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SPATIAL CONNECTIONS OF RURAL SETTLEMENTS. INVESTIGATIONS IN SZOLNOK COUNTY

New processes of settlement network transformation such as the slow-down of urban sprawl and the improvement and appreciation of settlement in rural areas have called increasing attention to the spatial problems of rural settlements. As a consequence of the multiplication of functions in rural settlements, increase in incomes, change in needs, and spread of motor cars, the rural population realise the need for the establishment and maintenance of regular spatial linkages or connections that exceed the boundaries of settlements as a part of everyday life. These are comprised, on the one hand, of traditional connections between the towns and villages /e.g., selling goods in town markets/; and, on the other hand, of an increasingly complex and developing system of socioeconomic, as well as technological-infrastructural, connections within the settlement network. The spatial location and possible linkages /incl. quantity and quality/ of rural settlements can primarily influence further development of these settlements as well as the living conditions and wage earning potential of the rural population as demonstrated by several investigations in both the Hungarian and international literature. As stated in the study of Beluszky and Sikos /1982/ titled "Types of rural settlements in Hungary": "the elements of the settlement network took the lead in shaping the functions and life of rural settlements in Hungary; moreover, the

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location, size and possible connections with dynamic regions determine profoundly the character and development of a settlement and the responses of its population."

M. Moseley /1979/ devotes a whole book to the problem of the "Accessibility - The rural challange." "Accessibility is simply the ability of people to reach and to be reached by the services or activities they require. Access to rural resources, even more than the local-scale presence or absence of the resources themselves, has become the crucial challenge in rural resource management."

The space over which rural population movement occurs to meet demands is complex. It is possible to examine this space from two directions: from the side of the central function settlement to determine the settlements and extent of the attraction zone; and from the side of the rural settlements to determine if service institutions available in the central function settlements are able to meet demands. The present paper describes an investigation within the latter direction. Rural population in Szolnok County were requested to complete a questionnaire regarding the purposes and directions of regular connections with central function settlements. Responses were then analysed to establish spatial connections involving 9 groups:

1. connections of public administration and public authority;

2. connections of ordinary labour;

3. connections with retail trade and market;

4. connections with education and culture;

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5. connections of public health care;

6. connections of basic services;

7. connections of permanent migration;

8. connections of transport and communication;

9. other, intersettlement connections.

The results of the investigations will be presented as follows.

2. Main characteristics of different spatial connections

There are two basic groups of spatial connections. One group involves connections regulated administratively by state and public institutions and thus generally differ from spontaneous connections and decisions made by the population. The "deviations" influence largely the feelings and the relations of rural population to the settlements. It is also beyond question that every factor to be arranged in space /such as economy or infrastructure/ develops in a differentiated way; therefore, the connections made by them constitute several hierarchical levels. The number of outward connections refers to the development, and basic service level, of transport facilities to rural settlements; while inward connections relate to the institutional network and the prescribed hierarchical level of the central function settlements.

All the councils of rural settlements under examination had to complete a questionnaire containing 240 questions. 30 percent of the questions could be answered by quantitative data /e.g., on

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migration, commuting, attendance of secondary schools, transport links, etc./; while the remainder had to be fulfilled qualitatively by determining characteristic directions of connections. These data were complemented by published data sources and time-distance matrices from time tables. All data were run on a computer and worked out in two steps in accordance with the purposes of the investigation.

In the first instance, data lists of connections described above were prepared for all settlements; these data lists contained the size and intensity of all inter-settlement connections by branches. In the second instance, apparent spatial movements of settlements were illustrated by vector-algebraic methods considering each spatial movement and connection as a vector. So, the attraction of different branches and different centres could be represented for rural settlements, which made it possible to present and analyze the branch and complex attraction zones and transport characteristics. All this aimed to determine the harmony of branch connection regions; contradictions between administratively regulated and spontaneous connections; "key settlements" rising from rural settlements; and rural settlements having or not having adequate basic services. At the same time, connections between adjacent settlements represent the intensity of settlement network operation.

The investigations made the interdependence clear and evident by determining precisely the actual attraction linkages of different central function settlements, regardless of their designation within the settlement network development concep-

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tion. Moreover, the nature of these spatial linkages were also revealed. Accordingly, both the attracting and attracted settlements can be divided into 3 groups.

In the case of the attracting settlement;

- the county seat rose from a town centre and developed dynamically during the last 40 years. In accordance with county seat functions, a network of institutions and schools were established, and the number of workplaces has doubled, too. The number of inward connections of Szolnok /being the county seat/ is higher by two times than that of Jászberény, which takes second place. Besides the functional urban zone of 16 settlements, the county seat has intensive attraction connections with some 30 rural settlements. The indications of agglomeration can be noticed in rural settlements in the direct inner ring due to their interdependence;

- the linkages of other towns do not cover so wide an area; a significant part of their spatial connections is comprised of those that are regulated administratively;

- the third, special group involves centres of small regions; these centres do not have urban status; the population of peripheral villages makes use of these centres in meeting demands.

The investigations revealed that the lower the level of hierarchy of a central function settlement, the greater is the number of inward connections based on spontaneous population decisions. Consequently, the strict network hierarchy determined by the national settlement network develop-

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ment concept of 1971 can be followed only partly by persistent and regular connections.

Taking into consideration the outward connections, the attracted settlements constitute the following groups:

1. The group of rural settlements connecting intensively to the designated centre.

2. The group of rural settlements connecting to several towns not so intensively. These settlements are situated generally along the main transport lines; if it is necessary, they make use of the services of different centres surpassing the designated administrative attraction borders.

3. The group of backward rural settlements connecting intensively to the centres of small regions that do not have urban status. Because of the low level development of their centre, these settlements can only partly obtain urban goods.

The spatial structure of linkages indicates that in the course of development of the settlement network, a centre's actual attraction connections and the harmony of these connections were disregarded; only the herarchical level of the centre and the size of the area to be provided with services was declared. This caused tensions for rural population and determined certain processes. These facts were justified by different attraction connections.

- Production linkages and spatial connections of branches of production /i.e., industry and agriculture/ are hardly connected to other factors; they increased the number of functions of centres only. A surprising phenomenon is that

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regional decentralization of industry was accompanied by strong centralization in organization of industrial enterprises resulting in a decreasing effect of settlement development on the dependent industrial branch plants in rural settlements.

Regional mergers of large agricultural firms contributed to expanding production connections; but they did not coincide with the designated attraction connections of public administration at all. In addition, agricultural labour force move in increasingly extended areas.

- One of the most lasting elements of spatial linkages is daily commuting. Typically, this connection causes the increase in other connections only in the case of rural settlements having intensive connections with the central function settlement; in other rural settlements, there is a strong correlation with constant migration, which means a migration of population of badly supplied rural areas to the centre of commuting. Because the spatial unity of residence and place of work has disintegrated, dormitory settlements are able to provide services and goods to a much lesser extent than, e. g., the county seat.

- Spatial connections of a public administration and authority nature are directed primarily to towns and, as a rule, they do not coincide with movements caused by the other factors examined. The real attraction zones of regions of small centres playing an outstandingly important role in the supply of villages belong to 2 or 3 administrative districts generally.

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- Health connections also have been prescribed similarly to the administrative districts resulting in insufficiencies strongly influencing the feelings and relations of rural population to their settlements.

- Retail trade and market connections can cover small regions rather precisely; this is just the field where small rural centres can be considered very important.

- Urban predominance is evident in service, educational, and cultural connections; but in these spatial connections the level of development differs greatly.

- Transport conforms expecially to other connections, serving them only partly. Mass road transport meets only the needs of daily working; should other connections have other directions, they must face insufficient connectivity.

When the investigations showed a great number of spontaneous connections, generally private car traffic and use of enterprise buses solved transport problems. At the same time, the development of small centres that earlier had important functions of spatial organization was stopped, thus preserving their significant transport role and maintaining their traditional rural connections /e.g., selling in markets/.

Summary

The following conclusions can be drawn:

- Connections should be developed in coordination with their nature and duration. Parallel

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with the increase in rural incomes, more possibilities should be afforded in meeting the increasing demands. As justified by investigations, the level of satisfying needs is much more important than the absolute increase in incomes. One solution can be the increase of the role of small rural centers in supplying regions. The method applied makes it possible to determine these small regions.

- It can be generally stated that an interference with the different branches is not followed by making the other connections clear or by estimating its effects; consequently, "complex movement spheres" serving satisfactorily the everyday movement sphere of rural population cannot be formed.

- Spatial connections are closely related to different types of rural settlements. Rural settlements living together intensively with towns and having numerous connections have a stagnating population, while rural settlements having lower connections with smaller centres of lower levels of development have a decreasing population.

In agreement with P. Cloke, this connection analysis has also proved that: "The future of rural settlements is the future for all human settlements."

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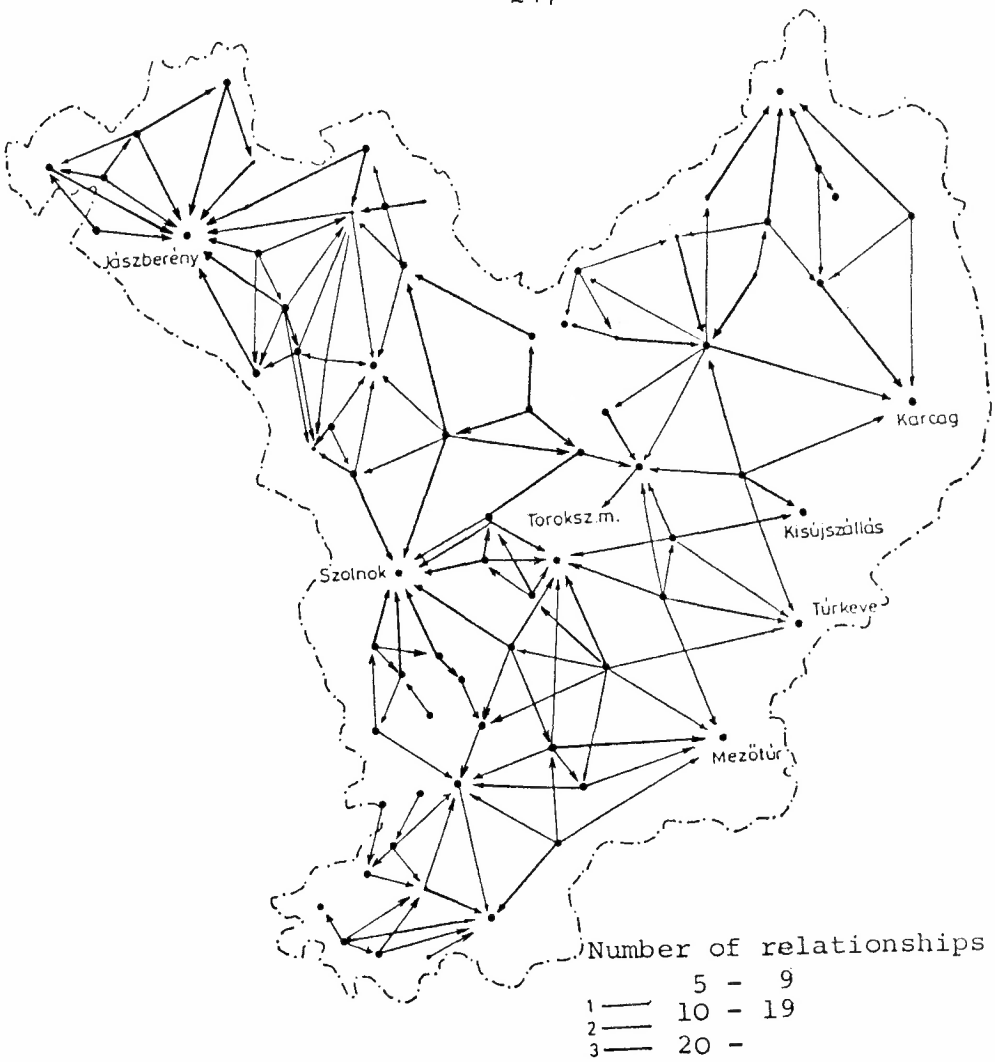

FIGURE 1 Dynamics of network of inter-settlement linkages

Table 1

Distribution of all inter-settlement linkages per categories of settlements /%/, 1985

The number and distribution of outward connections investigated from settlements not having an urban status		Directing to: towns /8/	key settlements /4/	other rural settlements /60/
number	5,103	3,456	891	756
distribution	100.0	67.7	17.4	14.9

		Directing to: high-level centres /1/	medium-level centres /4/	medium-level co-centres /6/	low-level centres /35/	low-level settlements /27/
number	5,103	1,563	1,295	1,079	1,015	151
distribution	100.0	30.6	25.4	21.1	19.9	3.0

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Table 2

Branch structure of inward connections investigated of towns and key settlements, 1985

The direction of connections		CONNECTIONS OF Public Administration	Retail Trade	Basic Services	Education	Public Health Care	Commuting	Migration	Transport
1. Szolnok	100.0	11.3	23.2	12.4	14.2	25.4	2.7	4.2	5.6
2. Other towns	100.0	17.5	27.6	13.4	9.1	21.8	2.3	3.8	4.5
1+2. Towns total	100.0	15.1	25.7	13.1	11.5	23.0	2.5	4.0	5.1
3. Key settlements	100.0	10.3	38.6	14.9	11.5	12.8	3.0	2.8	6.1
2+3. Centres total	100.0	13.5	27.8	13.4	11.5	21.9	2.8	3.8	5.3

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Table 3

Characteristic data on rural key settlements in Szolnok County

Key settlements	Number of all inward connections	Number of population supplied actually on the basis of inward connections, 1984	Its proportion as to all population number of the county,
1. Kunszentmárton	393	22,369	5.1
2. Kunhegyes	204	27,842	6.3
3. Jászapáti	150	28,732	6.5
4. Tiszaföldvár	146	18,313	4.2
/Martfü/	101	24,488	5.5[xx]
5. Ujszász	64	8,564	2.0
6. Jászárokszállás	59	3,639	0.8
7. Kunmadaras	53	6,423	1.5
8. Jászladány	39	10,248	2.3
Comparative data on towns:			
Szolnok	1,563	224,419	51.0
Jászberény	701	75,286	17.1
Törökszentmiklós	352	45,566	10.3
Tiszafüred	283	22,814	5.2
Mezőtur	211	22,457	5.1
Kisujszállás	101	26,352	6.0
Karcag	100	30,343	6.8
Turkeve	46	913[x]	0.2

[x] Total population number of attracted settlements having more than 5 connections

[xx] Due to labour force attraction