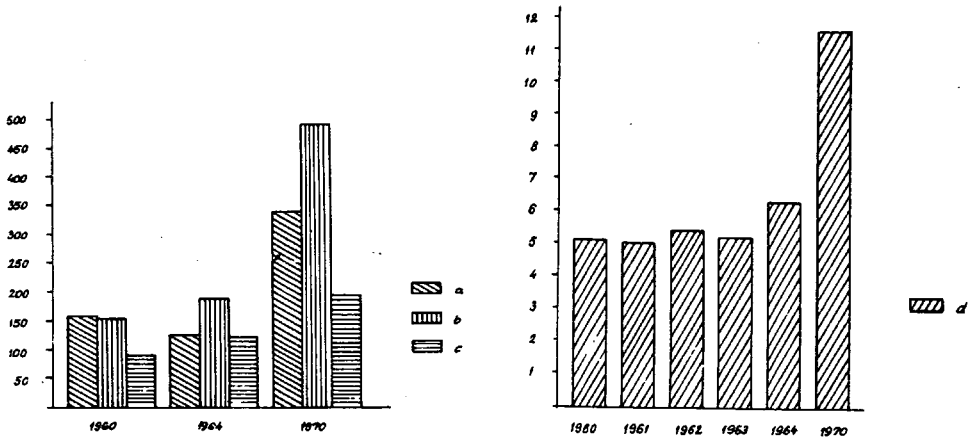

Fig. 2/a and 2/b. The poultry stock in the southern part of the Great Plain. *a)* goose, *b)* duck, *c)* turkey, *d)* domestic fowl. Unit of measure: for Fig. 2/a 1000 pieces, for Fig. 2/b 1 million pieces.

1960 to 1970 the poultry stock of this district rose 126%. In 1971 there was another great development. The conditions of large-scale poultry meat and egg production were established in the big agricultural enterprises, and today a considerable part of the production is concentrated in these enterprises, which are able to massproduce goods of a uniform quality at a low cost. In the period indicated

a veritable technological revolution took place in the field of poultry raising, and the rate of profit stimulated further development. In 1969 the poultry-processing enterprises of the southern part of the Great Plain bought 76% of the total value of the poultry and eggs processed, in the district and only 24% of it came (in order of decreasing quantities) from Fejér, Hajdú-Bihar, Pest, Tolna, Szolnok, Veszprém, Vas, Komárom, Győr-Sopron and Baranya counties. The average distance of transportation of the raw material is the smallest in the case of the plant of Békéscsaba (60 km) and the plant of Orosháza (65 km), and the greatest in the case of the plant of Kecskemét. The purchases of this latter within its own country amount only to 29% of the total of raw materials.

Poultry raising in the different villages stands far out from in the field of getting shares of the gross value of animal husbandry. Such are among the villages supplying raw materials to the poultry-processing plant of Orosháza:

	with raw material of
Mezőkovácsháza	14
Nagyszénás	14
Battonya	11
Kondoros	11
Medgyesegyháza	9
Gyoma	7
Orosháza	28 and
Szarvas	10
	million Ft worth

The most important villages supplying raw material to the poultry-processing plant of Békéscsaba are

	with raw material of
Mélykút	14
Dusnok	12
Kisszállás	10
Borota	8
Tataháza	8 and
Bácsalmás	7
	million Ft worth

The size of the raw material-supplying area is in close connection with the distance of the supplying village from the processing plant and the amount of poultry puchased.

Of the poultry-processing plants of the southern part of the Great Plain that of Kecskemét and that of Szentes have the largest, that of Orosháza the smallest, raw material-supplying area. This is reflected also in the proportion of transportation costs (1.6% in the case of the plant of Kecskemét, 2.0% in the case of the plant of Szentes, and 0.67% in the case of the plant of Orosháza). In the plants considered the transportation costs vary out of proportion with the increase or diminishing of the average transportation distance. The explanation for this is the system of transportation tariffs which do not grow in direct proportion with the transportation distance, loading and unloading, the use of different means of transport, etc.

If the location of the processing plants within their own raw material-supplying area is considered, eccentricity becomes apparent in the case of the

plants of Békéscsaba, Orosháza, Kecskemét and Kiskunhalas. The plant of Szentes is situated in the middle of the „theoretical circle", but there is a shift in favor of the southern parts.

In the case of the processing plant of Kiskunhalas 4 settlements constitute the basis of raw material supply each of which provide about 5% of the total value of the products to be processed. Second-rate settlements are 9 in number, providing 2—5% of the raw material. Twelve of the 13 settlements mentioned are contiguous to each bther, and all of them are situated in the southeastern part of Bács-Kiskun county. These settlements are irregularly arranged in relation to the processing plant.

The plant of Orosháza has 4 first-rate raw materialsuplying settlements and 16 second-rate ones. It receives 89% of all the raw material to be processed from these 20 settlements. The majority of these settlements lie east of Orosháza widely scattered in N—S direction. This narrow band is so to say wedged in between the areas supplying Szentes and Békéscsaba. Thus the raw material-supplying area of the plant of Orosháza does not surround the town „regularly" owing to the nearness of the processing plants in Szentes and Békéscsaba. Summarizing we can say about the raw material-supplying areas of the poultry-processing plants of the southern part of the Great Plain that more than half of the raw material processed comes from an area enclosed in a circle of 30—50 km of diameter.

This statement does not apply to the plant of Kecskemét, for some 12 counties contribute to its raw material supply. From the above it follows that in spite of its large surplus of poultry the southern part of the Great Plain alone is unable to supply the plants built here and the exploitation of the capacity makes it necessary to transport raw material here also from greater distances.

Size of the plant and productivity
(The optimal size of the plant)

There are very many factors influencing the optimal size of the plant, and the factor playing the leading role is different in the different branches of industry. In the poultry industry the determining factors are the investment and purchase costs. Economical geography also deals with the analysis of the latter, because they depend to a great on the location. At the level of plants the concentration of production is reasonable while the reduction of costs going together with the growth of the size of the plants compensates the increase of costs connected with the growth of the areas of raw material purchases and export of ready goods. Besides these, modifying factors are the production profile which is different in different plants and the difference in the exploitation of capacity.

Our poultry-processing plants are of very different sizes. If we compare the average number of workers in 1970 with those employed in the different units of production value of the enterprise in the plants of the branch of industry. On about three times as large as thes mallest plant.

We have examined the relation between the quotient of wages and the total production balue of the enterprise in the plants of the branch of industry. On the basis of the relation

$$b = \frac{B}{T}$$

where b is the proportion of wages, B is the basis of wages, and T is the production balue, the quotient varies between 2.9 and 3.9.

Productivity is in close correlation with the size of the plant so that the quotient of wages gradually decreases with the growth of the number of those employed. An exception is the poultry-processing plant of Orosháza; this can be explained not by the lower level of the technical conditions and organization, but by the preponderance of higher wage products.

The production value per one person average work force shows small differences in this branch of industry. If we compare with the size of the plants the magnitude and direction of the difference from the average of the branch of industry, we can see that there is direct relation with the size of the plants. This again supports the opinion view that the plants employing more workers can create more favorable working conditions. The processing plants of Orosháza and Kiskunhalas are exceptions, in this respect.

If we compare the production costs with the total production value in the poultry-processing plants of the district in the order of growing numbers of workers, we find that the larger and more specialized plants produce more profitably. A comparison of the level of specialization and the value of production gives the same result.

If Msp is the level of specialization, then on the basis of the relation

$$Msp = \frac{\text{Proportion of main profile production of factory in total production}}{\text{Number of products turned out within the framework of the main profile production of factory}}$$

the level of specialization of plants (factories) is the following:

plant of Kiskunhalas	27
plant of Szentes	20
plant of Békéscsaba	20
plant of Orosháza	24
plant of Kecskemét	17

Exceptionally low is the Msp of the plant of Kecskemét, which in agreement with our rule mentioned above produces at the highest cost (97.6%), while the greatly specialized plant of Orosháza produces only at a cost of 86.7%.

Among the outside factors influencing the economic optimum of the poultry-processing plants the transportation costs of the raw material and the finished goods are the most considerable. It is an undoubted fact that the amount of these costs greatly depends on the way of transportation, the kind of the transported goods, the capacity of the means of transport, the level of consumption, the sale of the products at home and abroad, etc.

According to the calculations of dr. P. Kiss, by 1970 a poultry-processing plant of optimal size will need a raw material-supplying area of 55—65 km radius. In the case of plants with such capacity, fewer than there are now could do the job. This „Ideal condition regarding the size of plants and the raw material-supplying areas can of course be realized only when the processing plants are „geographically ideally located". One of the most important criteria of this is the central location of the plants.

The poultry-processing plants in some traditionally poultry-raising areas are too near to, in other areas too far from, each other. Thus it is mainly the close arrangement of the processing plants in the southern part of the Great Pain that

causes overlapping of the raw material-supplying areas in the region, the nearness of the neighboring plants that causes eccentric location of the procesing site, and unreasonably great transportation distances.

The optimal size of plants changes in time and space, even a seemingly unimportant factor may greatly modify it. The theoretically most practical size of plant cannot be realized in a branch of industry, it can only be maximally approached. For the sake of economy, however, investigation of the optimal size of plant is even so very important.

The products of the poultry industry are playing an ever greater role in the national consumption. Our poultry meat consumption per head is about 12 kg ranking third on the world list (The US ranks first with 21.3 km, Canada ranks second with 13.6 kg). According to the long-term plan of our national economy 16.5–18.0 kg of the 80 kg per capita meat consumption will be poultry meat.

In order to perform this task, the plants of the southern part of the Great Plain consider expansion in the plan period. It is expected that with the installation of the most modern technical equipment and a minimal rise in the number of workers there will be a 45–50% increase in production. The plant of Orosháza plans to advance in the field of expanding the variety of its products. According to our calculations expansion of these plants does not entail the expansion of the borders of the raw material-supplying area.

The national Company of Poultry Industry produces not only enough to supply the home market but also for substantial export. In 1969, 26 tons of poultry was exported to the capitalist markets and 21 000 tons to socialist countries. Our poultry products were sent to nearly 40 countries first of all the Soviet Union, Czechoslovakia, the German Democratic Republic, the German Federal Republic, Austria, Italy and Switzerland.

Unfortunately, however, the western market is becoming saturated, difficulties are arising in selling, the supply is too varied and too large. Our task is to adjust threfore more elastically to the market demands, to improve the quality and reduce the cost of production. *(Table 1.)*

TABLE 1.

The Relation of the Size of the Plants and Productivity in the Poultry-Processing Industry (1970)

Plant	Number fo workers	Plan for 1975	Quotient of transportation costs %	Quotient of wages %	Quotient of cost of material %
Békéscsaba	972	2154	0,69	3,1	80,4
Budafok	896	1320	0,67	3,0	67,6
Debrecen	1129	1180	0,59	3,3	86,7
Győr	582	640	0,66	3,4	86,6
Kecskemét	1552	2990	1,3	3,0	76,2
Kiskunhalas	804		0,56	3,2	87,8
Orosháza	925		0,93	3,9	58,8
Sárvár	1061	1120	0,23	2,9	83,2
Szentes	691	850	0,93	3,7	58,2
Törökszentmiklós	867	1070	0,41	3,2	82,7

Literature

1. *Adorján Bence:* A termelés koncentrálásának új szervezési irányai. Közgazdasági és Jogi Könyvkiadó, Budapest, 1968.
2. *Cravero Robert:* A magyar baromfitenyésztés gazdaságföldrajzi képe 1954-ben. Földrajzi Értesítő, 1957/2. 199. old.
3. Csongrád- Bács-Kiskun és Békés megye statisztikai évkönyvei 1960–1969-ig.
4. Élelmiszeripari adattár. KSH Budapest, 1967.
5. *Fülöp–Gerő–Vidos:* Optimális üzemnagyság az iparban. Közgazdasági és Jogi Könyvkiadó, Budapest, 1963.
6. Ipari adatok 1969 I.–IV.-ig és 1970 I. II. KSH Budapest, (negyedéves statisztikai közlemények).
7. *Kiss Pál:* Optimális üzemnagyság és profil a baromfifeldolgozó iparban. (Kézirat.)
8. *Kövesi János:* Állattenyésztésünk fejlettségi szintje és fejlődési ütemének kérdései. Közgazdasági Szemle. 1970/7–8. 897. old.
9. *Márton János:* Az élelmiszergazdaság új szerkezete. Kossuth Könyvkiadó, 1970.
10. Világgazdaság 1970. augusztus 19.