

József Tóth

RELATION PATTERN OF THE TOWNS IN THE GREAT PLAIN

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During the past ten years we have witnessed an increasingly rapid economic development of traditional rural regions. Marked changes in the structure and mode of production in the Great Hungarian Plain in particular, lead to a significant improvement of interregional and inter-central communication links. A study of the frequency and total number of long-distance calls presents a fairly adequate picture about the nature and intensity of interconnections between centres. Ties between some of the settlement groups are becoming stronger and more diversified. These settlement groups would obviously require coordinated development plans.

1 UP-TO-DATENESS OF THE INVESTIGATION OF INTERCENTRAL RELATION PATTERN

With the development of production forces and of division of labour, the interrelations between the individual areas and settlements become stronger and more many-sided. This world-wide effective tendency does not make exception even with traditional agrarian areas.

And it is so in Hungary as well. The economic changes accelerated after liberation have resulted in basic transformation in spatial pattern and inter-central relation pattern of the Great Plain. The traditional agrarian towns of the Great Plain, the so called market towns are administrative and turnover centres of their extended boundaries and constitute one unit with them (Erdei F. n. d.). During the centuries market towns have lived in a relative isolation having similar profiles and economic system and that's why they had not much economic connection with each other. The more and more vigorous development of industrialization in the Great Plain accelerated the functional and after that the morphological transformation of market towns, since industrialization of this area has been concentrated on the towns, first of all and resulted in a punctiform territorial arrangement (Becsei J. 1973).

Though the pace of development of these towns lagged behind the dynamism of the centre to be bound on the other parts of the country, (Tóth J. 1975), at present they are living the period of their most rapid development and transformation. As compared to the earlier characteristics, one of the most important features is that the relations between them are more and more many-sided and intensive.

Those inquiries carried out after the liberation to reveal relation pattern resp. attraction conditions and hierarchic order of settlements with central function (Beluszky P. 1966 a, b, 1974, Tóth J. 1966, 1972, 1974) convincingly proved that the relation pattern become more and more intensive and many-sided. If it is true, it has consequences in the field of regional development, planning, coordination and possibly in the administration. The revelation of intercentral relation pattern of the settlements having central function is necessary in order to present a basis for regional and settlement planning with the results received.

Here an attempt is made at revealing the intercentral relation pattern of the Great Plain from a special angle, on the basis of the number and distribution of long-distance calls.

2 UTILIZATION OF THE DATA OF LONG-DISTANCE CALLS IN THE INQUIRIES INTO ATTRACTION AREAS AND CENTRES

It is not a recent method to utilize data related to telephone network in settlement geographical literature. Christaller's study (1933) being already a standard work today, based on the number of telephonestations in central settlements has been followed and its results and conclusions have been controlled in many countries. In Hungarian settlement geographical literature after liberation, first at the investigation of sphere of influence of Szeged have been utilized similar data (Éliás R. 1954). In this study instead of telephone stations the number of calls started from the centre and directed to the surrounding settlements has been taken as a basis. The subsequent studies started with Szeged as well, and later were extended to the Southern Great Plain and other territories of the country (Tóth J. 1970, 1973; Tóth J., Dövényi Z., Simon I. 1974; Tóth J., Mosolygó L., Tániczos-Szabó L. 1974). These investigations on the one hand have tried to delimit spheres of influence of the centres on the basis of the number and proportion of calls started from the individual settlements and directed to the centres, on the other hand, they contributed to the recognition of interrelations between the centres. On the basis of the rate of calls initiated in the centres and directed to other centres and of the total calls, delimiting primary, secondary and tertiary relationship, the relation pattern of the centres has been outlined on the territory investigated offering important aspects to the hierarchic order of the centres as well.

The utilization of data related to long-distance calls, in the research on relations between centre and sphere of influence resp. on intercentral relations is promising, because different relationships established between the individual settlements are summed up in telephone calls production, traffic, direction, administration, education, sanitation etc. We can consider long-distance calls as common denominators of all of the connections established, and we get a simple and very good method such a way to reveal the relation between centre and sphere of influence and the intercentral relation pattern. The applicability of this method has been proved by the spheres of influence delimited by other attraction factors. They coincide with each other quite well. The situation is similar with the relation of the centres and their hierarchic order.

The main characteristics of the data related to calls in Hungary, and especially in the Great Plain, that the pattern of sphere of influence and intercentral relation pattern outlined with the help of them strongly fall into line with the administrative territorial units of administration. This is due first of all to the fact, that in Hungary the number of telephone stations is comparatively low as compared to the international situation, and more than 60 % of these stations have been installed at public institutions. On the basis of telephone connection, in Hungary, first of all, telephone relation pattern of public institutions may be known. Starting from the fact that this relation pattern through its main components, reflect intercentral relation system conforming to reality, from the point of view of our inquiry, this characteristic of the Hungarian telephone network does not mean any obstacle.

The data examined are based on the representative survey of the Hungarian Post Office in 1971 and 1972.

3 THE MAIN CHARACTERISTICS OF INTERCENTRAL RELATION PATTERN OF THE GREAT PLAIN

The map (Fig. 1) drawn summarizes the results of the inquiry, quantifies the five most intensive relationships between the centres in percentage of the total number of calls between the centres. Conforming to the national development conception of settlement network, beside partial secondary centres some other smaller centres are marked as well.

On the basis of long-distance calls the main characteristics of intercentral relation pattern of the Great Plain can be summarized as follows:

3. 1. Relation between Budapest and the centre in the Great Plain

The main characteristic of Hungarian settlement network is the predominance of Budapest and owing to this fact the county seats and the settlements having central function near the capital are primarily attached to the capital. This attachment is very strong, sometimes it reaches one quarter or one third of telephone calls initiated in the county seat and directed to the central settlements (Kecskemét 33,1 %, Békéscsaba 24,5 %, Szeged 36,3 % and the more remote Nyiregyháza 20,2 %).

3. 2. Regional centres of the Great Plain

The two regional centres of the Great Plain are Szeged and Debrecen. Disregarding the fact that the intensity values connected with them are high, they rise above in the relation system of centres, because they are not only the centres of their own countries, but settlements of outer counties are attached to them. This statement is first of all effective in the case of Debrecen, there is a special case here, namely, that Nyiregyháza the neighbouring county is primarily attached to Debrecen (not regarding the relationship with Budapest). The other centres of Szabolcs-Szatmár County, Tiszaszavári, Nagykálló, Métézszalka and Kisvárdá are attached secondarily, Nyirbátor tertially to Debrecen. The effect of Debrecen is less strong to the

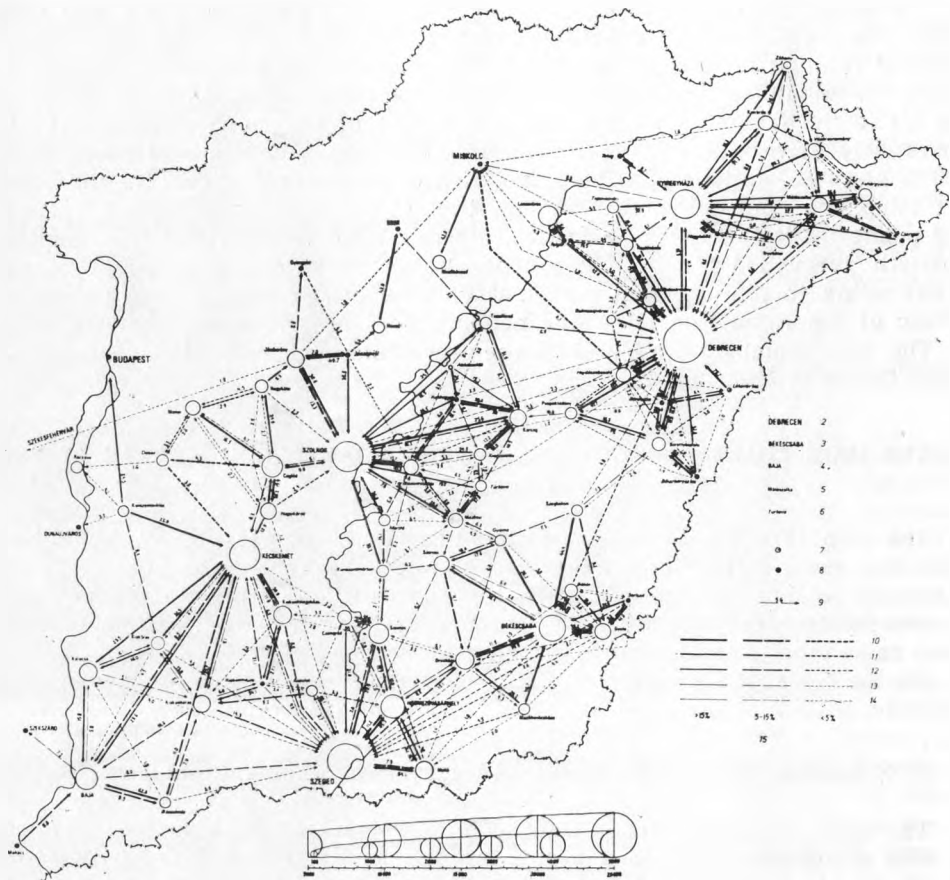


Fig. 1. Communication links between centres on the Great Hungarian Plain based on long-distance telephone calls.

1 — the size of the circle is proportional to the number of telephone stations [the towns are at least partial secondary centres], 2 — major primary centre, 3 — primary centre, 4 — partial primary centre, 5 — secondary centre, 6 — partial secondary centre, 7 — other centres, 8 — centres outside the Great Hungarian Plain, 9 — direction of interconnections [the number indicates the % share of telephone calls from linked settlements to the centre, which is shown by arrow] degree of interlinkage, 10 — of first order, 11 — of second order, 12 — of third order, 13 — of fourth order, 14 — of fifth order, 15 — intensity of interlinkage.

direction of the Middle-Tisza region: we can find here third-order and fifth-order relations only [Tiszafüred, Spolnok, Karcag].

The effect of Debrecen—though much more weakly—manifests itself to the direction of the Southeast Great Plain.

In the case of Szeged — not counting the intensive relation system to Csongrád County — first of all the relationships to the Southeast Great Plain are

worth mentioning (Orósháza, Szarvas and Mezökovácsháza). From the southern part of the Danube-Tisza interfluvium the relation between Kiskunhalas and Kiskunmajsa is considerable. The further centres of the South Great Plain are comparatively loosely connected to Szeged.

Beside regional centres in the case of Szolnok and Kecskemét can be found such relations, which leads us to believe that they have some function outside the county as well (Szolnok-Cegléd, Szolnok-Nagykátá, resp. Kecskemét-Nagykörös, Kecskemét-Cegléd).

3. 3. Role of county boundaries in the international relation pattern

The county boundaries separate quite well the areas of „condensation“ of intercentral relation pattern. There is only deviation where the county seat is a regional centre on a high hierarchic level as well. Particularly the boundaries of Hajdu-Bihar and Szabolcs-Szatmár Counties resp. Csongrád and Békés Counties become „indistinct“. Relations are loose between Szolnok and Hajdu-Bihar Counties. (To emphasize his fact is justified, because according to the planning-economic regions established by the National Planning Office, Szolnok County is — in a unified region with north-Transisza regions—within the frame of North Great Plain with Debrecen as centre.) The interrelations between the Hajdu-Bihar and Békés County centres are very loose. Similar is the situation between Csongrád and Szolnok. The relationship between Szolnok and Pest, resp. Bács-Kiskun and Pest Counties is extremely strong due to the effect of Budapest.

3. 4. The county axes

The so called county axis, as one form of the specially strong-relations formed in the individual countries marks the intensity of primary interrelations between the county seat and the so called second town. In Hungary the county axis can be found in every county (Szabolcs-Szatmár County is an exception, where Nyiregyháza is primarily attached to the seat of neighbouring county. The second-order county axis here is the line Nyiregyháza-Kisvárd). In Hajdu-Bihar County Debrecen-Hajduszoboszló, in Szolnok County Szolnok-Törökszentmiklós, in Békés County Békéscsaba-Gyula, in Csongrád County Szeged-Hódmezövársárhely, in Bács-Kiskun Kecskemét-Kiskunfélegyháza lines constitute the county axes. As to the latter, we can state that Bács-Kiskun County — as a consequence of its large extent and the strong organizing function of Baja in the southern part of the county — so to say split into two, Kecskemét and Baja are tied together only with secondary county axis, and the effect of Baja can counterbalance the attraction of the county seat south to the line Kalocsa-Kiskunhalas-Bácsalás. The relatively strong relations between Baja and the south-Transdanubian centres (Szekszárd, Mohács), justify the partition of Bács-Kiskun County, too.

4 SPECIAL CENTRE RELATIONS IN THE GREAT PLAIN

The centre relations are considered particular which rise above with intensity from the other relation system of the area examined.

Of late years, as a result of the inquiries on the South Great Plain, more town groups have been mentioned being in special relation (Tóth J. 1972), and later the town group in Middle Békés County has come to the forefront of interest (Bakonyi D. 1973, Dányi P. 1976, Tóth J. 1977).

On the basis of long-distance calls, in the Great Plain the following special centre relations can be emphasized.

4. 1. Nyiregyháza-Nagykálló

The interrelation between the earlier county seat and its former rival having grown large, is exceptionally intensive (80 % of calls from Nagykálló directed to settlements with central function go to Nyiregyháza; Linkage of Nyiregyháza to Nagykálló is also relatively strong). The role of interrelation between the two settlements today is lagging behind the significance of relations between Nyiregyháza and Mátészalka, resp. Nyiregyháza and Kiszvárd, but owing to proximity it reflects stronger and stronger functional interdependence.

4. 2. Szentes-Csongrád

On the two banks of the Tisza river, Szentes and Csongrád are situated to hardly more than 10 km distance from each other. Between them there is an important crossing-place both of public road and of railway. The interrelation of the two settlements is intensive [a linkage of 45 %, resp. 15 %] and it shows a steadily increasing tendency. It would be expedient in any case to put the co-ordinate development of the two towns on the agenda, so much the more as the building of the Tisza III barrage will result in significant structural changes in this territory.

4. 3. The Szeged-Hódmezővásárhely-Makó triangle

The intercentral relation system of the towns situated on the vertex of triangle Szeged-Hódmezővásárhely-Makó deserves special judgement. Szeged has dominant role in both cases as far as in Makó-Hódmezővásárhely. Relation between Szeged and Hódmezővásárhely is specially intensive and strong, but the relation between Szeged and Makó is also developing this way, particularly by means of the process of agglomeration inducted by Szeged in the area between them.

4. 4. Centres in Middle Békés County

This settlement group is the most special one of the Great Plain. The relations among the settlements constituting the group are many-sided and intensive and show an increasing tendency. It is well worth examining the relation pattern of the settlement group in detail (Fig. 2).

Within the Middle Békés urban region [Békéscsaba, Gyula, Békés, Mezöberény, Sarkad] a core territory is distinguished with its dynamism and decisive influence. From outside it is enclosed by zones of smaller settlements inten-

sively connected to the individual members of the urban region. The urban region is the main focus of population concentration in the county: in our days, 36,6 % of the population live on 18,4 % of the territory, so population density is double here [152 persons/km²] regarding the county average. The former statements are emphatically valid to the core territory of urban region, where the number of population, from the first census after the libera-

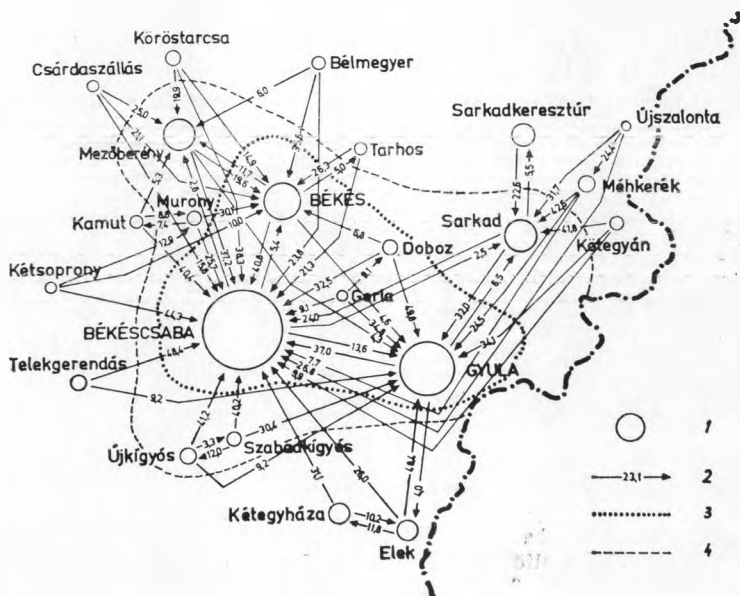


Fig. 2. Interlinkage between the group of towns and nearby smaller settlements in central Békés County on the basis of long-distance telephone calls.

- 1 — 500 calls [it is directly proportional to the total number of calls attempted],
 2 — direction and ratio of the call from the total number of calls attempted, 3 —
 boundary of the inner-city [town], 4 — boundary of the town.

tion to our days, has grown by one quarter, while the total population of the county has decreased by 8 %.

The most intensive intercentral relation of the urban region is between Békéscsaba and Gyula based on a functional division of labour to a certain extent. Though this relation shows a slight superiority from the part of Békéscsaba, basically it is considered balanced as well. Békéscsaba has intensive relation with Békés and Mezőberény, and its relations to Sarkad are of medium intensity. In all the three relations the dominance of the county seat can be observed. The relation between Gyula and Sarkad is intensive and shows the dominance of Gyula. The relation of medium intensity between Mezőberény and Békés is essentially well balanced.

The close and many-sided relations within Middle Békés urban region re-

flected well by the long-distance calls unanimously indicates that this special structure must be considered as an integral whole, particularly in place for development and within reasonable time even in administration as well.

5 SUMMING UP

a) A tendency can be observed according to which the intercentral relation system becomes stronger and many-sided.

b) This relation pattern can be revealed on the basis of the number, direction and proportion of long-distance calls.

c) Within this relation system the settlements being on a higher hierarchic level the regional centres and county seats play an organizing and directing role. The centres on a lower hierarchic level are attached to them with different intensity.

d) The so called particular centre relations are specially remarkable, because the areal and regional planning has to take the settlements into consideration on the basis of their interrelations and the co-ordination of their development has to be solved as soon as possible.

e) From this point of view, the most intensive intercentral relation system, the centre group of Middle Békés County is of prominent importance. Its co-ordinate development is an indispensable necessity.

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INTERCENTRÁLNY SYSTÉM VÄZIEB ALFÖLDU

Rozvojom výrobných síl, prehlbovaním deľby práce stále viac silnejú a stávajú sa všestrannejšími vzájomné väzby medzi jednotlivými územiaми a sídlami.

Zrýchlený hospodársky vývoj, základná zmena výrobnjej štruktúry, najmä posledných desaťročí na tradične agrárnych priestoroch Maďarska, predovšetkým na Alfölde, v porovnaní s minulosťou signifikantne posilnili územný a intercentrálny systém väzieb. V tomto, okrem činiteľov, ktoré vplývali aj skôr [komunikačné siete, trhové väzby, sústava verejnej správy, riadenia, plánovania a iné], úlohu mal predovšetkým rast významu spriemyselňovania a terciérnych funkcií.

V medzimestských telefonických rozhovoroch, ktoré sa uskutočňujú medzi jednotlivými centrami, sumujú sa a dostávajú na spoločného menovateľa väzby veľmi rôzneho druhu [výroba, organizácia správy, školstvo, zdravotníctvo, doprava a iné], ktoré vznikajú medzi danými sídlami. Teda analýzou počtu a pomeru telefonických rozhovorov možno dosť presne poznať štruktúru a intenzitu intercentrálneho systému väzieb, ktoré ináč možno odhaliť iba mnohostrannými, zložitými, na údaje náročnými a ťažko sumarizovateľnými výskumami.

V intercentrálno systéme väzieb Alföldu dôležitú úlohu majú župné hranice. Väzby, ktoré tieto presahujú, majú iba dve regionálne strediská a to Debrecín a Segedín, v menšej miere Szolnok a Kecskemét. Podstatným prvkom vnútorného župného systému väzieb je tzv. župná os, väzba župného sídla a „druhého mesta“. Všetky strediská Alföldu, podobne ako mestá ostatných častí štátu a primerane svojráznosti maďarskej sídelnej siete, silne sa viažu k Budapešti. Alföldské a zadunajské, prípadne alföldské a severomaďarské centrálné väzby sú omnoho voľnejšie.

Medzi jednotlivými mestami sa vytvorili obzvlášť intenzívne intercentrálne väzby. Tieto, čo dokazujú aj výsledky iných výskumov, silnejú a stávajú sa stále mnohostrannejšími. Z centrálnych väzieb Debrecín—Nyiregyháza, Nyiregyháza—Nagykálló, Szentes—Csongrád, Segedín—Hódmezővásárhely—Makó a stredobékeškej [Békéscsaba—Gyule—Békés—Mezőberény—Sarkad] si pozornosť zasluhujú najmä posledné aj z toho hľadiska, že intenzita väzieb v dôsledku územnej blízkosti a potreba koordinovaného rozvoja sú tu najzjavnejšie.

Obr. 1. Komunikačné linky medzi strediskami vo Veľkej uhorskej nížine na základe diaľkových telefónnych hovorov.

1 — veľkosť kruhu je úmerná počtu telefónnych staníc (mestá sú aspoň čiastočne druhoradé strediská, 2 — hlavné prvoradé strediská, 3 — prvoradé strediská, 4 — čiastočne prvoradé strediská, 5 — druhoradé strediská, 6 — čiastočne druhoradé strediská, 7 — ostatné strediská, 8 — strediská mimo Veľkej uhorskej nížiny, 9 — smery spojení (počet je vyjadrený percentuálne podľa množstva telefónnych hovorov z napaženého sídla do strediska, čo sa zasa znázorňuje šípkou), stupeň prepojenia, 10 — prvého rádu, 11 — druhého rádu, 12 — tretieho rádu, 13 — štvrtého rádu, 14 — piateho rádu, 15 — intenzita prepojenia.

Obr. 2. Prepojenie medzi skupinou miest a okolitých menších sídel v strednej časti Békešskej župy, na základe diaľkových hovorov.

1 — 500 hovorov (čo je priamo úmerné k celkovému počtu pokusov o hovory), 2 — smery a podiely hovorov z celkového počtu pokusov o hovory, 3 — hranice vnútorného mesta, 4 — hranice mesta.

МЕЖЦЕНТРАЛЬНАЯ СИСТЕМА СВЯЗЕЙ АЛЬФЭЛЬДА

Взаимные связи между отдельными территориями и населенными пунктами становятся все более тесными и многосторонними благодаря развитию производительных сил и дифференциации распределения труда.

Благодаря быстрым темпам экономического развития, а также вследствие коренных изменений в производственной структуре, преимущественно за последние десять лет, на традиционно аграрной территории Венгрии, главным образом на территории Альфёльда, существенно усилилась территориальная межцентральная система связей. В этом процессе кроме факторов имеющих место и раньше (система путей сообщения, рыночные связи, система административно-управленческая и организационно-плановая и т. п.) важную роль играло, прежде всего, повышение значения индустриализации и третичной сферы.

В междугородных телефонных переговорах, имеющих место между отдельными центрами, суммируются и как будто получают общего знаменательная связь разного рода (производственные, по организации, управлению, обучению, здравоохранению и т. д.) возникающие между этими населенными пунктами. Таким образом, путем анализа количества и доли (пропорций) телефонных переговоров довольно точно можно апроксимировать структуру и интенсивность межцентральной системы связей, которую иначе пришлось бы устанавливать путем сложных, многосторонних, требовательных и трудно поддающихся подытоживанию исследований.

В межцентральной системе связей Альфёльда играют важную роль границы медье (областей). Выходящими за эти границы связями обладают лишь два региональных центра: города Дебрецен и Сегед, а в некоторой степени также города Сольнок и Кечкемет. Основным элементом внутриобластной системы связей является т. н. ось медье (внутриобластная ось), образованная административным центром медье и „вторым городом“ медье. Все центры Альфёльда — подобно городам других областей страны и в свою очередь характерным особенностям сети венгерских населенных пунктов — крепко связаны с Будапештом. Значительно слабее этого связи центров Альфёльда и Дунаутула или Альфёльда и Северной-Венгрии.

Между отдельными городами образовались особенно интенсивные межцентральные связи. Как следует из другого рода исследований, эти связи становятся все более тесными и многосторонними. Среди центральных связей городов Дебрецен — Ньиредьхаза, Ньиредьзаза — Надькалло, Сентеш—Чонград, Сегед—Ходмезёвашархей—Мако и центров Среднебекешской области (Векешчаба — Дьюла — Бекеш—Мезёберень—Шаркад) заслуживает внимание связь последней группы городов, впрочем из-за того, что интенсивность связей в результате территориального соседства и необходимость координированного развития является в этом районе наиболее очевидна.

Рис. 1. Линия связи между центрами Альфёльда, полученные на основании статистики междугородных переговоров.

1 — размер окружности отвечает числу телефонных станций в населенном пункте (города являются хотя бы частично второстепенными центрами), 2 — главные центры первой степени, 3 — центры первой степени, 4 — частично первостепенные центры, 5 — центры второй степени, 6 — частично второстепенные центры, 7 — прочие центры, 8 — центры вне Альфёльда, 9 — направление связи (цифра означает долю переговоров с показываемым стрелкой центром в процентах от общего числа переговоров в данном центре); порядок связи, 10 — первого порядка, 11 — второго порядка, 12 — третьего порядка, 13 — четвертого порядка, 14 — пятого порядка, 15 — интенсивность связи.

Рис. 2. Связь группы городов медье Средний-Бекеш с окружающими населенными пунктами, полученная по статистике междугородных переговоров.

1 — 500 переговоров (размер пропорционален общему числу вступлений в связь), 2 — направление и доля переговоров от общего числа переговоров, 3 — граница ядра городского региона, 4 — граница городского региона.