

## DEFINITION OF THE ECONOMIC MICROAREAS OF THE SOUTHERN PART OF THE GREAT HUNGARIAN PLAIN

by

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The definition of the economic microareas of the Southern Part of the Great Hungarian Plain (henceforth Southern Plain) comprises three elements:

- a) clarification of the matter of principles of the microareas,
- b) carrying out researches of economic space structure,
- c) delineation of the microareas.

The three elements are closely connected with each other, as without clarification of the principles it is impossible to investigate the areas and conversely, the experience gained and the analysis of the concrete data enrich the theory. Without doubt it is necessary to investigate the spatial structure of the economy if we are to understand the economic and social processes that are going on within the microareas and which actually determine the character of the areas and lend practical importance to the drawing of the boundaries. Furthermore, this analysis provides the basis for defining the areas and thus cannot be avoided. Actual definition of the areas can be made after investigation of the spatial structures.

Thus the method used in this investigation not only serves to define the boundaries of the economic areas but also facilitates the investigation of a given area from the economic geographic point of view. It is obvious that an area can be defined only when we know it thoroughly. These obvious facts must be stated because it follows from them that *the methodological problem of the definition of the areas is necessarily connected with the method designed to investigate a given area from the point of view of economic geography even if they appear to be two different things.*

In the investigation of the economic microareas of the Southern Plain the above method was used and the following items were dealt with:

1. *Questions of principle.* As investigations of this kind had not been made in this country, these questions of principle were summarized and an answer to the problems was sought. (Acta Geographica, Tomus XII. Szeged, 1972.)
2. *Economic space structure.* The researches concerned only those branches of economy that are absolutely necessary for the definition of the areas: industry, agriculture, transportation, mobility of population, and the spheres of influence of the settlements.

3. *Definition and outlining of the areas*, which is the third stage of work. The method used in the investigations and the results will be dealt with in the following.

### 1. The method of definition of the microsareas

The economic areas, which are the territorial units of the social division of labor can obviously be defined also territorially on the basis of the factors that are closely connected with the social division of labor or are manifestations of it. Thus the problem, though simple in principle, is complex in practice.

The practical difficulties are the following:

a) The so-called area-forming factors belong to different spheres of social production and distribution and represent different qualities; therefore their combination encounters unsurmountable difficulties. In addition, the economic area is not only a producing but also a consuming unit. This, too, has indicators that help define the boundaries of the areas. Thus an almost infinite series of factors must be considered for the definition of the areas, but it is impossible to consider all the factors because they do not coincide even territorially.

b) The area-forming factors do not contribute equally to the formation of the areas, e.g. industrial production and agricultural production play a different role from that of medical and cultural services but the sphere of influence of this role may vary from place to place. The effectiveness of the area-forming processes however, depends to a great extent on the local conditions. For instance the development of agriculture in one place accelerates, and in another slows down, the reorganization of the agricultural population.

c) The role of the factors influencing the area boundaries may differ also depending on the taxonomic levels. It occurs that a factor is very important for the microarea, but on the higher levels loses its practical importance. The reverse is also found, e.g. the historical past and the types of the settlements may be important in the definition of the mesoareas, but on the level of microareas it is practically superfluous to include them among the factors. An example of the reverse is the smaller areal units (Göcsej, Sárrét, etc.) with a historically developed common folklore; they are very important at the micro level, but lose their importance on the higher levels.

d) The most important feature of the economic areas is specialization. Among the branches of economy, industry is connected with particular settlements and does not at all mark the boundaries of the areas. The same is often true of agriculture, which is territorially differentiated enough, but the boundaries of the economic area do not always coincide with the integrant area boundaries, which therefore often separate identical types of production. This is understandable since the major commercial and industrial centers have often developed on the borders of

different types of agriculture as in the case of Szeged. This proves that these two basic branches of economy, which can constitute the specialization of a particular area, especially in the case of the microareas, often do not coincide.

After the enumeration of so many difficulties it would seem that exact definition of the areas is impossible. This is not at all the case. The aim of pointing out the difficulties was to underline the importance of searching for practicable solutions. It does not matter that specialization is the most important area-forming factor if it can be reckoned with only within concrete limits. Until these limits are known, the factor of specialization cannot be taken into account for this sort of investigation because it cannot show the boundaries exactly and proves the existence or non-existence of the areas only subsequently.

In the first stage of microarea research all the area-forming factors were treated together. Now, in defining the area boundaries, the area-forming factors will be separated in the first stage of work. To one group belong those factors that are indispensable for research but do not indicate the area boundaries indirectly and can therefore not be used for this purpose. To another group belong factors related to the social division of labor and express the differentiated nature of the latter and thus reflect the area boundaries. Also within the second group a difference is made between zonal and nonzonal factors expressing the boundaries. Such a difference must be made because the roles of the two groups of factors are different.

To the factors showing the zonal territorial differences belong the following: factors reflecting

1. the attraction spheres of the settlements,
2. the situation of the settlements from the point of view of transportation geography,
3. the mobility of the population (between 1960—70),
4. the ratio of commuters
5. the transportation of agricultural products for working up in the factories and supplying the markets.

The number of factors to be considered could be increased, but the before-mentioned are sufficient for our purpose. Dealing with the analysis of the economic structure of the Southern Plain the author has already described the relevant factors in detail. Here only a short outline of the same is given.

1. The cartogram showing the attraction areas of the settlements was made on the basis of telephone calls, the cultural and health service attraction, and the industrial attraction of major industrial centers. Thus the nature and proper category of each settlement as well as the strength of the relations and the size of the centers are expressed by the help of features of the economic, social, and cultural life.

The extent of the zones developing around the centers depends on the intensity of the attraction, size, and function of the centers. The following zones can be distinguished on the basis of the map:



- from the point of view of their functions the centers, occasionally together with an agglomeration zone, can be classified in 5 different grades,
- area under hegemonic attraction,
- area under dominant attraction,
- area under multilateral attraction (attraction from several sides)
- area whose category from the point of view of attraction cannot be determined or which does not belong to the Southern Plain as a mesoarea.

In the case of most settlements the attraction spheres show to which center they belong and how strongly they gravitate. For the moment our attention will be given to the latter problem.

2. The transportation geographic situation of the settlements, similarly to the attraction spheres, reflects the situation in relation to the centers, but in this case their categories were determined on the basis of the transportation attraction: As has been described earlier, the map was made on the basis of four factors:

- a) the number of bus lines,
- b) the ratio of rail or bus commuters,
- c) the bulk of freight transport through the settlement,
- d) the time needed for reaching the respective centers by the best means of transport.

These factors were then combined mechanically; accordingly, the transportation geographic situation of the settlements is expressed by the

formula  $\frac{a+b+c}{d}$  in which the letters stand for the factors listed above.

Of course in the summing up, where freight and passenger traffic are not considered separately, the ratios are used. Correlation calculations served to check the correctness of the diagram, i.e. how well it reflects the real situation. For example the value of "r" showing the correlation between migration of the population and the transportation geographic situation varies between 0.95—0.44 in the different areas.

On the basic maps showing the transportation geographic situation of the settlements four (in the case of the commuters three) and on the summerizing cartogram 12 categories can be distinguished. As a result of the combination of the basic map with the above-mentioned formula territorial differences similar to the spheres of attraction are revealed.

The transportation geographic situation of the settlement is

- excellent, if its index is above 8,
- good, if its index is between 5—8,
- fair, if its index is between 2—5,
- poor, if its index is lower than 2.

The values obtained in this way show a good agreement with the spheres of attraction.

3. In the case of the mobility of the population the changes in the number of population have been introduced as a factor because during the

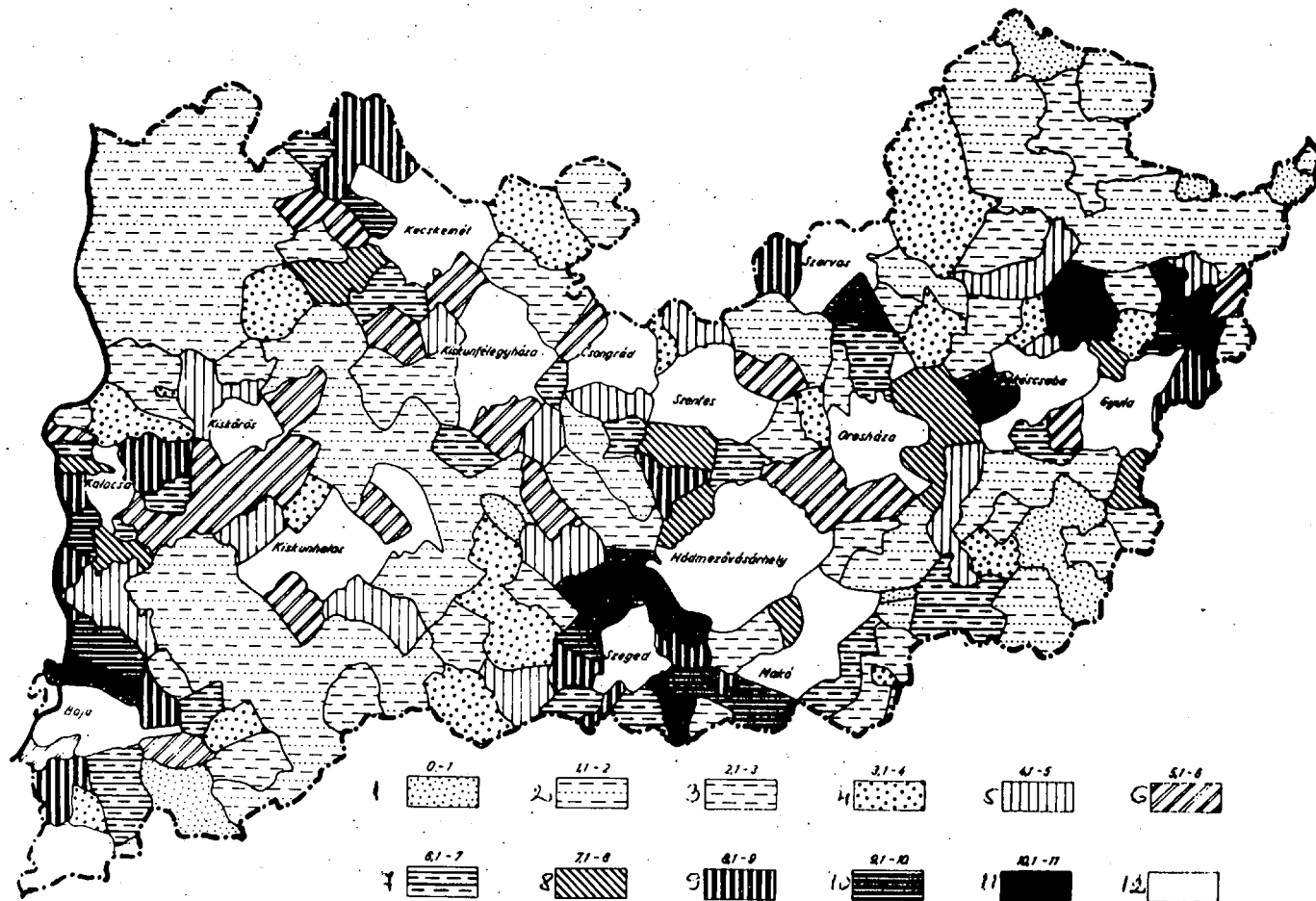


Figure 2. Traffic geography of the settlements of the southern part of the Great Plain.

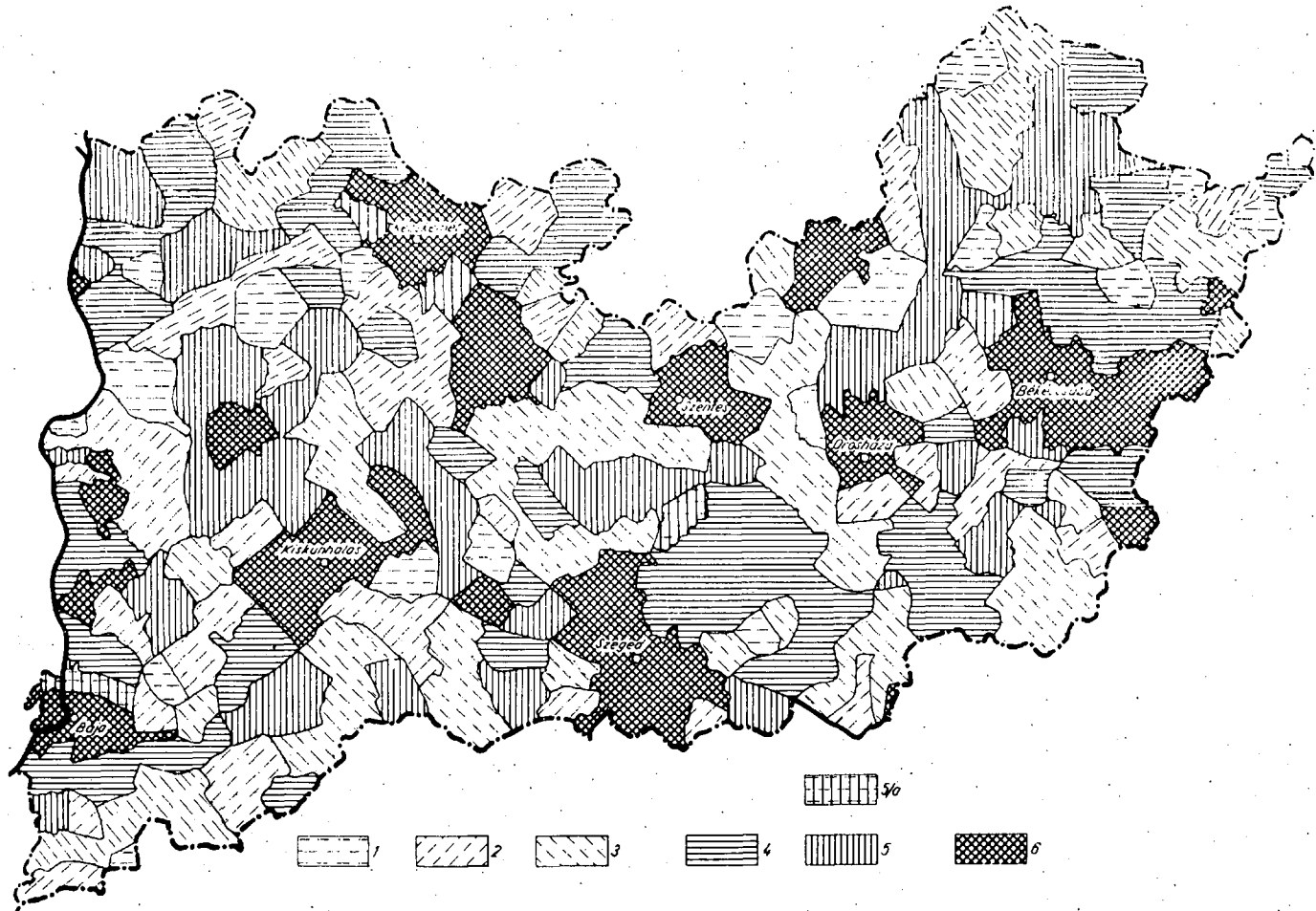


Figure 3. Changes in the population number (1960—1970) and its decrease during the second pentad.  
 1. the decrease in population was greater than the average, 2. settlements with greater than average population decrease and with weak moderation of the decrease, 3. greater than average decrease but with considerably moderated rate, 4. less than average population loss increase but less than average intensity of decrease over the decade, 5. less than average population loss with intensity of decrease considerably moderated over the decade, 5/a. less than average population loss not moderated over the decade, 6. increased population number.

last decade it has been a reflection of the balance of migration on account of the extremely low natural population growth in the Southern Plain. The extent, direction and fluctuation of the migration are largely due to economic and social causes. Just because of this the centers have had, depending on the degree of industrialization, a great influence on the development of territorial differences.

When the map showing the changes in the number of population is combined with another cartogram showing the intensity of the increase or decrease of the population in the different settlements within a decade, we see interesting territorial differences. The index of intensity can be calculated with the help of the formula

$$I = \frac{\frac{a+b}{2} - b \cdot 100}{c}, \text{ where}$$

$I$  = index of intensity

$a$  = number of population in 1960

$b$  = number of population in 1970

$c$  = number of population in 1965.

As will be seen, many factors are involved in the index of intensity. However we are not going to deal with this here now, because our main concern lies (in the growth of the population of settlements near economic centers and settlements located peripherally, and the difference between them is very great. Furthermore it is very important to know how the rate of growth or decrease changed during the decade so that the territorial differences can be demonstrated in the light of these facts.

The changes in the population number are in agreement with the territorial ratios of migration, the ratio of those engaged in agriculture, and the ratio of commuters. The influence of the transport geographic situation, the intensity of which depends on the size, functions, and distance of the centers is demonstrable and territorially definable in every factor. Similar territorial differentiation and common features of the population indexes make it possible to consider them together. From the point of view of the mobility of the population the settlements can be classified into five categories in which the indexes of the mobility of the population are (1) favorable, (2) relatively favorable, (3) fair, (4) unfavorable, (5) very unfavorable.

4. The results of this present survey of commuters have not yet been published by the Statistical Office and the data collected ten years ago have become obsolete because it is here that industrial development has brought the greatest changes.

We assessed the number of the commuters to several larger towns such as Szeged, Baja, Kalocsa, Kiskunhalas. The results do not modify the area boundaries but rather confirm them. Among other things this is why we did not assess the number of the commuters of the other towns, in itself a not inconsiderable task, and dealt instead with the data of the regular travelers. The directions of travel, however, are not recorded and



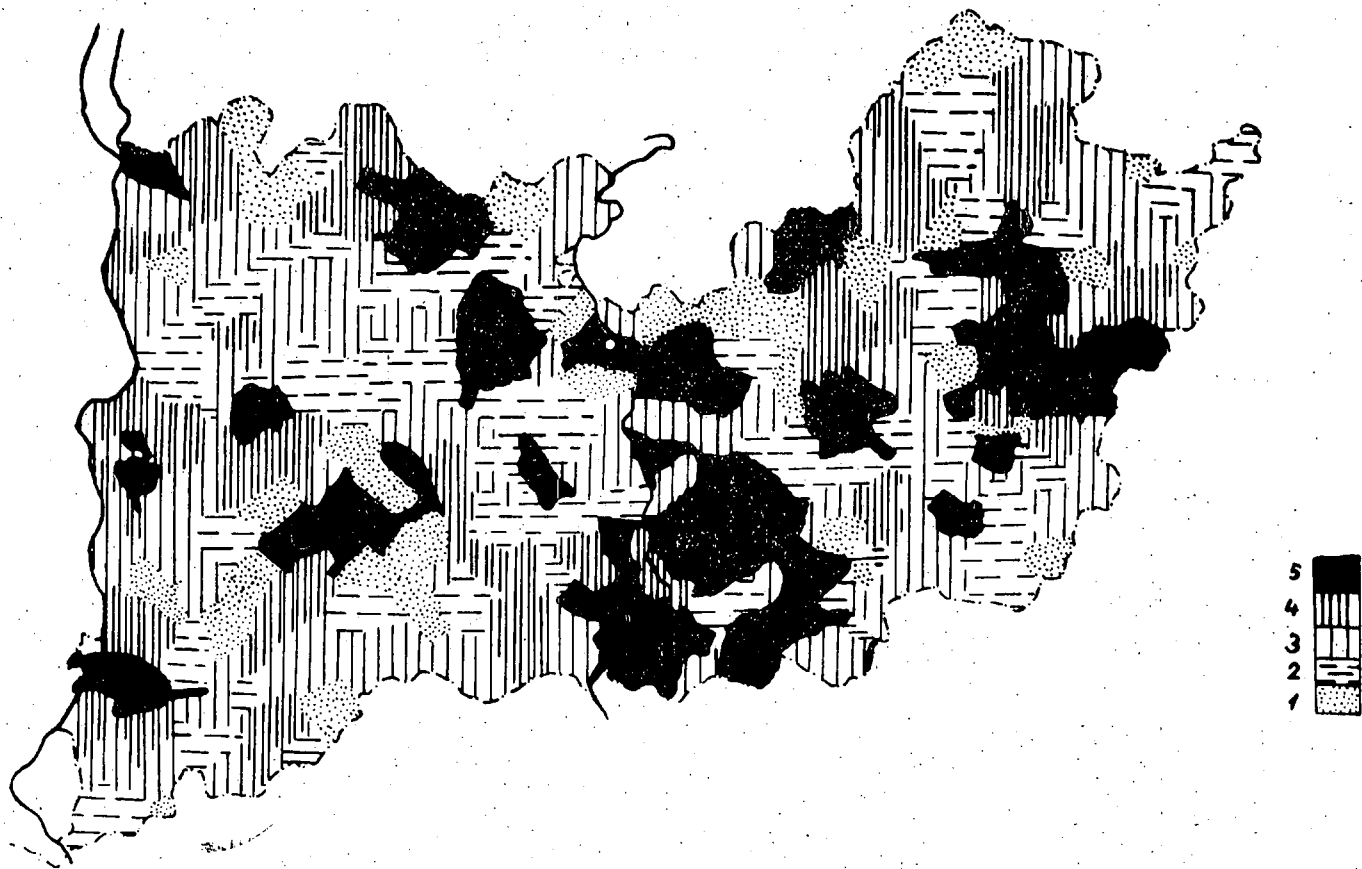


Figure 4. Types of settlements on the basis of the mobility of the population (1960—1970)  
 1. favorable, 2. relatively favorable, 3. middling, 4. unfavorable, 5. very unfavorable

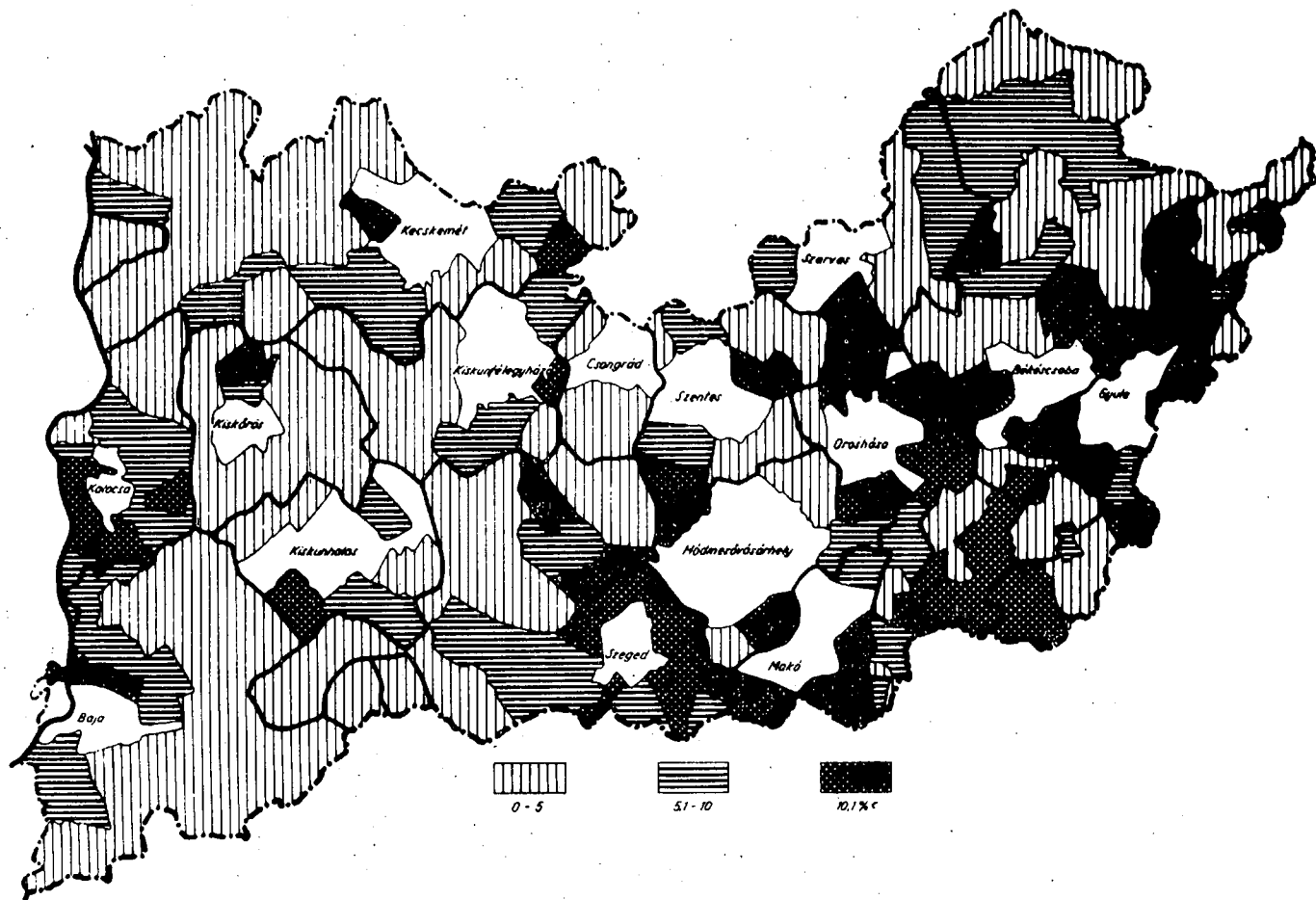


Figure 5. The ratio of the regularly traveling population in various settlements.

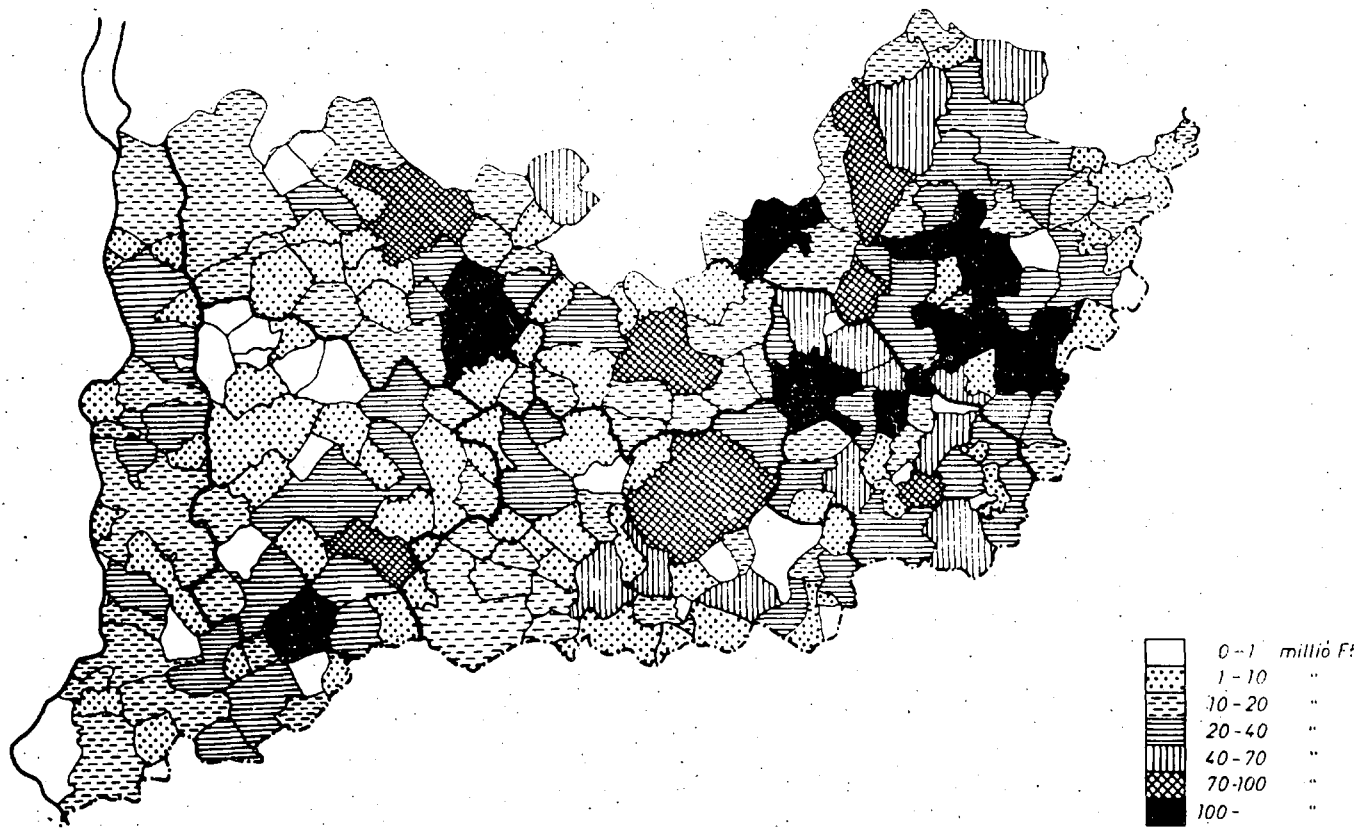


Figure 6. The raw material supply of the food industrial centers of the southern part of the Great Plain (1970).

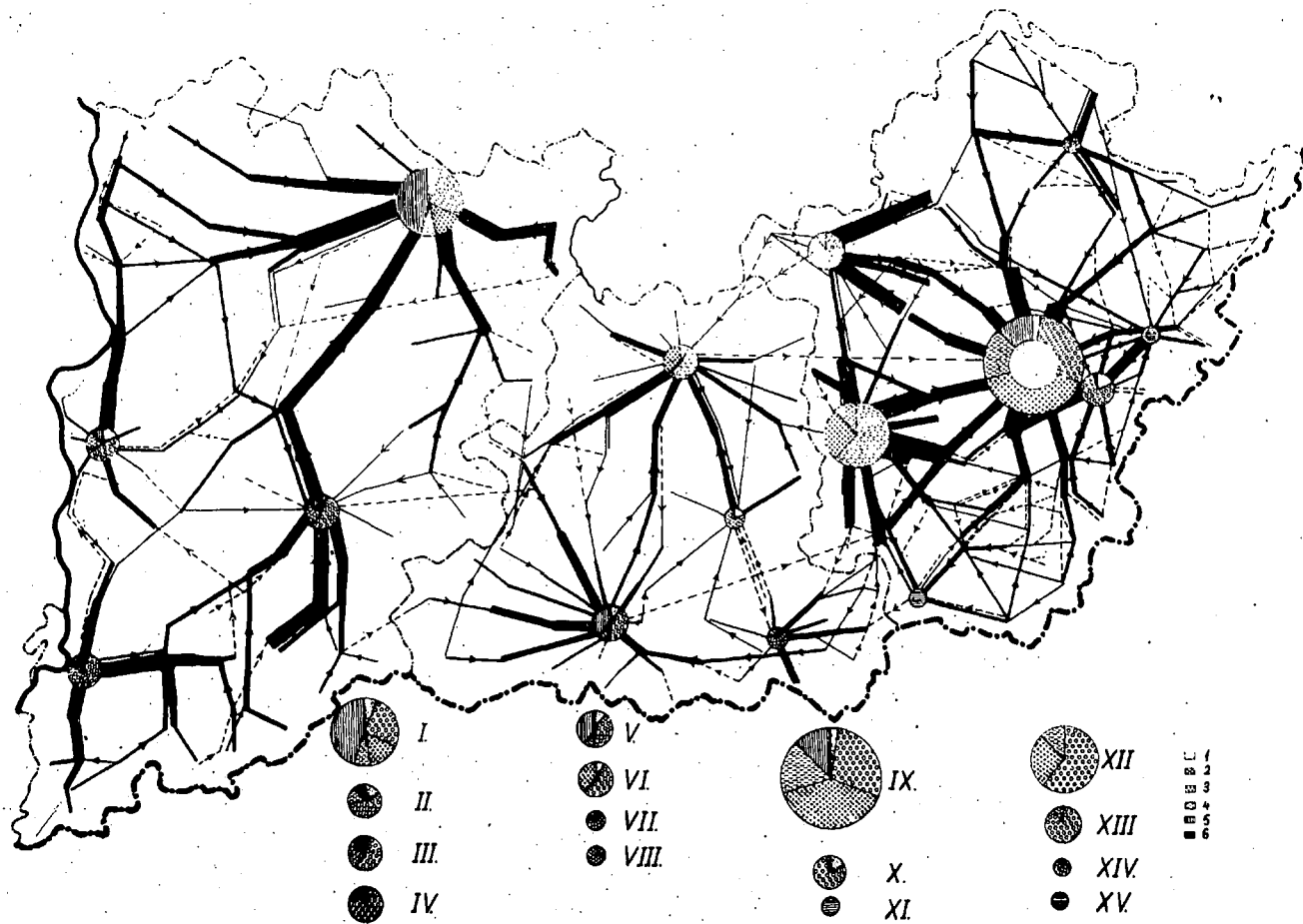


Figure 7. The territorial structure of the microregions. 1. outer zone, 2. transition zone, 3. intermediate zone, 4. inner zone, 5. inner zone

thus these data do not show where the settlements in question belong; on the other hand the territorial differences are expressive of the social and economic life of the different settlements as fewer inhabitants of unfavorably situated settlements travel regularly than of settlements near the towns. Three categories can be distinguished on the map:

- *settlements* near centers or settlements with excellent rail or road connections in which the ratio of regular commuters is high,
- *medium*
- *low*

5. Buying up of agricultural products for the food industry together with the market supply show certain differences between the settlements. The food industry, depending on natural and social factors, seeks to obtain its raw material from as near as possible. This is understandable since nearness of the source of raw materials means reduction of the transportation costs and of the loss by perishing. Thus the nearer settlements contribute to the supply of goods in a greater ratio as compared with the population or the surface area. Even if this situation does not always prevail consistently but often through many contradictions and in a far more complex form than here described, for very many factors are involved, it expresses the existence of an important tendency.

The gravitation of the settlements is far more clearly shown by the direction and bulk of the market supply than by the buying up of agricultural products for the food industry. Unfortunately the survey could not be carried out in some settlements and so our material is not complete. Still it is usable as it is because the material of most of the centers has been worked up and it may help decide where some peripheral settlements belong. Spatial division of the market supply also shows considerable territorial differences. The inner zones which furnish the largest amount of market supply manifest themselves clearly around the centers. From the next zones a much smaller supply is transported to the centers, and finally the third zones are divided areas which send their supplies to two or more centers.

It is easy to see the similarity between the above-mentioned factors; they show essentially the same kind of territorial differentiation due to similar laws. This is no mere chance as these factors reflect manifestations of the social division of labor and also the components of the internal economic, social, and cultural life of the areas, and what is very important to us, the territorial differences. This is what makes a mechanical combination of the factors possible because not the factors themselves are assessed together here but the intensity of the territorial variation of the factors. For the combination of the factors of each settlement and the ascertainment of the types it is advisable to use an electronic computer to make the work faster. We did this work also with the aid of such a machine.

Evaluating the factors in combination we could establish the following types of settlements:

1. *The centers of the microareas* (together with the agglomeration

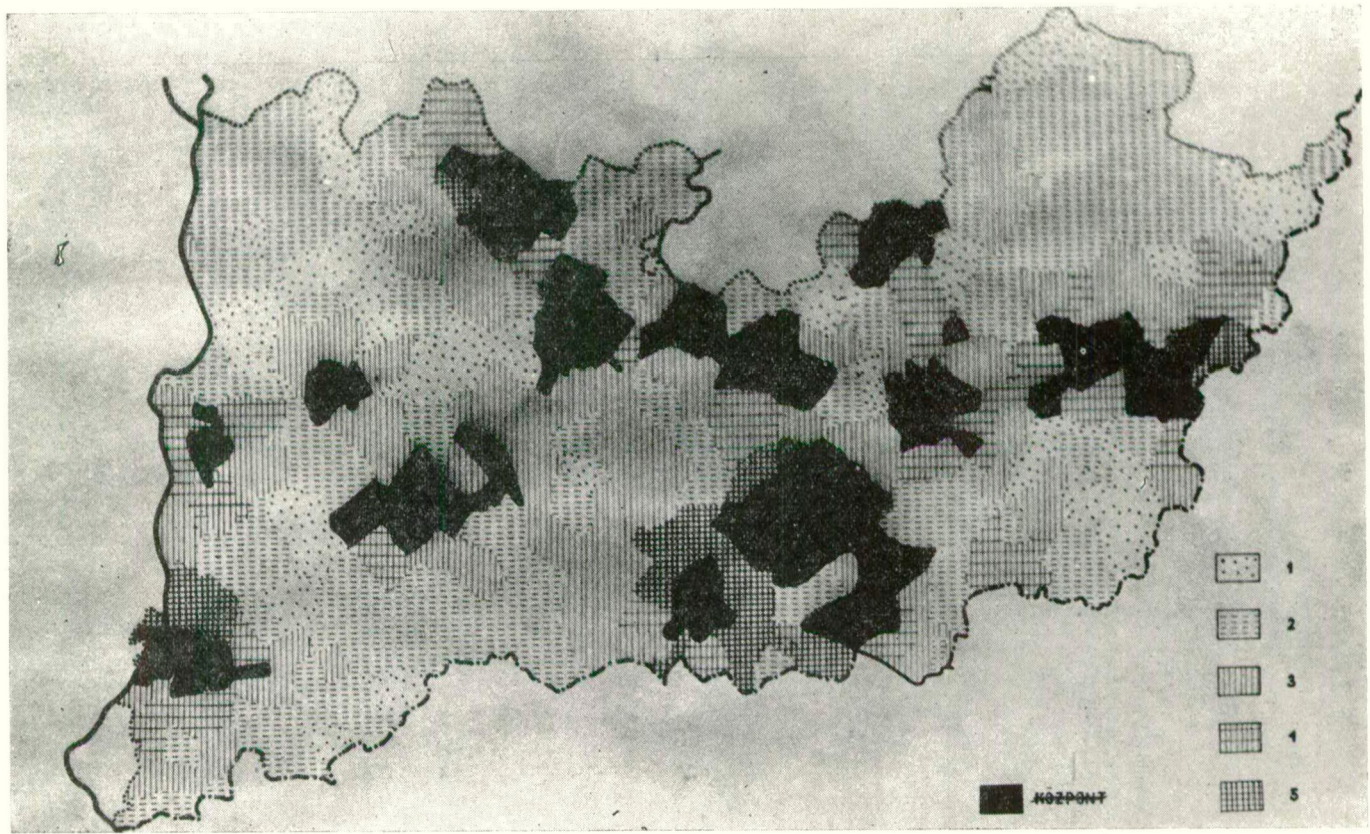


Figure 8. Frequency of buses going to the centers.

zone). Owing to their dynamic (industrial) development their influence on the surrounding settlements is noticeable:

- they have better developed attraction spheres than those of the microcenters,
- they are traffic centers,
- they are the purchasers of the agricultural products,
- they attract the population of the surrounding settlements and their migration balance is therefore positive or will be so in the near future,
- they are centers of commutation.

We have not distinguished the agglomeration zones from the centers as their ties are very close and as in the case of Szeged sooner or later they will merge also administratively.

2. *The inner zone* is the zone of settlements that have very close and varied ties with the centers:

- in it hegemonic attraction of the center is noticeable,
- the transportation facilities of the settlements are excellent or good,
- population decrease is less than the average of the Southern Plain, and out-migration has in recent years considerably slowed down,
- the number of daily commuters is fairly large and the direction of commutation is from home in the smaller settlements to the center and back again.

These facts clearly show the influence and attraction of the centers.

The settlements of the inner zone can be divided into two groups; the settlements of the first group have very strong ties with their centers of attraction, the settlements of the second group have somewhat weaker ties. The difference does not only depend on the strength of the ties but also on the various degrees of development of the settlements. While only settlements of the second group are found around smaller centers like Kalocsa, Kiskunhalas, Szentes, Orosháza, etc., settlements of the first category are mostly found around Szeged.

3. *The transition zone*. Here belong settlements whose gravitation to their respective centers is clearly seen but whose indexes of factors are very different, varying between the highest and medium. As regards the course of development the settlements belonging here come always nearer to the criterion of an inner zone as the centers become more and more important. The settlements of the transition zone are characterized by the following features:

- usually dominant, sometimes hegemonic, attraction prevails,
- transportation conditions are medium good,
- in respect of market supply the zone is a secondarily attracted area, the agricultural products of the area are sent to different places,
- the changes in the number of population are generally unfavorable. In the inner zone the decrease in population is slight, but here relatively higher.

- the extent of commutation is much smaller here than in the inner zone but it is still multidirectional. Intensive migration of the population indicates that there is a more considerable manpower reserve here than in the inner zone and the proportion of the agricultural population is also much higher.
4. *The outer zone.* In the case of the settlements belonging here not only is the intensity of the abovementioned factors low but they are also often divided as regards their direction. The influences of several centers make themselves felt and occasionally they overlap. The main characteristics of the settlements of the inner zone are the following:
- the transportation conditions are unfavorable,
  - dominant or multilateral attraction prevails,
  - the volume of market supply from this area is inconsiderable, the agricultural products of the area are exported in several directions,
  - the number of the population is sharply decreasing (unless otherwise influenced by some local factor). Out-migration from the area was considerable earlier and with the exception of those parts with intensive agriculture it has been moderated less than the average of the Southern Plain, and the proportion of those engaged in agriculture is higher than in the case of the average of the mesoareas,
  - the proportion number of daily commuters is small and so the proportion of the regular travelers in the population is also low. On the other hand, the number of weekly commuters is relatively high.
5. *The intermediary area.* This is not an unbroken zone. Here belong areas in which
- the gravitation to any center cannot be ascertained with certainty,
  - the transportation facilities are very poor,
  - the gravitation of the settlements is not reflected in the marketing of goods or the transportation of agricultural products, or else the marketing of goods differs from the orientation of the other factors,
  - the population indexes of the settlements are all unfavorable.
- Here belong administrationally parts of Bács-Kiskun or Békés county, otherwise not belonging to the mesoarea.

According to the principles described above, the settlements of the Southern Plain can be divided into categories and zones that differ from each other in many essential features. First of all they play different roles in the division of labor that has developed between the centers and their neighborhood. This territorial division is important from several points of view. On the one hand it reflects exactly the territorial structure of the microareas, on the other hand it greatly facilitates the delineation of the area boundaries.

The inner zones around the centers are so closely linked with the centers that their belonging together cannot be doubtful even from the point of view of the microareas. The extent of the inner zones depends



on the size of the centers and their economic, social and cultural influence. Where the centers lie nearer to each other, these zones are in direct contact. In this case the meeting of the zones — if they belong to the influence spheres of two different centers — coincides with the boundaries of the microarea. This, however, is a rare case; more frequently the outer and intermediary zones are in contact which do not reflect the area boundaries nearly so sharply. At any rate we have to look for the boundary areas in the outer and the intermediary zones. This zone can therefore rightly be called the boundary zone. Its spread is not uniform in the Southern Plain. Depending on the size of the centres it includes smaller or larger areas, e.g. smaller in Csongrád county and larger in Bács-Kiskun county and Békés county.

For distinguishing the outer and the intermediary zones and for ascertaining to which area the settlements belong factors must be found that are essential from the point of view of economic and social life and at the same time indicate the connections of the different settlements. For this purpose we have considered the following factors:

1. the attraction spheres of the centers,
2. the transportation facilities of the settlements,
3. the direction of the movement of the agricultural products (including the market supply),
4. the production structure of the agriculture,
5. the factors of physical geography (above all the soil, hydrography, relief, and mineral resources),
6. the administrative division.

Unfortunately we must leave out of account some factors as no full information was available for the whole area of the Southern Plain for instance as regards the direction of commutation or of migration in the different settlements. The data mentioned here could be collected only in some places for our analysis. Experience shows that omission of the above factors does not essentially modify either the method or the exactness of defining the area boundaries.

The above factors do not always coincide territorially. Overlapping is frequent and therefore it is reasonable to reckon with all the factors, although their roles are different.

1. The attraction spheres of the centers correspond to the data used for the definition of the zones, but the emphasis here is not on the intensity but on the direction of the attraction. This factor cannot be neglected as it indicates exactly where a settlement belongs.

2. The summing up of the factors used in assessing the transportation facilities is no suitable basis for the direct delineation of the boundaries as it does not show the directions of attraction; on the other hand, an element, the frequency of buses and the number of bus routes, can very well be used for this purpose. The density of routes indicates the links of the different settlements and helps decide the question where they belong.

3. The direction of the movement of agricultural raw materials has already been mentioned in connection with the attraction spheres, but

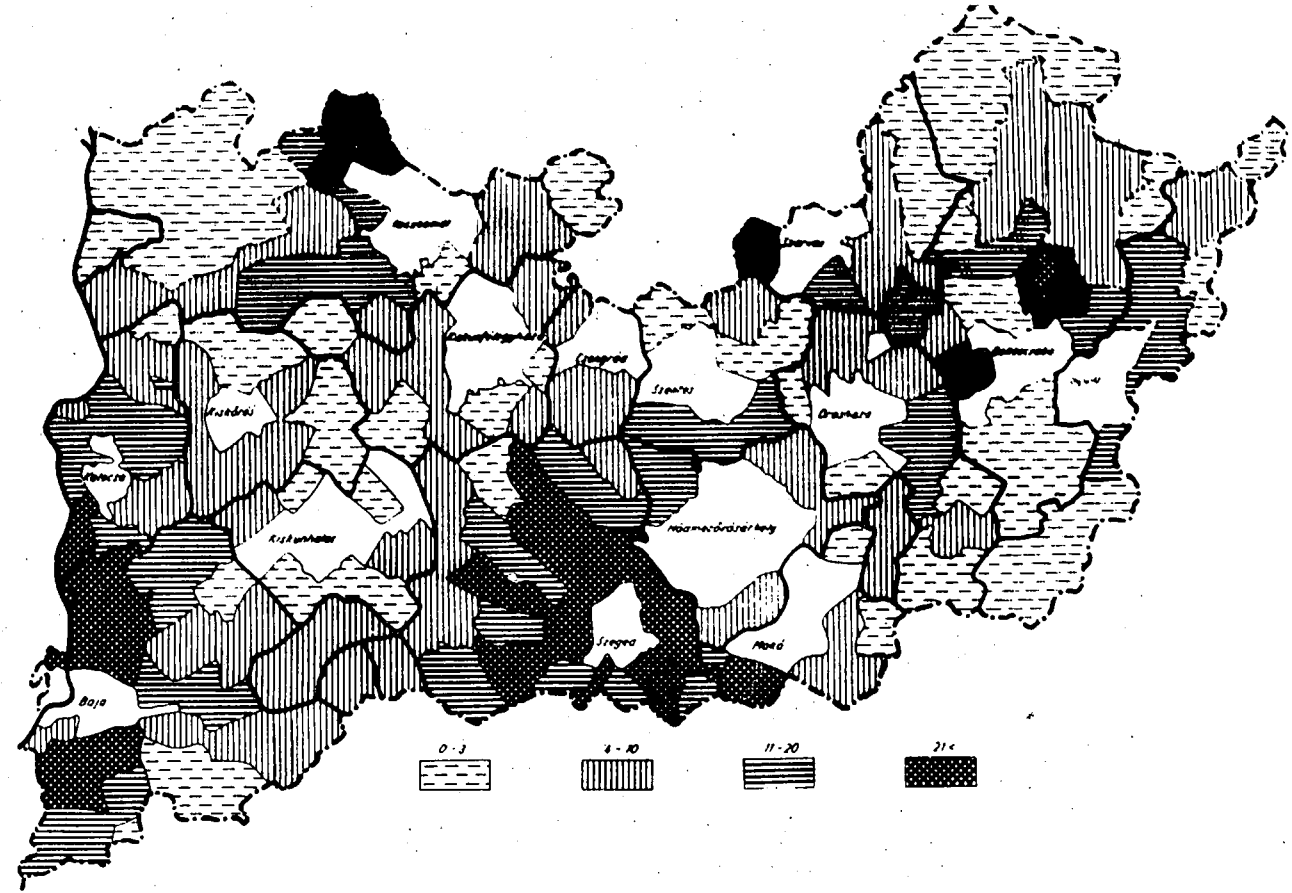


Figure 9. The main destinations of the raw material consignments for the food industrial centers of the southern part of the Great Plain (1970).

1. milk industry, 2. meat industry, 3. poultry industry, 4. flower-milling industry, 5. canning industry, 6. sugar industry. I = Kecskemét, II = Kalocsa, III = Kiskunhalas IV = Baja, V = Szeged, VI = Szentos, VII = Makó, VIII = Hódmezővásárhely, IX = Békéscsaba, X = Gyula, XI = Mezőhegyes, XII = Orosháza, XIII = Szarvas, XIV = Szeghalom, XV = Sarkad

here we are not so much concerned with the strength as with the direction of the main attraction.

4. The structure of agricultural production appears as an additional factor. It is used differently from the other factors as the directions of attraction are out of the question here. The use of this factor is justified by the fact that it belongs to the production pattern of the areas and occasionally it helps decide where the different settlements belong. This is however, possible only when and where the economic microareas coincide with the agricultural areas, that is where two regional units with different types of production meet. Otherwise, that is when the type of agriculture is the same in both regional units, this factor falls away automatically.

5. The physical factors play a role in the definition of the area boundaries only occasionally, and then mainly on account of the soil, relief, hydrography, and mineral resources. The types of soil exert their influence essentially through agriculture, but the role of relief, water supply, possibility of irrigation, and exploitation of the mineral resources must not be left out of consideration either. It is well known that the exploitation of such natural resources, e.g. the exploitation of crude oil and natural gas, has changed also the economic relations of the settlements concerned. In determining the area boundaries the natural factors are used in a similar way as in the case of the classification of agriculture into types of production.

6. The question where a settlement belongs administratively is often decisive, especially where the overlapping of other factors has a neutralizing effect. The reverse, also occurs when the administrative ties are weaker than the other factors of attraction. This is why among other factors the administrative boundaries must also be taken into account.

In the border zone delineated earlier, the orientation of each settlement must be determined with an electronic computer on the basis of the factors mentioned. In the case of a mechanical combination of the factors we get essentially the same result, but the use of a computer speeds up the work.

The differentiation of the microareas is not complete with the determination of the area boundaries although the remaining part of the job is much simpler than in the preceding stages. So far we have designated the centers and the zones surrounding them and outlined the attraction areas of the centers. In the following we have to decide which are the centers that form one microarea together with the area under their influence. Thus we have to reckon here with whole territorial units and not with single settlements. Classification of them into microareas can be done on the basis of the following points of view:

1. identity of the production profiles,
2. strength of production and transportation relations,
3. attraction relations of the areas belonging to the centers,
4. common features in the trend, rate, and peculiarities of economic

development (e.g. similarities in the problems and in their solutions),

5. common features in the natural possibilities (above all the soil, hydrography, and mineral resources),
6. administrative boundaries (county boundaries).

It appears from this list that the question here is not such or such manifestation of the social division of labor, but division of labor itself as the most important factor of organization into economic areas. We cannot expect all factors to support uniformly the orientation of a given territorial unit. Unfortunately the factors cannot be weighted because their role varies with the cases. For instance the belonging of the region of Szeged and Makó to one microarea is not supported by similarity in the production profile, identical problems of development, or identity of the natural conditions, yet Makó and its region belong to the attraction sphere of Szeged. Very close production, transportation and social relations have developed between the two regions. Roughly similar is the case of Hódmezővásárhely. The difference is only that the relations of this town with Makó are still closer and there is a greater similarity of development between them. This means practically that Makó and its region cannot exist as an independent microarea in the shadow of Szeged. Otherwise the extent of its area does not make it possible either. In the case of the regions of Baja and Kalocsa — in contrast with the example of Szeged — nearly all factors support their belonging to one economic area. Thus very close relations have developed in every respect between the two regions; the production profiles of the two regions agree, the conditions of agricultural production (possibility of irrigation, soil conditions, etc.) are very similar, and the trends as well as the problems of development are largely identical.

There is no need to continue the enumeration of these factors as they will be dealt with together with the delineation of the economic areas. The examples mentioned serve as an illustration of the fact that the factors mentioned in themselves do not decide anything and in this case the mathematical formula cannot replace analytical work, which means that the orientation of the territorial units involved must be decided separately in each case with the help of these factors, for there is no other way.

Classification of the territorial units into economic areas is no problem where the relations of the centers are close owing to their nearness to each other. This is fortunately the case in most parts of the Southern Plain, but in other parts of the country, where there is a territorially more complicated system of the social division of labor, it is no easy task to distinguish and place the different territorial units. This is why spatial structure investigations must be carried out, and the economic and social processes in the microareas must be explored, and each case must be examined separately on the basis of the facts as in the Great Plain.

Summerizing we can say that the determination of the areas consist of three phases: 1. the inner territorial structure of the areas is determ-

ined, 2. the areas belonging to the given centers are determined, and finally, 3. the territorial units determined are classed into microareas.

This method was successfully applied to areas of the Southern Plain and the same method can probably be used with minor modifications or amendments also in other areas but as the method is above all determined by the peculiarities of the area under examination and the tasks of research, it is advisable to check the applicability of the method developed under other conditions.

Subjectivity or errors are of course not excluded, but correct utilization of the evaluated statistical data and control of the results limit this possibility to a minimum. Investigating the microareas the researcher comes much nearer to reality than with the method of determination "from above downward" where the average figures often cover up the territorial differences that the author tried to point out by the method described above and on which later the higher levels of the economic areas can be built.

## **2. Definition of the economic microareas of the Southern Plain**

The economic areas can be defined with the help of the method described above on the basis of the economic and social processes discussed in the previous chapters. The material collected so far needs to be completed only in one respect, i.e. with a survey of the conditions of industrial development in the different economic areas.

There is a difference between the microareas not only as regards the structure and developmental dynamics of industry, but there are also essential differences in respect of the possibilities of industrial development. This is understandable as all the processes are determined by the same socio-economic and natural factors.

For surveying the possibilities of industrial development we have used in addition to the material presented so far the information booklet prepared by the Chief Department for Area Development of the Ministry for Construction and Town Development. This booklet, entitled "The Choice of Sites for Industrial Establishments", is the first and only survey that using eight factors for 64 branches of industry determines the effect of the conditions for each settlement in the whole country. The factors of establishment and their power can be qualified with the help of a scale of five grades and represented in a star diagram and so the different types and territorial differences can be clearly shown. The fourth and fifth grades are treated in the survey as dominant factors. The degree of efficacy of the factors of the branches of economy and the different branches of economy worth developing can be combined in a column diagram and their combination provides an excellent possibility for characterizing the microareas and for showing the differences in the tendencies of development.

### The boundaries of the microareas of the Southern Plain

On the basis of a comparison of the factors mentioned above we could outline the different microareas. They are the following:

a) *The region of the Danube*; the western and southern boundaries of the area are given, so the problem is only the drawing of the eastern and northern boundaries. The factors used indicate in most cases clearly enough where a given settlement belongs. Overlapping occurs in the case of the following settlements:

*Császártöltés*; from the point of view of attraction and transport it belongs to the region of the Danube. According to the majority of the factors, however it belongs to the area of Kiskunhalas and so we have assigned it to the latter.

*Rém*; the factors are rather varied, but considering the increasing influence of Baja we have assigned it to the region of the Danube independently of its administrative status.

*Kunbaja, Csikéria, Bácsszőlős*; here, too, the overlappings are rather strong. Considering the growing influence of Bácsalmás by which it attaches the abovementioned settlements to itself and thereby to Baja, it would not be suitable to separate these settlements from their center. Drawing the northern boundary of the area in the region of the Danube presents a problem because the areas north of Dunavecse do not belong to the Southern Plain; consequently the settlements of this area cannot be attached even to the microarea. However, if we are to prove this, it is not enough to examine the problem from only one side, the investigation must be extended to the area of Dunaújváros and Budapest, too, i.e. the status of these settlements must be explored also from the side of the central area.

Besides those mentioned, there are several other settlements with overlapping, (Jánoshalma, Mélykút, Tompa, Kecel) but this does not obscure their status and cannot influence our classification.

b) *The Danube—Tisza interfluve*; similarly as in the above-mentioned cases, difficulties arise in drawing the eastern and northern boundaries of the area. It is distinguished from the area of Kecskemét first of all by its conditions of attraction, transportation, and its administrative status. The physical geographic conditions and the profile of agriculture in the two contiguous areas are essentially identical, for which reason these factors must be dropped when we want to determine their boundaries. Essentially similar is the situation in determining the eastern boundary with the difference that there is much overlapping in the transportation of agricultural goods in the north, but there is none in the east.

In this area the problem settlements are the following:

*Fülöpszállás*; which administratively belongs to the district of Kiskőrös, yet on the basis of all factors (except for the agricultural profile) gravitates to Kecskemét.

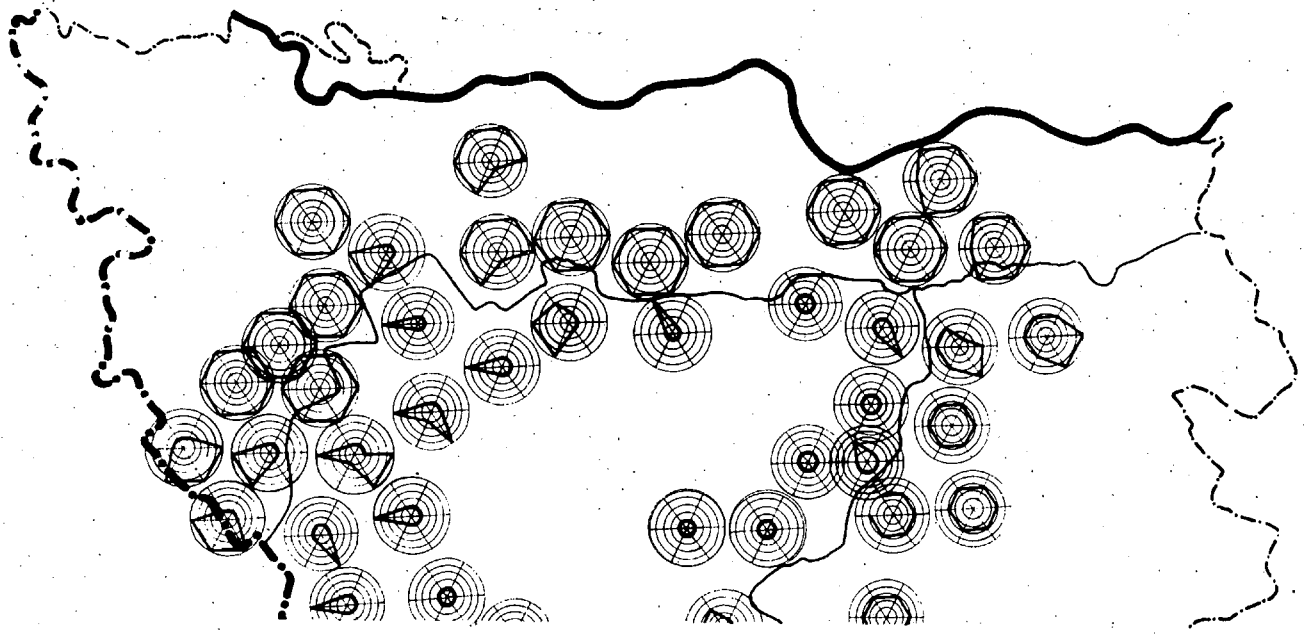


Figure 10. Definition of the microregions I. The riverside region of the Danube (the explanation is valid also for the following 4 figures)



- 1. agricultural line, 2. physical geographic conditions, 3. spheres of attraction, 4. transport, 5. buying up of agricultural goods, 6. administration

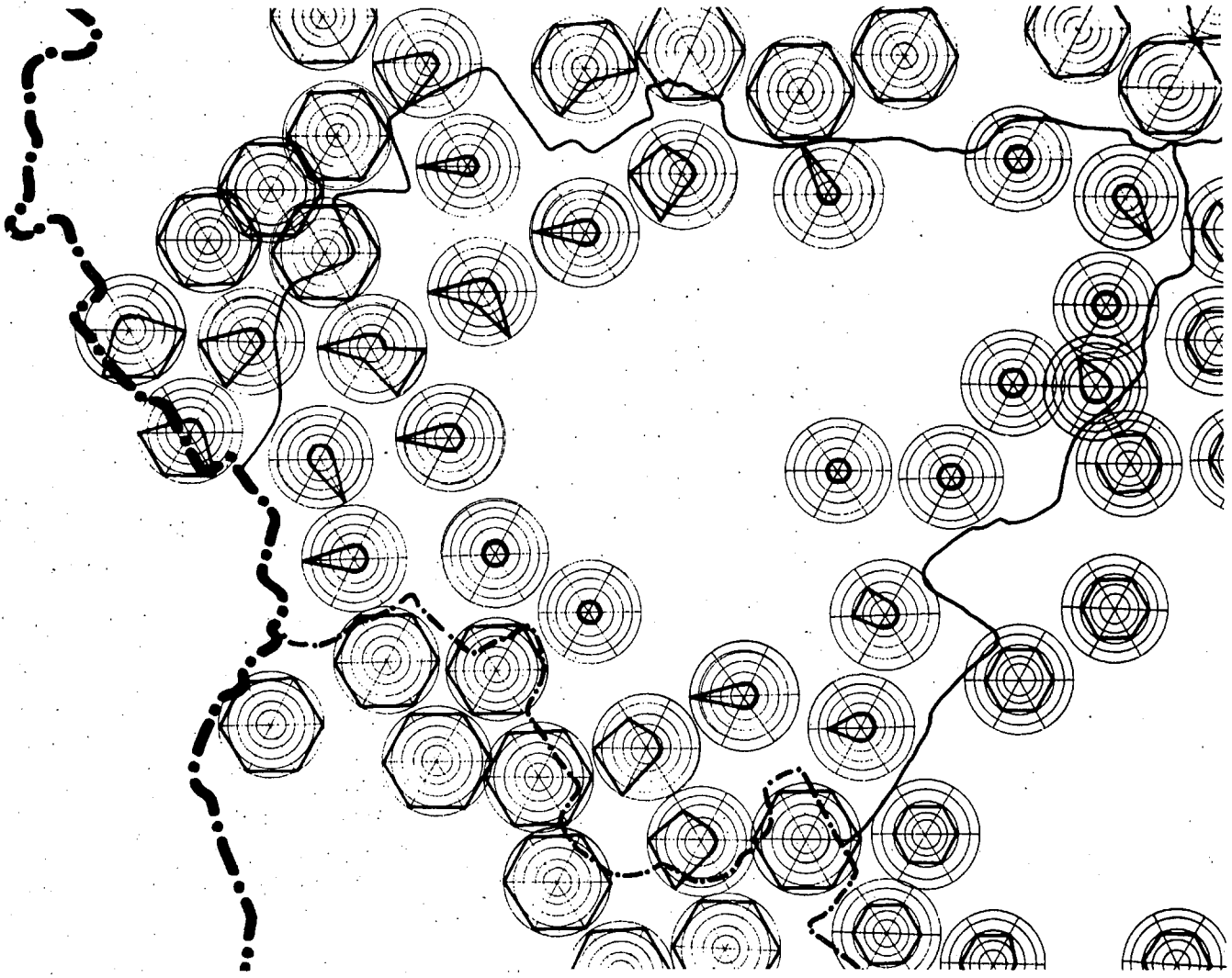


Figure 11. Definition of microregions II. Middle portion of the Danube—Tisza interfluvium (For explanation see Fig. 10)



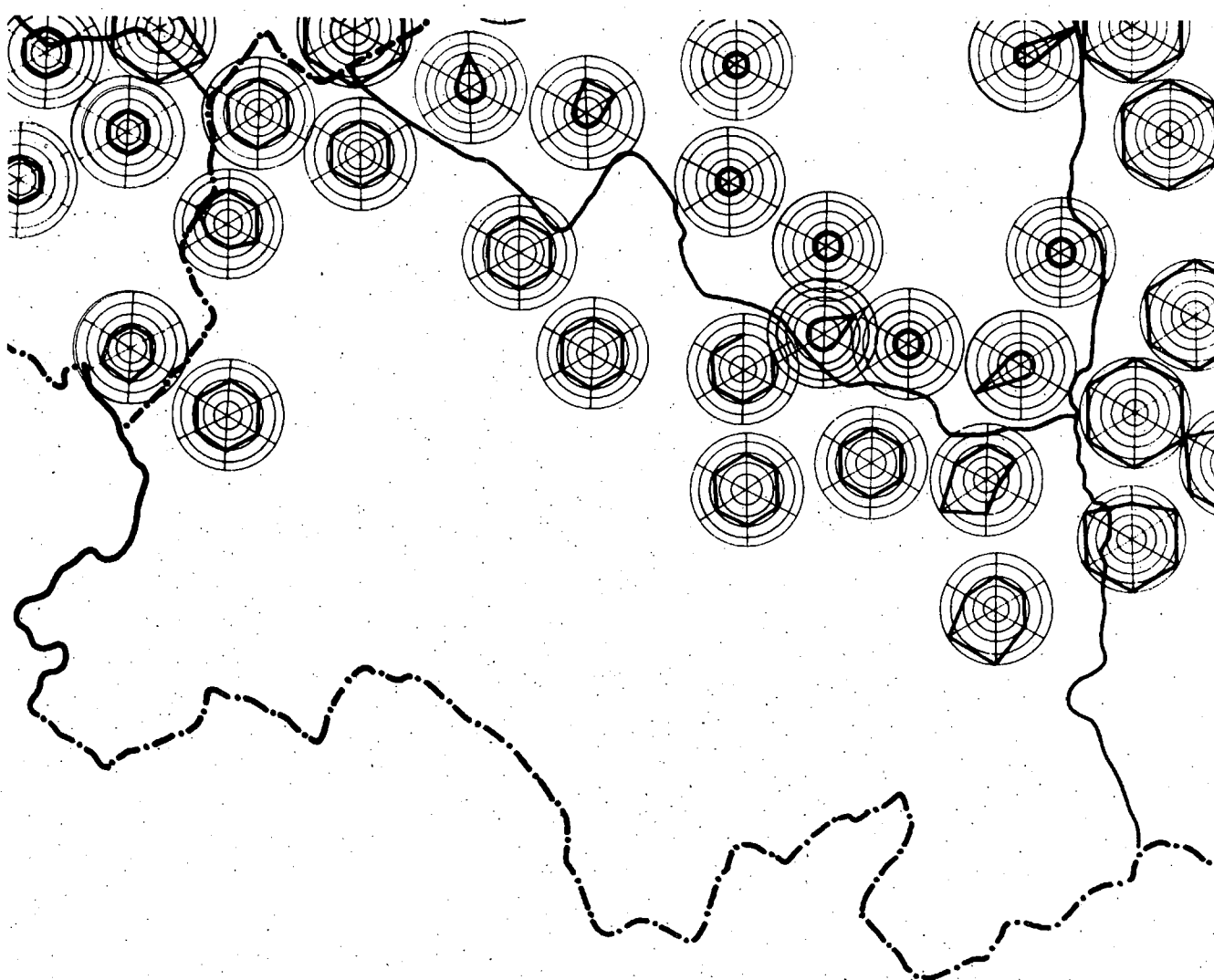


Figure 12. Definition of microregions III. The microregion of Keckskemét (For explanation see Fig. 10)

*Szank and Jászszentlászló*, which from the point of view of transportation and the buying up of their agricultural products are oriented toward Kecskemét, but on the basis of the rest of the factors belong to the area of Kiskunhalas.

*Kömpöc and Csólyospálos*, which according to most factors belong to the area of Szeged but from the point of view of the boundaries of the county (the boundaries of the microareas do not cross the county boundaries anywhere) the two settlements have been classed in the area of Kiskunhalas.

c) *The area of Kecskemét*. Similarly as in the case of the area in the region of the Danube, it is difficult to decide where Kunszentmiklós and Kunpszér belong. There is practically not one factor which connects Kunszentmiklós and the neighboring settlement to this microarea, so this part in all probability belongs to the central area.

Then it is an interesting problem to decide where *Nagykőrös* and some neighboring settlements belong. In our opinion the area in question, on the basis of its identical industrial and agricultural profile and the close ties between the two towns, is an integral part of the Southern Plain.

Otherwise the determination of the boundaries of the microarea of Kecskemét presents no particular problem because overlapping of factors occurs only in *Bokros* and *Gátér*, but the question where they belong is decided for both settlements by the county boundary.

d) *Along the valley of the Tisza* two microareas have developed, that of Szeged and that of Szentés, Outlining them we encounter the following problems:

As in the case of the microarea of Kecskemét, it is not easy to draw the northern boundary of the microarea of Szentés. The difficulty is to determine the status of the region of Tiszazug and Kunszentmárton. In our opinion these areas belong to the Southern Plain, but for a final judgment the problem must be examined also from the side of Szolnok county, i.e. the mesoarea of the northern part of the Trans-Tisza Region.

Drawing the southern boundary of the microarea of Szentés we also find several settlements in which the factors overlap.

From the point of view of administration and the transportation of agricultural products *Székkutas* and *Mártély* belong to the microarea of Szentés, but all the other factors uniformly attach the two settlements to Hódmezővásárhely, i.e. the microarea of Szeged. In the case of *Mártély* it must also be taken into consideration that it is a holiday resort of Hódmezővásárhely.

In the case of *Baks* and *Pusztaszer* there are only minor overlappings which do not weaken the attachment of these settlements to the microarea of Szeged.

The area of Szeged has practically been outlined in the foregoing and only the drawing of the eastern boundary remains to be done. Overlappings of factors are found only in the case of only a few settlements (e.g. *Nagyér*, *Ambrózfalva*, *Pitvaros*, *Csanádalberti*). These overlappings

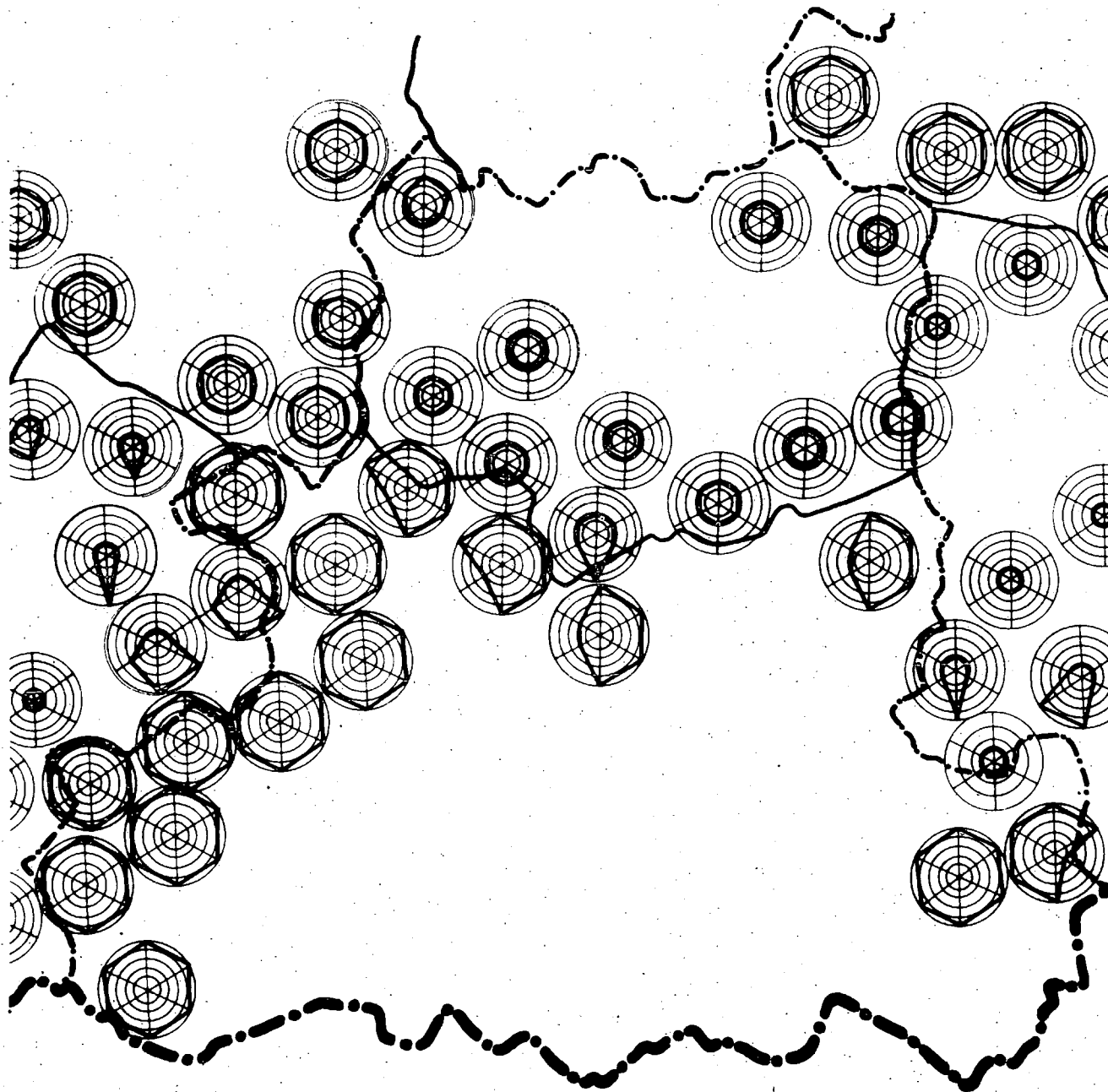


Figure 13. Definition of microregions IV. Microregions of the Tisza (For explanation see Fig. 10)

are of little importance and so it is not reasonable to deviate from the county boundaries.

e) In drawing the boundaries of *the area of Orosháza* in the north (where the attraction of Orosháza is fully felt) nearly all the factors uniformly make the situation easier by distinguishing the areas sharply from each other. In the district of Mezőkovácsháza in the southern part of the area there are no major industrial centers and therefore a zone of overlapping has developed at the northeastern and western boundaries. On the basis of the administrative boundaries, the buying up and transportation of agricultural products, the mobility of the population, etc., we have ranged it with the microarea of Orosháza because these features show similarity with the rest of the territory of the district.

The boundaries of the microarea of *Békéscsaba* are for the most part given after delimitation of the area of Orosháza. Certain modifications must be made along the northern boundary because the settlements involved — Bucsa, Ecségfalva, Kőrösnagyharsány, Biharugra — do not belong to the Southern Plain but to the northern Trans-Tisza Region.

### The character of the economic microareas

Except in the case of a few settlements the microareas could be delimited with full certainty on the basis of the factors described above. Drawing of the boundaries does, however, not mean that the area delimited really belongs to a given microarea. To prove this we must examine also the inner social and economic processes and structures in the area. The economic areas usually differ from each other as regards their physical geographic conditions, agricultural and industrial profiles, and the possibilities and trends of agricultural development. Owing to their territorial differentiating force these factors indicate on the one hand the differences between the areas, on the other hand the inner unity of the microareas. For this reason they must be taken into consideration in delimiting the microareas.

We have spoken of the physical geographic conditions before the chapter on agriculture. Here we have to deal with them, although more shortly in order to make clearer the differences between the areas. This unfortunately implies repetition which cannot be avoided.

### The area in the region of the Danube

The valley of the Danube as a separate territorial unit constituting an important part of the area was formed by the surface-shaping effect of the river water at the end of the Pleistocene. In the area eroded by the Danube young (Holocene) sediment (sand, silt, and clay) was formed by the Danube. Owing to the loess washed in and the sediment of clay

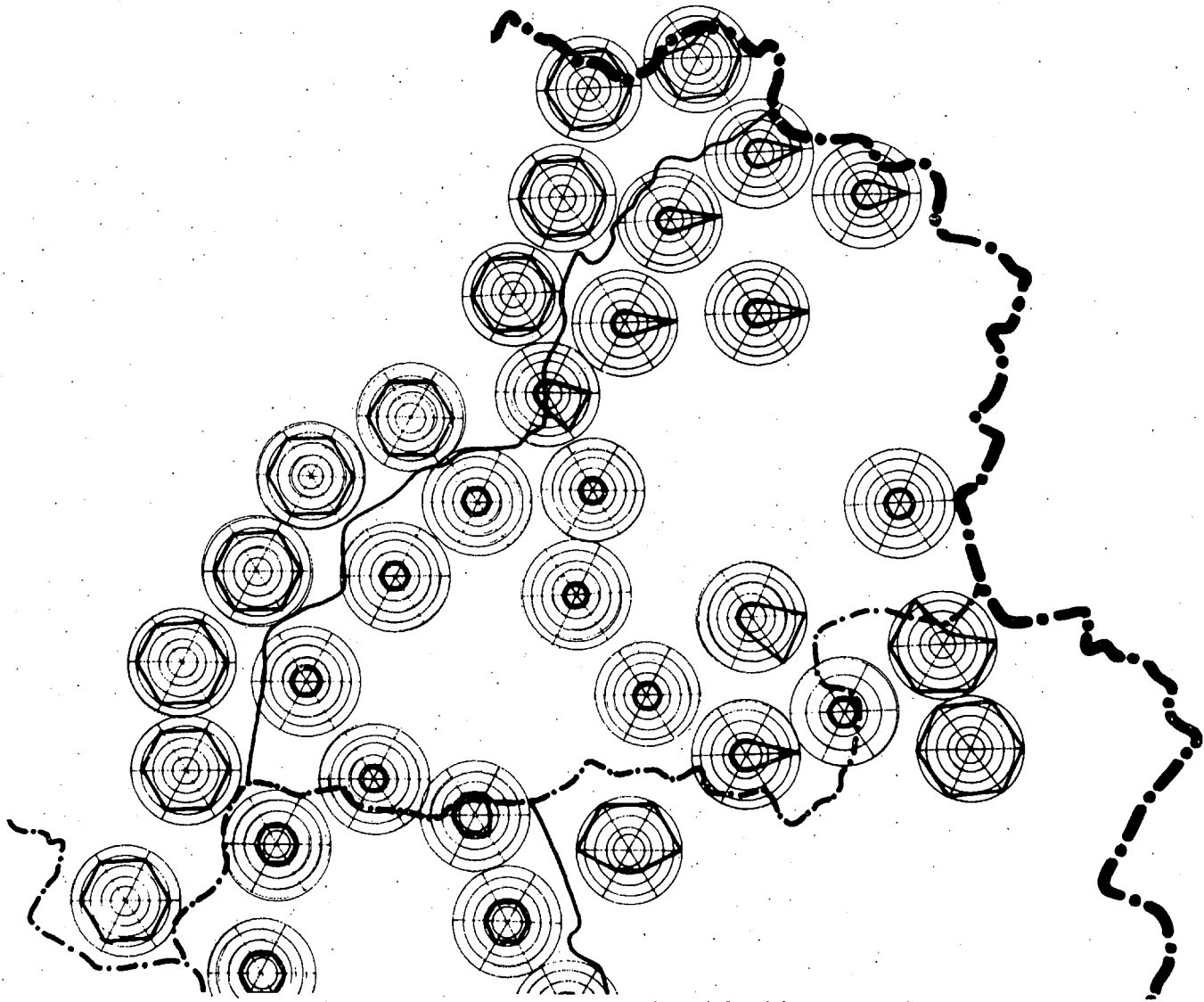


Figure 14. Definition of microregions V. The microregion of Orosháza (For explanation see Fig. 10)

surfaces of the Pannonic epoch, silty clay or clayey silt top layer formed besides the coarser-grained deposit of the river water.

Differently from this, chiefly loose waterpermeable eolic sediments are present in the surface structure of the *rolling plain in the Danube—Tisza interfluve*, which constitutes about one-third of the Southern Plain. Since the last interglacial period the Danube has not shaped the area with its erosive activity. In the last periglacial and the dry periods of the Holocene the wind reshaped the surface to such a considerable depth that the area lost its alluvial character at least in its surface layer.

On the basis of the quality of the surface sediments and the morphological qualities, the rolling plain can be divided into a northern and a southern part. While in the northern part quicksands, sandhills, dunes and deflationary depressions are the dominant surface features, in the southern part there are loessal sand and relatively even, level surfaces, which are favorable for agriculture.

The eolic formations with two different sizes of granulation have produced two peculiar and very different kinds of soil, which makes a great difference in the agricultural production of the region. In the northern part of the rolling plain, usually on thick sand layers, poor quality soils have formed that are completed by the frequent occurrence of solonchak meadow soils among the types of sand. Here the relief form is of a decisive character from the point of view of the development of subsoil water and the development of soils.

On the loess-covered surface of the southern part of the rolling plain there are medium packed, good quality, easily cultivable lime deposits and chernozem soils with high organic matter content.

The soils of the Danube region are, as opposed to those of the rolling plain in the Danube—Tisza interfluve, mainly alluvial soils, meadow chernozem, in some depth salt chernozem and solonchak-solonetz. With the exception of the last named, the organic matter content of these soils is high and accordingly they have a fairly high gold crown value. (Gold crown is the unit of land value in Hungary.) They are relatively easily cultivable, and as their water economy is excellent both as regards surface water and depth water supplies, advanced irrigation culture has been able to develop on them.

The influence of the different physical geographic conditions manifests itself above all in the structure of the agriculture and the differences in the production profiles. On the rolling plain of the Danube—Tisza interfluve the soil conditions are favorable for vine and fruit-growing. Rye and corn (maize) grow well on this land, and there are beautiful meadows and pastures in the deflationary depressions. Generally speaking, the conditions are less favorable for growing juicy fodder plants than in the area along the Danube. Owing to the low organic matter content of the soil, the land has a high manure requirement, but the low level of the cultivation of juicy fodder plants and the poor quality of the meadow pasture hinder increasing of the stock of cattle. This vicious circle affects also the average yield of vegetal cultures. The possibilities of irrigation

are very limited. On the other hand in the area along the Danube, the possibilities of irrigation are excellent and the soil and climatic conditions are favorable, for the cultivation of corn and wheat and for the general use of irrigation farming.

In the southern part of both areas the territorial differences are obscured. Vine and fruit appear along the Danube and on the loessial plain wheat and corn are grown over a wide area. In spite of this there are striking differences in the areal surveys of the branches of cultivation; in the area along the Danube the proportion of plowlands, pastures, gardens, orchards, and vineyards does not exceed the average proportion in the whole Southern Plain, and the proportion of meadows is scarcely smaller, while in both microareas of the sandy rolling plain the proportion of plowlands is very low, but the proportion of vineyards, meadows, and pastures far exceeds the average of the Southern Plain. In the proportion of the irrigated areas the differences are, for readily understandable reasons, much greater. It is natural that the differences in physical geographic conditions are reflected in the differences in the crop structure.

Comparing the area along the Danube and the area of Kiskunhalas, we find differences not only in the natural conditions and agricultural production but also in the structure, development, and perspectives of its industry. Among the factors influencing or determining the establishment of industry in the area along the Danube are water, education, and an urban background. Besides these, powerful factors are transportation and labor force. In contrast to this, only the labor force and the urban background can be mentioned particularly as dominant factors in the area of Kiskunhalas. Besides this, if we take into consideration that the factors of the establishment of industry are not of the same importance, the difference is still greater. In the area along the Danube the ease of water supply and mass transportation by water mean much better perspectives for the development of industry than the labor reserve of Kiskunhalas.

The factors favoring the establishment of industry in the area along the Danube make possible the development of most industries, e.g. the conditions are favorable for the development of machine industry, building material industry (manufacture of concrete blocks), crude oil processing, dye and household chemical industry, clothing, leather, meat, and other food industries. Although the industries mentioned have excellent possibilities, their establishment is conditional, which means that in the establishment and development of industry national interests must be considered. It would not be suitable to utilize the factors favoring the establishment of industry (viz. labor force) for industries that can be established under the same conditions in a neighboring area if at the same time there remained no possibility for the development of the branches with high water requirement that are of great importance for the whole country. Thus the basic difference between the two areas is that while in the area of Kiskunhalas with the exception of food industry and a few branches of industry with high labor requirement no nationally important industry can be established, in the area along the Danube there

is a possibility for developing the branches of industry of national importance. This fact determines not only the rate but also the direction of the economic development of the two areas.

From among the areas of the Southern Plain both the area of Kiskunhalas and that of Baja belong to the less developed areas. The ratio of development of the industry in the area along the Danube is 0.378, that of the area of Kiskunhalas 0.238.

In the determination of the level of development more or less the same ratios are characteristic; this level in the region along the Danube is 0.0081, in that of Kiskunhalas 0.0051. These figures show that the values of both regions are well below the average of the Southern Plain. In respect of the rate of development of industry, the area of Kiskunhalas has far surpassed the region along the Danube. (The intensity of development in the case of the former is 3.86, in the case of the latter only 1.72. This can be explained first of all by the fact the area of Kiskunhalas started from a much lower level and there was also more labor force for a quick development of some branches of industry with high labor requirement.

Going on with the comparison of the region of the Danube and the Kiskunhalas area, we find important differences in the changes of the number and occupational distribution of the population. The changes in the number of population roughly agree in the two areas, but natural growth is much higher in the Kiskunhalas area (2.5% between 1960—70). Outmigration is also higher (7%). The proportion of those engaged in agriculture is nearly 10% higher on the rolling plain than in the contiguous areas.

The differences between the two areas clearly prove that the region of the Danube is in all respects a relatively well definable independent economic microregion which is developing as a territorial unit and which at the same time in many respects differs from the contiguous Kiskunhalas area.

2. The arguments mentioned so far are not sufficient to prove the existence of a distinct Kiskunhalas area because by separating it from the region of the Danube we have not yet drawn its boundary in the east and in the north. In the following we are going to compare it with the economic microregion of Kecskemét emphasizing the differences.

The essential difference between the two microregions is in the level of development and structure of industry. The measure of development of the Kecskemét area, 0.981, comes near to the average of the areas, while the level of Kiskunhalas is far below this. Similar is the situation with the index of its level of development, which is 0.0210, i.e. four times as high as that of the neighboring area. In respect of the rate of development the situation is reversed.

The differences in the factors of the establishment of industry are also essential. In the Kecskemét area there are four dominant factors (labor force, transportation, education, urban-like background), whereas in the Kiskunhalas area only two factors of the establishment of industry have



the criteria of dominant factors. This means not only that the Kecskemét area has more important and more diversified industry, but its conditions for the development of industry are also much more favorable. In this area, not counting the branches of industry with a high water requirement, nearly all branches of industry can be established with high efficiency, especially the branches of machine industry, which have a high manpower requirement. Development of the food industry has about equal possibilities in both areas.

Although there are many similar features in the industrial profile of the two microregions (in the food industry), the differences are far more considerable. The microregion of Kecskemét is distinguished in the Southern Plain by its machine industry, canning industry, and several branches of industry that do not exist or are on a smaller scale in the Kiskunhalas area.

The differences in the level of development are reflected in the composition and changes in the number of the population. In the microregion of Kecskemét the number of the population rose between 1960 and 1970, while in the area of Kiskunhalas it fell considerably. The proportion of those engaged in agriculture in the latter area is 20 per cent higher than in the former. There is a similar difference in the proportion of urban population (in 1972!). These facts show the differences in the tendencies of development of the two areas.

Thus the Kecskemét area represents a much greater potential than its southern neighbor. It is therefore understandable that the attraction sphere of Kiskunfélegyháza, but especially the attraction sphere and the food industrial raw material basis of Kecskemét are territorially larger than the microregion. At the same time this does not diminish the possibilities of development and the independence of Kiskunhalas. Owing to its rapid development in the last decade, Kiskőrös has evolved a distinct attraction sphere which continues to expand and is more and more clearly reflected in the life rhythm of the surrounding villages and in the migration of the population. This proves that the area has its own peculiar perspective and rate of development (both in industry and agriculture). Owing to economic and social processes the area has its own peculiar life rhythm. In fact this is its most essential trait which distinguishes it from all the neighboring areas. On this basis the Kiskunhalas area, like the region of the Danube, can rightly be regarded as an independent territorial unit.

3. In the valley of the Tisza two microregions have developed, the comparison of which is first of all necessary because the microregion of Szeged is so different from its western and eastern neighbors that its delimitation presents no particular problem, whereas it agrees in many respects with its northern neighbor, and their differentiation is therefore more difficult. The physical geographic conditions of the two economic regions of the Tisza river valley are essentially the same. The valley of the Tisza is the separating belt between the rolling sandy plain in the Danube—Tisza interfluvium and the loessal plain of Békés county.

The Tisza river valley is one of the lowastlying areas in the Southern Plain. Its surface formations, with few exceptions, are Holocene sediments.

On the eroded surface of the Holocene sediments first coarse sand, then always finer river sand, then silty fine sand, fine sandy silt, clayey silt, and finally meadow clay were deposited. The finer and finer quality of the deposits from below upward reflects constant decrease of the transporting power of the river water, but at the same time it also suggests the presence of considerable amounts of subsoil water.

The territorial distribution of the different qualities of sediments is also irregular. As we move away from the present river valley the quality of the sediments changes. In the immediate neighborhood of the river alluvial silt and sandy silt derived from annually repeated floods can be found everywhere. Farther away from the river and near to the alluvial silt, meadow clay formed in large patches. After the receding of the floods extensive alkalination took place (e.g. south of Hódmezővásárhely). In the parts farthest from the river the flooding of the river made swampy also the uppermost infusion loess cover of the Pleistocene. In this region layers consisting of fine silt and rich in humus (black earth of high nutritive value) were formed at the time of floods.

The surface and under-surface water reserves satisfy the water requirement of the agriculture of the area. Thus, utilizing the possibilities of irrigation, a varied agricultural structure can develop here.

Besides the identify of the physical geographic conditions mentioned an essential difference is that considerable areas of the sandy rolling plain in the Danube—Tisza interfluve and of the loessal plain of Békés county gravitate toward the microregion of Szeged. Thus while the physical geographic conditions of the microregion of Szentes are roughly the same a very heterogeneous composition has evolved in its southern neighbor, since three physical geographic landscape units meet in the microregion of Szeged.

The differences in the physical geographic conditions are reflected in the structure of cultivation as well as in the structure of crops. Although the proportion of plowfields is similar on both regions near the Tisza and does not exceed the average proportion of plowfields in the Southern Plain, there is a considerable difference in other categories (vineyards, orchards, meadows and pastures). The proportion of irrigable areas is also different; it is much larger in the microregion of Szentes than in the region of Szeged. A difference in the crop structure is due to differences in the cultivation of vegetables. This proves that while the agriculture of the Szentes area belongs to one economic region, that of Szeged belongs to three different economic regions.

As in the case of the other microregions, these differences can be found in the composition of the agricultural raw materials as well as in the branches of the food industry. A well-developed diversified food industrial center has grown up in Szeged, while the food industry in Szentes and Csongrád is on a smaller scale and is different in profile.

The industrial development of the Szeged area differs in several respects from that of its northern neighbor. The more favorable geographic location of Szeged attracted some important branches of food and light industry (hemp, leather, wood industry) which formed the nucleus of later industrial development. Thus, owing to its extensive agricultural background and relatively favorable transport facilities, Szeged became the most important industrial center of the Southern Plain in the course of the industrial revolution of the last century and has kept its advantage to this day in spite of the fact that its development has not been uninterrupted and that owing to the proximity of the state border it has lost much of its attraction and its transport geographic situation has also changed.

The industrial development of Szeged in the last decade has certainly been rapid, and to the old branches of industry new ones have been added, e.g. crude oil production, cable factory, rubber factory, factory for pre-fabricated building sections, etc., which have transformed the town a light e.g. crude oil production, cable factory, rubber factory, factory for pre-fabricated building sections, etc., which have transformed the town from a light and food industrial center into a center with diversified advanced industry. The most important feature that distinguishes the Szeged area from the neighboring microregions is the structure and scale of its industry.

The industrial development of Szentes and Csongrád differs from that of Szeged in its character and scale. Before the Liberation (of Hungary from fascist rule) the administrative function of Szentes was not combined with industrial function. The industrial development of these two towns actually began after the Liberation and has come to full bloom in the last decade. The branches of industry with high labor requirement dominate here; their heavy industry is much less developed than their light and food industry. The level of concentration of their industry is low, and this fact makes their situation similar to that of the Baja and Kiskunhalas areas.

Besides the similarity there is also an essential difference between the two regions of the Tisza as regards the effectiveness of the factors favoring the establishment of industry. In the microregion of Szeged all the factors favoring the establishment of industry are dominant. The conditions are worse only in Makó and Hódmezővásárhely, while in the Szentes area water and energy can be mentioned as dominant factors. A further important difference is that while Szeged offers favorable conditions to the cooperating branches of industry, the microregion of Szentes, like the microregions of Kiskunhalas and Baja, has no such conditions.

There are also similar traits between the two microregions, e.g. nearly all the industrial centers have engaged the available free manpower and so their industry can be developed in the future only by intensive methods. Only Csongrád and Makó are different in this respect because these towns do not yet have any reserve manpower. Another

common feature is that the problem of water supply can easily be solved in both regions, and in all probability this is going to be one of the most important industry-boosting factors in the future. As there is little manpower reserve but otherwise the conditions for the development of industry are favorable, it is advisable to give preference in the north and south along the Tisza just as in the region of Danube to the development of branches of industry of national importance instead of small capacity plants.

Such branches of industry are for example the chemical industry (water, skilled manpower, research institutes, raw materials, etc. are available), precision engineering, and some other branches of machine industry with high manpower requirement. The light and food industry can be developed in a centralized form first of all by modernization and expansion of the already existing capacity and not by the building of new factories.

The industrial and agricultural development of both regions will be greatly helped by the building of the third barrage of the Tisza.

The rate of industrial development in the two Tisza river regions in the last decade has been nearly identical. The index of the intensity of development in the Szeged area is 1.99, in the Szentes area 1.84. Thus the difference is unimportant, but the difference in the levels of development of the two areas must be taken into account. The index of the level of development of Szeged is 0.0598, that of the Szentes area is 0.0114. This determines also the degree of development. The Szentes region with its index of 0.532 is far below the average, while its southern neighbor with an index of 2.8 surpasses the average nearly threefold.

The differences in industrial development are reflected in the changes of the number of the population as well as in the movement of the population. In the Szeged region the number of the population has grown, the migration balance is positive, and the number of those engaged in agriculture is lowest here in the Southern Plain. On the other hand, the population of its southern neighbor has considerably decreased, its migration balance is negative, and the ratio of those engaged in agriculture is relatively high. Only in the ratio of urban inhabitants is there no essential difference. These facts are reflected in other connections, too, e.g. Szeged is surrounded by a broad agglomeration zone which is in contact with a strong inner zone where the population indexes are favorable. At the same time there are no agglomeration zones and inner zones around Szentes and Csongrád, as there are only a few settlements.

It follows logically from the foregoing that the transport and trade relations of the two regions are also entirely different; indeed it is interesting that the area of Szeged has close links with all the regions of the Southern Plain, though not with the region of Szentes. The Szeged region has stronger transport and production links with the regions of Baja county, the region of Kecskemét, and the region of Baja than with the neighboring regions of Szentes and Kiskunhalás.

The above-mentioned differences show that the two regions and the

Tisza follow their own lines of development and both have their own internal economic-social life rhythms which is reflected in many things, among others in the mobility of the population.

4. The physical geographic conditions of the *microregion of Orosháza* are uniform and quite different from those of the neighboring western regions. The basis of the physical geographic landscape unit (the extent of which goes far beyond the boundaries of the microregion) is the loessial rolling plain of Békés which, as the alluvial deposit of the primeval Maros, was, from the point of view of surface development, mainly the result of the work of a river although considerable amounts of lake deposits were also formed. The material of the alluvial fan is mostly medium — and coarse-grained sand (pebbly sand), but near the surface and among the more porous sediments there are often water-impermeable clay layers. Near the surface the thickness of the coarser-grained sediment in the SE parts is about 8—10 m, in the WNW parts only 1—2. The top formation is usually loess. Typical loess occurs only in traces. Along the former river beds and in their neighborhood meadow clay, clayey silt and washed loess can be found, i.e. the rather inhomogeneous sediment near the surface has produced differentiated soils.

There are the following: the central part of the *alluvial fan of the Maros* (the area between Orosháza, Dombegyháza, Elek, and Csorvás). The sediment near the surface is mostly sand and sandy loess. Due to stronger influence of the climatic and hydrographic conditions, meadow chernozems have formed here with dark brown, medium thick, and deep humus layers.

The area between the western wing of the western wing of the *alluvial fan of the Maros* (the plain of Csongrád), Battonya, Orosháza, Mindszent and the area between the Tisza and the Maros can be regarded as one subregion. Its surface, which slopes gently toward the valley of the Tisza, is covered by an infusion loess layer which becomes thicker from east to west. Clay and silt layers covered by infusion loess commonly occur in this territory. On the loessial sediment lime-covered chernozem soils formed besides the lowerlying subsoil water with frequent alkalination.

The northeastern wing of the alluvial fan (the plain of Békés) lies between Békéscsaba, Gyoma and Csorvás. It is a monotonous table covered with infusion loess. At the surface on the thick loessial sediment there are chernozem soils and in the direction of the Körös river valley limy chernozem and meadow chernozem soils.

The physical geographic conditions of the region are favorable for raising corn, wheat, sugar beets, hemp and open-field vegetables as well as for creating the provender basis necessary for hog and poultry raising. Accordingly, the ratio of plowfields is the highest in this region in the Southern Plain. Besides this it is characteristic that the ratios of orchards, meadows, and pastures are very small in comparison. The crop structure of the region, like the branches of cultivation, differs considerably from that of the other regions as the ratio of wheat and industrial plants far exceeds the average of the regions.

Of course the profile of the agriculture is reflected in the structure of food industrial raw materials. While for instance wine, fruit, and canned products have prime importance in the Danube—Tisza interfluvium, in the Orosháza region the most important economic activities are the buying up of poultry and industrial plants, and the cultivation of open-field vegetables comes only after these in importance. The food industry of the region is milling, poultry processing, and sugar industry.

The industrial development of the region, aside from some branches of food industry, actually began after the Liberation and is going on rapidly in our days. Unlike what has happened in the other regions, the value of the industrial fixed assets and the utilization of energy have increased with incredible rapidity and it is due to this fact that the index of development intensity in the region is 4.38, the highest in the Southern Plain, and twice as high as the average. Similarly, it is due to this fact that the Orosháza region holds third place in the rank scale of the micro-regions of the Southern Plain in respect of level of development (0.0178) and ratio of development (0.831).

The rapid industrial development of the Orosháza region is not reflected in the changes of the number of population or other indexes characterizing the population. Here among the regions has the population decrease been the sharpest.

Population decrease due to out-migration has also been greatest here. The ratio of those engaged in agriculture, though considerably reduced now, still far exceeds the average of the Southern Plain (53.2). The ratio of urban inhabitants is the lowest here among the regions.

Out-migration of the population has indeed decreased considerably in recent years, yet, even so it remains significant. The explanation for this is that the development of industry practically concerns only one part of the region, Orosháza, while the district of Mezőkovácsháza still has important manpower reserves. An explanation for the contrast between the favorable development of industry and the unfavorable trend of the population indexes is also the structure of the local (regional) industry; the development of crude oil and glassware production (which require large investments and expensive fixed assets) alone cause but little changes in population.

The conditions Orosháza for the establishment of industry are favorable: of the seven indexes three are dominant factors. Only the scarcity of water is a drawback. In the district of Mezőkovácsháza the manpower reserve and the highly developed agriculture favor the growth of the local industry.

The structure of the local industry, its rate of development, and the profile of the agriculture are characteristic features which distinguish the Orosháza region from the neighboring regions. The difference is apparent also in the economic and social processes taking place within the microregion.

5. The physical geographic conditions of the *Békéscsaba region* are not uniform; the region consists of two physical geographic regional

units. The southern part of the region is different, but its features resemble in many respects the physical geographic conditions of the Oroszháza region described above. A large part of the northern section of the area lies in the region of the Körös rivers which is characterized chiefly by the fact that it was formed, like the Tisza river valley, during the Pleistocene and the Holocene periods. The surface is covered all over by young sediments but on the higher lying areas there are formations made by the rivers. It is generally believed that the region of the Körös and the Berettyó was the large water- and deposit-collecting area and erosion base of the Trans-Tisza region. Thus the surface of the region of the Berettyó and the Körös is almost interely made up of Holocene alluvial (fluvial) deposits. Transported silty loess, silty clay, and in the deepest depressions turf and kotu (a special Kind of turf) were formed. The youngest formations, the alluvial soils (sand, silt, silty clay) in a broad band along the Körös, are areas suitable for cultivation with modern methods of irrigation. The loessial deposits are covered by so-called loam soil in the higher lying parts. Younger Holocene filling covers nearly all of the area and so older soils remain partially buried near the surface. In such a soil structure the water balance and the depth of humus are more favorable.

The work of flood prevention and river control in the last century brought about perceptible changes in the appearance of the country and at the same time had an important influence on the soilforming processes. As it is well known, not only passive water economy was used but by the end of the last century also one of the most advanced methods of cultivation by irrigation in this country. The effect of the feoods and stagnant waters before the floodpreventing system was built still remain to a great extent in the soil structures. Rusting of the subsoil, gleyey structure, and alkalination are common in meadow soils. In our days soil amelioration is being carried out by properly chosen agrotechnique and modern methods of irrigation.

The physical geographic conditions here are favorable for the cultivation of corn, wheat and some industrial plants, but the average yields are below those of Békés country.

The agriculture of the microregion of Békéscsaba roughly agrees with that of the Oroszháza area and the problems of development are also essentially the same in the two areas.

In the collection purchase of raw materials meat, poultry, and canning industrial raw materials are represented by large quotas. The Békéscsaba region has a diversified and well developed food industry. Therefore its purchasing area extends also into the district of Mez6kovácsháza.

Based on the agriculture and the plentiful manpower available the industrial development of the region began in the second half of the last century and has been going on ever since with varying intensity (between the two world wars it remained at one level). With an urban background in Békéscsaba and Gyula, much more advanced and diversified industry could develop than in Oroszháza. These towns possess several

branches of industry of national importance, for instance meat, milling, canning, textiles, and knitwear.

The factors favoring the establishment of industry can be found with varying effectivity in the territory of the region. Five factors (manpower, education, transportation, urban background, and energy) out of seven are dominant in Békéscsaba. On the basis of these factors a wide scale of branches of industry can be established here, e.g. laborintensive branches of machine industry, building material industry, wood, textile, and clothing industry, and many branches of food industry. Only ensuring an adequate water supply is a problem.

The Békéscsaba region has several settlements where industry with high efficacy can be developed. These settlements are: Gyula, Szarvas, Endrőd, Gyoma, Szeghalom, Békés, Vésztő. All of these settlements have considerable manpower resources besides relatively good transportation and energy conditions. Ensuring the water supply is a problem in all of them.

As regards the perspectives of the development of industry there is an essential difference between the northern and the southern parts of the region.

The southern part of the region has a highly developed infrastructure, diversified industry and still considerable manpower reserves. On this basis first of all laborintensive factories requiring cooperation, and as the territorial concentration of manpower is high, nationally important factories can be established here, while in the northern part of the region there is only a weak urban background, the manpower is poorly trained, territorially decentralized, difficult to concentrate and therefore it is practical to establish here laborintensive factories mainly producing machine parts.

A considerable area of agricultural character and with little industry belongs to the Békéscsaba region. This is the explanation why the level of development of the industry here is essentially the same as in the Orosháza region (0.0172). Also the index of the rate of development is scarcely higher (0.831) and does not reach the average of the Southern Plain. The index of the intensity of development is surprisingly low (1.8) and the region differs markedly from the Orosháza region in this respect, too. The slower rate of industrial development explains the fact that while the Békéscsaba region held second place among the microregions of the Southern Plain in 1964, in 1970 it was in the fourth place. The population indexes of the region can be said to be generally unfavorable. The decrease of the number of population between 1960 and 1970 (— 3,2' was much more considerable than in the previous decade. On the other hand, the loss by out-migration somewhat decreased but could even so be said to be very high (5.6 per cent between 1960 and 1970). The ratio of urban inhabitants grew considerably in 1972 (from 33 per cent to 43 per cent) owing to the fact that Szeghalom and Békés were incorporated as towns.

Békéscsaba and Gyula play the role of economic centers in the region; the two centers mutually strengthen each other's attraction but



even so their influence is rather weak in the northern part of the area. Curiously enough Szeghalom begins to play the role of an economic center here. There are a number of indications (transportation of agricultural products, growth of the number of the population, the development of industry, etc.) that a new economic microregion with Szeghalom as its center is developing in the north of Békés county. The area mentioned possesses all the qualities that, as in the case of the Orosháza region, make it later possible that distinctive traits develop.

The traffic and transport connections of the region with the Orosháza and the Szeged regions are understandably strong, but with the other microregions of the Southern Plain rather loose. More ties connect the region to Szolnok county than to the western part of the Southern Plain.

By the definition and short characterization of the microregions of the Southern Plain we have tried to prove that the territorial units mentioned differ from each other in many economic features; each has a distinctive structure, and all differ also as regards their possibilities and trends of development.