

The effect of the county border on the attraction zone of towns giving the example of Hajdú-Bihar County

1. Introduction

Towns constitute 7% of the settlements of Hungary while they represent 65-67% of the population. This value roughly corresponds to the European Union average. Their number, however, considerably grew in the past decade. While in 1980 there were 96 settlements with town ranking, in 1990 there were already 177 and at present there are 256 which is more than 2.5 times more than it was in 1980. Nevertheless, there are significant differences in their size and scope of activities.

The research focuses on the study of the urban fields of the towns lying along the borders of Hajdú-Bihar county pointing out those small town secondary functions whose attraction remain within the administrative border and those which cross it.

The research of the regions of urban attraction may be regarded important and topical from the following aspects:

- it is one of the most diversified and most interesting fields of geography since the system of urban attraction reflects the complex impact of many factors (physical geographical, transport geographical, settlement geographical, historical geographical, economic and social geographical, etc.)
- it may provide help in the establishment of economic, cultural and public health institutions
- the thorough research of the regions of urban attraction provides the most reliable image of urban development on a settlement
- it reveals the geographical extent of the relations provided by the settlement
- it demonstrates the peculiarities of the spatial structure
- the attraction conditions may reflect emotional relations which is one of the basic elements of the bottom-up movements and locality
- the administrative system of Hungary must be adjusted to the EU requirements in which the microregions based on the attraction conditions will get an important role

2. Structure of the thesis

The thesis is divided into five main parts. The Introduction points out the importance and applicability of the urban field researches in Hungary. The problems related to the research of the studied area are also pointed out in the introductory chapter.

The second chapter is intended to sum up the theoretical background. Since the sectoral approach is given high priority within the urban field researches, therefore there is an analysis of the Hungarian and international literature by sectors as well – besides the general summary – before the empirical analysis is started.

The longest and most important part of the thesis is constituted by the empirical research which is based on own surveys and results. Within this, each sectoral functions were examined on the selected settlements and the complex urban fields of the towns were determined on the basis of the results. The extent of the realisation of the set objectives and the affected fields are also included in this chapter.

Finally, the possibilities of the application of the results in regional development and planning are pointed out and the future research possibilities are outlined.

Set objectives – tasks to be solved

Two basic objectives directed the writing of the thesis. One of the objectives was to study the complex urban fields of the towns along the county border on the basis of the selected functions and the other was to find an answer to the question whether the county border has an impact on the attraction fields of the towns or not.

The prescription of the regional development and planning tasks on the basis of the found results was also regarded as a mission of the thesis.

I. Tasks to be resolved in relation to the designation of the urban fields of the studied towns

The collection of the data related to the urban functions (public institutions, public health, transport, education, labour force attraction, commerce, spread of daily papers, tourism) and the collection of an applicable database was regarded as a primary task. Regions of urban attraction by certain functions and complex regions of urban attraction were prepared on the basis of the database applying the later discussed method.

II. Tasks related to the determination of the regional development and planning possibilities

Within this, the thesis focuses on the exploration that to what extent the complex urban fields follow the county border and where the variations occur. With the application of these results the possibilities for regional development and planning were determined together with the opportunities of the continuation of the work.

3. Methods applied in the research

Collection of the information database

Two methods were applied for the collection of the database used during the research. The research partly relied on already available data and partly on data collected by the author.

Primary data sources

One of the biggest barriers of the researches related to urban fields is set by the shortage of the data. This is due to the fact that the necessary databases can be hardly accessed in the statistical offices and institutional statistics in many cases or they cannot be accessed at all. It may even occur that the collected data are insufficient or there is no data at all for some functions. These cases required individual data collection based on various methods. The method of questionnaires (pre-compiled closed- and open-ended questions), customer-counting in the shops and information collection provided by the invoices issued in the shops as well (with the purpose of getting information on the turnover of the shops and the distribution of the customers by residence). The study of the spread of newspapers published in the centre required the collection of all publications which are available in the towns while the database

on education and library attendance relied on information gained from the school registers and the reader's cards.

Secondary data sources

Most of the data is derived from the available publications of the Central Statistical Office – which primarily means the County Statistical Yearbooks (1990-2001) and the statistical databases of the institutions (outpatients' clinic, hospitals, self-governments, etc.). The timetables of the MÁV (Hungarian State Railways) and Volán (Hungarian Coach and Bus Company) companies were also consulted as well as the websites of the studied settlements.

4. Methods applied during the evaluation

After the compilation of the database, the data were recorded in tables (Excel 97) and some of the data underwent mathematical processing with using the SPSS for Windows program. Maps were also used besides the traditional ways of presenting the data (tables, figures, diagrams). Some of them were taken from previously published works while most of them were drawn individually with the application of the ArcView software.

5. Geographic demarcation of the studied area

The author had a relatively easy job when demarcating the studied area since the research area was actually determined by the borders of the county. In the course of the research, however, many questions arose. First of all, it occurred whether the attraction fields of the county seats should be included in the research or not. Secondly, it occurred whether the attraction zones of the towns lying along the eastern border of the county – that is along the state border – should be included in the research or not. Both cases were finally omitted. The county seats – as a consequence of their position – would have distorted the urban fields since from our aspect the attraction powers of Szolnok or Békéscsaba cannot be compared with those of Nyíregyháza or Debrecen. Thus, it seemed more rational to omit the county seats from the research. The study of the attraction power of the towns along the state border may have also caused a distortion because – as it was demonstrated – their attraction is one-sided and very weak – or even missing – due to the low number of border stations and the irksome border crossing procedure. Despite of what is written above, the complex urban fields were drawn for three towns (Létavértes, Vámospércs and Biharkeresztes) but were not included in the final evaluation.

Eventually, those towns were covered by the research which lie along or close to the county border from an administrative point of view and there is a town “opposite to them” satisfying the above mentioned criteria on the other side of the county border. The final list is as it follows: Nyíradony-Nyírbátor, Hajdúhadház(-Téglás)-Újfehértó, Hajdúnánás-Tiszavasvári, Polgár-Tiszaújváros, Tiszacsege-Tiszafüred, Püspökladány-Karcag, Berettyóújfalú(-Komádi)-Szeghalom(-Füzesgyarmat).

6. Main conclusions of the research

6.1. Results received from the consultation and evaluation of the special literature

Several researches have been conducted concerning the urban fields of many settlements and larger territorial units in Hungary but there is no comprehensive map of the urban fields prepared yet. It happened despite of the fact that the inter-settlement relations started to play a more and more important role in the economic life of the country. The lack of these researches may be felt especially in the regions without urban centres and in the regions with uncertain urban connections (for example, when the county border is responsible for dividing the urban fields).

The changes occurring in the urban-rural relations in the past few years were also omitted although considerable transformation processes could be detected in this respect as well.

First of all, the secondary administrative units (districts, urban environs) ceased to exist and thus the number and significance of the administratively laid out functional barriers diminished.

Secondly, the number of companies and institutions operating across the administrative borders decreased and thus the role of the administrative borders in the formation of the urban fields also diminished. As a consequence of this, the new economic organisations, enterprises and companies with economic and personnel service could settle down independently from the former hierarchy and their attraction areas are formed not by the shackles of convention but the rules of competition.

Thirdly, the incomes of most of the population lowered and in parallel with this the effective demand for the urban goods decreased.

Fourthly, as a consequence of the rise in prices of the public transportation, the number of commuters and its rural-urban intensity also decreased.

Finally, the ratio of private transport increased which loosened the closed nature of the former urban fields and decreased the uniform nature of the central institutional network.

All the above explain why the research of regions of urban attraction needs to get into the foreground again in Hungary.

6.2. Conclusion drawn from the study of the sectoral attraction fields of the towns lying along the county border

Transportation is an important factor in the formation of the urban fields for it is indispensable for a town to have good connections with its attraction area and requires proper access, roads and means. Both the railway and road networks had been studied to see the quantity and the quality of the roads leading to the studied towns. On the basis of this, the following conclusions had been drawn:

- The studied towns have differing transport geographic situation both with regard to the quantity and the quality of the roads.
- The distance of the areas which may be reached in 15 and 30 minutes show significant variance primarily due to the structure of the settlement network and the transport connection.
- Püspökladány, Berettyóújfalú, Nyírbátor, Karcag and Tiszafüred are in the most favourable position from the aspect of the studied indices while the situation of Tiszacsege, Füzesgyarmat, Téglás and Komási may be called unfavourable.

From among the administratively controlled functions, the study of the *public institutions and specialised agencies of local administration* led to the following conclusions:

- The administrative function is one of the most ancient central roles of the settlements, more especially of the towns, and as such it is highly responsible for their development and their place occupied within the settlement network.
- Taking into consideration the 13 institutions in question, the supply of the studied towns is very varying.
- Only those settlements are able to fill in serious role on the area of the administrative institutions which already have a long urban history while the towns which got town ranking in the past few years managed to attract only one or two – otherwise deconcentrated – agencies or institutions.
- Apart from some special cases (Újfehértó, or perhaps Füzesgyarmat), the towns with better institutional supply are not located within the borders of Hajdú-Bihar county but outside it.
- In the case of the public and specialised local administration functions the county border has a dividing role.

The following results were recorded in relation to the *public health institutions* (polyclinics, ambulance stations, hospitals) in the studied towns:

- The attraction of the public health institutions is an important factor when defining the urban field of a town. The data of the operational districts and of the certain institutions may be accessed easily.
- Strict barriers and a rigid structure may be faced in the case of the polyclinics. The regions of urban attraction never cross the county border.
- Several examples may be found for the crossing of the county border in the case of the hospitals both in Karcag and in Berettyóújfalú.
- Public health as a secondary urban function may be still regarded as an administratively determined function, and the influencing role of subjective decision-making can be only found in the hospitals.

Labour force attraction was studied first from among those urban functions whose attraction power is spontaneous. First, the number of urban commuters per 1000 inhabitants was consulted, then the ratio of the commuters from a settlement to the town and finally of all commuters from the settlement. Some researches do not consider labour force attraction an influencing factor shaping the urban field. However, the study of this function was applicable since

- the size of the studied towns is approximately the same, therefore there is no considerable distortion resulting from the varying number of the inhabitants

- the settlements are on the same hierarchical level (small towns, except for Karcag which is small-medium town – but the number of population in Püspökladány opposite to it is almost the same)
- these are small towns therefore commuting does not unify the settlements and thus the movement of labour force remains on the level of urban-rural relations
- the employees are separated from the students, thus it does not distort the picture
- only the daily commuters are included in the survey because the other types of commuting do not affect the towns concerned.

The following conclusions were drawn:

- Those settlements have the largest urban fields which have large industrial companies and gained urban ranking earlier. Nyírbátor should be given special attention from among these whose attraction affects settlements from further away due to its larger special factories (Unilever, Cereol, etc.)
- Téglás and Komádi may be paid special attention from among the smaller towns which got their urban ranking not too long ago. The first is due to the attraction of the HIM, while the latter may thank it to the small villages surrounding it.

The general education and professional qualification of the labour force influences the economic development of a settlement or a town. The education occurring and increasing in parallel with the social development encourages the strengthening of the urban functions. Therefore, *education* fulfils a decisive role within the central functions. When defining the secondary educational attraction zone two basic factors are studied: firstly, the number and ratio of the students from villages in the secondary schools of the towns per 1000 inhabitants and secondly, the ratio of the students from villages in comparison with the total number of the secondary school students on the studied settlement. Beside the schools, libraries also function as important educational and cultural institutions since they satisfy the educational and training demands of the inhabitants of the settlements. As such they may also contribute to the strengthening of the attraction power of a town. Therefore, the attraction zones of these institutions are also examined. On the basis of the complex researches on education the following statements can be made:

- The traditions developed during history, the former institutional structure and informally the county border “in the minds” stabilised the present structure in many cases.
- The towns or pairs of towns along the two sides of the county border represent different types from the aspect of education and they formed their urban fields consequently which is in a balanced state only in a few cases.
- The settlements which received their urban ranking earlier have the most considerable attraction on the area of education.
- The settlements which were declared towns in the nineties have an insufficient supply of educational institutions and their regions of urban attraction is small.

Commerce has a distinguished role both from the aspect of the operation of the settlement network and the supply of the inhabitants because

- commerce fulfils a determining role in the measuring of the intensity of the attraction (number of relationships formed)
- its directions are determined by the subjective decisions of the customers therefore it is free from the shackles of administration

- the network of specialist shops is the thickest from among all institutions with central functions thus the disproportion of the institutional network does not influence the formation of the urban field
- the relations created by the attraction of small trade are long-lasting and change only slowly
- their changes are influenced by the relations formed by other central functions and therefore the attraction power of the various central functions are totalised in the small trade attraction
- it is not limited in size thus the role of chance is limited during the survey

During the survey, the biggest problem was caused by the lack of data, therefore the evaluation was exclusively based on the information provided by the primary data collection. Customer counting was conducted in the shops and on the markets of every settlement. Thus, the following establishments may be made in connection with the attraction power of commerce:

- The hierarchy of the trade attraction centres is rather complicated, there are many overlaps between the attraction zones and the attraction centre is smaller.
- The settlements with a longer urban history and with a higher level of shop network (department stores with more departments, chain stores) manage to have a much bigger impact on their environs.
- In parallel with the development of the trade in shops, the role of markets gradually diminished. In spite of this, almost all markets on the studied settlements have some kind of an attraction zone.

It was interesting to find out during the study of the other urban functions that what the supply level of the *service institutions* (distinguishing between financial, insurance, public utility and economic services) is like in the towns which function actually plays an important role for the population of the countryside as well. The following were found:

- The supply of the studied towns with the service institutions is very varying.
- Only those settlements are able to fulfil a real role in this field which already have a long urban history.
- The settlements which were declared towns nowadays could attract only one or two institutions – which may actually be regarded as providing “basic supplies”.

The question of the spreading of the *daily newspapers published in the centre* occupies an interesting position in the researches concerning urban fields. Although the distribution of the advertising papers published in the towns is not a factor contributing to the formation of the urban field but they might serve as guide in the surveys. Partly, it reflects that the population of which settlements in the neighbourhood are addressed by the town for the sake of extending the attraction zone and partly the “origins” of the advertisements proves whether the town really attracts the settlement it aims at or not. One of the most striking features of the distribution of the publications is that – apart from one or two exceptions (e.g. Karcag) – it is primarily concentrated in the environs of the county border.

Tourism is a special factor during the study of the urban field since this component does not fit into the system of the general attraction zone. During the research, it could not be relied on partly because of its specific nature (short-term attraction, cross-border attraction) and partly because the attraction is not the result of everyday

relations, it is not regulated, therefore it does not play a role in the urban-rural relations. Therefore, only the attractive points of the settlements are listed but their attraction is not regarded essential.

6.3. The most important establishments concerning the complex urban fields of the towns lying along the borders of Hajdú-Bihar county

- The simple summing up of the sectoral urban fields cannot provide the complex urban fields since the regional relations created by the sectoral attraction zones are heterogeneous; they reflect their place within that one given sector and depend on the state of supply of the centre.
- It is a fundamental principle when demarcating the area of the complex urban field that only the borders of the attraction zones of institutions from the same level may be fused.
- In the course of the demarcation of the complex urban field, the method designed by Pál Beluszky (BELUSZKY, P. 1974) is applied. While calculating the complex urban field, the first step was to calculate the average attraction intensity for each function and the indices of the selected settlements were compared to these values. The quotients were raised to the second power – in compliance with the method – and were added up then finally extracted the square root of the quantity.
- It may be established about the relationship between Nyíradony and Nyírbátor that Nyírbátor – which has longer urban traditions – exercises its impact on a considerably larger area but the gravitation of Nyíradony crosses the county border in many cases. This may be explained by the fact that the drawn county border could not cut all the earlier formed relations while the better transport connection also “brings grist to the mill of Nyíradony”. It is also an advantage for Nyíradony that it lies closer to the county border, therefore it may enforce its impact more intensively.
- In the cases of Hajdúhadház, Téglás and Újfehértó, it may be stated about all three settlements that – although they had an important role during history – they have only a short urban history. Besides the above, their disadvantageous transport situation (they lie in the proximity of the county seats) further impaired their roles.
- No crossing of the county border may be detected in the cases of the complex urban fields of Hajdúnánás and Tiszavasvári, therefore their relationship may be called balanced.
- With regard to the attraction conditions of Polgár and Tiszaújváros, one can experience the crossing of the county border only in the case of Görbeháza (the impact of the labour force attraction may be felt here). The River Tisza – as a natural barrier – may contribute to the strengthening the rigidity of the county border.
- Tiszafüred – besides its own attraction zone – exercises a considerably stronger attraction to Tiszacsege and its environs. In this case the attraction does not only cross the county border but also the River Tisza which has been formerly functioning as a natural dividing line.
- At the western borders of the county, the institutions of Püspökladány and Karcag are responsible for the attraction conditions. Both towns have significant functions, they have been located right beside each other along the county border and as a consequence of this their regions of urban attraction are balanced.
- The most varying map of urban attraction may be found in the Bihar region. The phenomenon of an attraction zone crossing the county border may be most often

detected in the functions along the southern border of the county – primarily due to historical reasons. The two bigger towns preserved quite a lot from their traditional attraction conditions.

- According to Pál Beluszky, a town with 16 thousand inhabitants and with an urban field of 33 thousand inhabitants are needed for the sustainability of a differentiated institutional network. This altogether means approximately 50 thousand people (BELUSZKY, P. 1999). Six towns (Berettyóújfalu, Karcag, Nyírbátor, Püspökladány, Tiszafüred and Tiszaújváros) almost fully meet this criterion, while Szeghalom and Tiszavasvári differ from it only a little. Hajdúnánás is a *de facto* town due to its historic traditions and level of institutionalisation. Nevertheless, the other settlements with urban ranking functionally cannot be regarded full scale towns on the basis of any of the above mentioned criteria.

6.4. Applicability of the results of the survey in regional development and planning and the possibilities for continuing the work

- The researches so far demonstrated that the borders of Hajdú-Bihar county do not follow the real attraction conditions and it may be experienced in many cases that a settlement from the neighbouring town is more attracted by the towns of the county and vice versa.
- If the administrative borders followed the relations developed by the attraction power, the number of towns in Hajdú-Bihar county would increase by two. The area of the administrative unit (an additional 63.49 km²) and its population (plus 7050 inhabitants) would also increase.
- The settlements which were practically declared towns in the nineties or after it are lacking functions. In the majority of them, the institutions with secondary attraction are missing except for one or two institutions which actually have small attraction power (secondary schools, polyclinics, etc.).
- There are also institutions whose agencies may be found only in some towns (e.g. civic guard, customs authorities, land registration offices, gas, telephone and electricity suppliers, etc.). Their deconcentration levels have to be strengthened.
- The continuation of the work would especially mean the application of the results in the administration. The microregions have to be institutionalised and they have to be given administrative and regional development functions.
- In addition to the above, the towns and pairs of towns along the borders of the Northern Great Plain Region should be studied with similar methods. This might provide an answer to the question that which settlements should belong to other regions and how the regions should be formed to fulfil the EU norms and to suit the Hungarian administrative structure as well.