

PHD-THESIS
SUMMARY BOOKLET

Doctoral School of Earth Sciences

Perforating rural settlement network
Specific differentiation of rural spaces on Hungarian examples

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Pécs, 2021

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1. Introduction

The differentiation processes of rural spaces experienced in the last decades such as their functionality, economy, or life quality, shaped the expressions and knowledge about these landscapes. The theory of rural restructuring explains the transforming character of rurality by the differing social production of space, caused by the globalisation and urbanisation processes of the settlement networks. The divergent transformation of social groups results in a multilateral social space, which means that the new levels of social spaces are being produced in the same physical environment.

The restructuring processes in Hungarian rurality are different from the Western European examples due to the distinctive post-socialist kind of spatial and social development. First, the modernisation of Hungarian society showed a postponed trend foremostly in the changing patterns of peasant society or the urbanisation, which became notable in the Carpathian Basin only in the 20. century. Furthermore, as modernisation reached rural settlements, the circumstances already overlapped by the political system change, which brought another challenge to rural societies with the post-modern turn.

The distinctive character of Hungarian rural restructuring was formed by the increasing economic crisis through and after the decades of political system change. The expanding masses of unemployed people due to the disappearance of former workplaces on the one hand, the relatively low levels of education in rural settlements on the other followed a severe structural crisis. Due to such trends, the regeneration of the rural economy became impossible as the chance to new investments or local enterprises faded away.

The specific, sometimes peculiar structures of settlement network reinforced the negative processes as the small, tiny, many cases dwarf-sized villages, which are often dead-end places as well, dominate the rural peripheries. This kind of geographical disadvantage increased by the difficulties of public transport services as they cut back on their frequency, which deepened the backwardness and the lack of mobility of rural residents by different levels.

By all these features of rural restructuring in Hungary we can conclude, that the fragmentation of society and so the creation of multilateral

social space can be measured by the different mobilities of rural residents, although these differences between social groups does not seem extraordinary. Furthermore, these disadvantaged geographical circumstances often meet with demographic decline, which creates a negative spiral together with all the issues arising in rurality.

The approaches to handle these issues does not seem to help on these isolated communities. Although the centralisation of institutions and amenities gives the impression of rational effects and decisions on these processes, it creates a negative representation of the villages which increases the isolation and the outmigration as well. As so, the rural as *representational space* is being labelled by the images of backwardness, poverty, and a landscape of social- and economic crisis in political, media or simply everyday discourses. The negative preconceptions about rurality empower those phenomena again, which created such ideas, could become as another aspect of isolation in rural settlements.

The expression '*perforation*' puts the socio-spatial differentiation processes in the focus of this research. The perforation of settlement network means a *specific restructuring of rural space, which weakens, reduces, in some cases diminishes the rural networks causing the isolation of several settlements, creating a shattered or perforated landscape.*

2. Research objectives

First, the aim of this research is to attempt to prove and introduce the theoretical approach of perforation, according to this to evaluate the extent of fragmentation in Hungarian rural spaces and define the exact processes going along with perforation. As so, during the research (beyond the theoretical challenge) we ascertained the subject around three main questions:

- 1) Could the processes of perforation be observed in Hungarian settlement networks?
- 2) What are the features and components of perforation in rural Hungary?
- 3) How do local organisations and stakeholders react on the local and regional effects of perforation?

Five hypotheses were formed according to the theoretical framework of the research:

- (1) During the perforation, the inner- and outer connections of rural space due to rural restructuring processes decrease or missing, therefore the production of space of social groups is limited to the residing settlement.
- (2) As rural restructuring creates villages with a degraded functionality, they end up in a dependent relationship with local centres, but this dependency decayed the strength of networks.
- (3) Physical isolation processes differ the representations and mental images of spatial remoteness, which labels perforation by different levels.
- (4) During the process of perforation, the concentration of isolated settlements increases.
- (5) The settlements and actors affected by perforation react with differing sensing and handling on the new issues and challenges.

3. Research methods

To proof the hypotheses a three-step methodology was used in the thesis. The first component was a secondary data analysis with statistical data which were grouped in three main thematic fields. With this approach it was possible to measure the different functional fields and their perforation processes, namely the social-, economic and institutional spheres by settlement level all along Hungary. As the data showed different scales, we normalised the database with Z-transformation. The average value of the three indices is the complex perforation index which measures the scale of isolation, rather the embeddedness of the settlements in regional networks. In order to make the progress of perforation visible, the perforation index was created according to the statistical census from 1990 and datasets from 2017, the most recent collection of data used in the index. With this approach, a comparative analysis could show the spatial changes of perforation during the examined period.

The second and third steps of the research were empirical approaches. The second step was a questionnaire survey held in two rural research areas selected by statistical analysis. The main case study area of the thesis was the Baranyai-Hegyhat where out 49 settlements four are small towns. The survey was fulfilled only in the 45 villages with 404 valid responses. We used a random sampling method with inhabitants

elder than 18 years. A control survey took place in the caption area of Tab, where 177 valid responses were gathered.

The structure of the perforation survey followed the theoretical background of rural restructuring. According to that, the survey measured the social status, the intensity of social connections, the spatial isolation and settlement representations of the responders. Using the results of the survey four main indices were created: the social integration, societal integration, spatial integration, and representation index.

The average value of the four indices gives the complex integration index, which measures the integrity or perforation of responders in the rural settlement network with a value between 0 and 1. In the research area of the Baranyai-Hegyhát and the control area of Tab we applied the integration index to depict the spatial features of perforation tendencies.

The third step of the methodology was another empirical research approach with in-depth-interviews in the Baranyai-Hegyhát research area. In the first period of interviewing we organised talks with enterprises placed in the small towns of the area, Dombóvár, Komló, Sásd and Mágocs. Two interviews were made in each town reaching a total number of eight interviews with entrepreneurs. The aim of these dialogues was to get a deeper insight on the structure of labour in the area and find the main issues the perforation caused economically. During the evaluation we created logical matrixes to organise and structure the contents.

The second part of the interview-series was fulfilled after the first results of the survey from the Baranyai-Hegyhát area became available for us. The interviewees were local stakeholders in settlements, which were somehow attached by perforation. The focus of these dialogues was on the differing features and issues of the societal, social, infrastructural, economic, and spatial characters of these villages and also how these spheres are affected by perforation tendencies. The assessment of the interviews on the one hand was made again with logic matrices, which showed the processes and phenomena in each examined sphere. On the other hand, these discussions were suitable to apply an attitude analysis, which measured the interviewees levels of empathy and amount of financial tools.

4. Conclusions

From the five hypotheses we found three proved and two partly proved according to the results. We try to emphasize those results of this research which led to proof the hypotheses, so we attempted to confirm them with short justifications.

- (1) During the perforation, the inner- and outer connections of rural space due to rural restructuring processes decrease or missing, therefore the production of space of social groups is limited to the residing settlement.
 - The societal and social indices of the survey as well as the representation index pointed out the multilateral kind of the society, furthermore, societal isolation and spatial isolation values showed relative strong correlation.
 - The statistical analysis, especially the economic isolation index referred on the disintegration processes of the settlement network. This outcome fits to the empirical results of the survey and the interviews as well.
 - The overall conclusions of the interviews also proofed isolation according to different functional fields.
 - In addition, the empirical evaluation confirmed the effects of physical isolation leading to mental isolation. Overall, we found the first hypothesis proved.
- (2) As rural restructuring creates villages with a degraded functionality, they end up in a dependent relationship with local centres, but this dependency decayed the strength of networks.
 - Statistical indices in relation with the institutional services showed increasing availability, however the empirical experiences depicted controversial processes locally.
 - Furthermore, the empirical research highlighted the constrained networks caused by the reorganised spatial order of institutional amenities.
 - In contrast, the representation index values partly confirmed these processes.
 - The values of the representation index and spatial integration index are in many cases contradictory, which implies that though physical isolation challenges rurality, the groups stuck

in these environments create a more intensive connection with their residential place developing a more positive identity and image. For these reasons, the second hypothesis seems partly confirmed.

- (3) Physical isolation processes differ the representations and mental images of spatial remoteness, which labels perforation by different levels.
- Both statistical and empirical results concluded that the exclusion processes of settlements cannot be described by two dimensions only.
 - However, the evaluation of the statistical data in case of institutional indices depicted a rather staired spatial structure, while the social and economic indices showed a more continuous transition or slope of settlement network.
 - Beside this, the survey evaluation found perforated groups in those villages as well, which were rather integrated according to the spatial analysis.
 - Although the spatial order of integrated answerers depicts a relative concentration, perforated groups appear all around the research areas. According to this, perforation seems to be a non-spatial process, the most visible effects “good places” are defined only by the wider spectrum of societal differentiation.
 - Although it is visible, that the settlements could take an intermediate position in the processes of perforation, what seems more important is the direction of the progresses, which could be integrating or perforating. Thus, the third hypothesis been partly confirmed.
- (4) During the process of perforation, the concentration of isolated settlements increases.
- According to the comparative analysis of statistical data in an almost 30-year duration, the spatial extent of perforated areas increased by time.
 - Beside this, the empirical research also confirmed spatial expansion of the process, however districts did not show equal stage of perforation, but the direction of change seems to be convergent.

- Furthermore, the regional volume of perforation was also highlighted by the results, which showed that not only the villages with majorly perforated groups fall out from local networks, but the microcenters in the research areas indicated comparable trends. The fourth hypothesis is confirmed according to these results.
- (5) The settlements and actors affected by perforation react with differing sensing and handling on the new issues and challenges.
- The interview results clearly defined the local leaders' and stakeholders' differing engagement and attitude along with the correctly identified issues and challenges.
 - Settlement attitudes could be interpreted as specific reactions on the negative effects of perforation, especially when we compare them with the survey results.
 - Furthermore, these attitudes showed correlation with the empirically identified villages of perforation and integration as well. Beside this, the further analysis of the interviews depicted that the local stakeholders expressed a will to step forward with strategic approaches against social and economic exclusion. Overall, the fifth hypothesis was proven.

In conclusion we can ascertain that perforation as a theoretical concept describing the fragmentation of rural settlement network either by statistical and country scale, or by empirical and local scale is a concrete everyday challenge. However, some of the hypothesis were proved partly, in the essential ideas and features the research gave unquestionable results by the directions and phenomenon of the process. The main results of the thesis are the following:

- One of the main goals of the research was to introduce perforation as a concept which describes the specific spatial and social processes caused by the differentiation of rurality and rural restructuring into settlement geography. The research results proved at several points the discontinuity of rural settlement network. Though the issues of rurality which are being depicted in the thesis are appear in other researches and concepts, the theory of perforating settlement networks rather focus on the fragmented kind of settlement structures and societies. Thus we suppose that perforation itself

does not bring a theoretical innovation, it only makes an effort to explain in different frames the crisis of peripheric areas.

- We can consider remarkable the result of the statistical analysis, which showed the spatial expansion of perforated areas. This kind of spatial differentiation suggest that on the one hand, settlement network became more homogenous either in the surroundings of centres, or at the peripheries, and on the other hand, the disintegration processes does not only affect the small villages, but it's a more complex phenomena and has consequences in micro-centres as well. Although we evaluated both social, economic, and institutional data, the spatial expansion suggests mostly, that the social isolation and immobility of locals empowers perforation processes.
- The multilateral kind of rural societies brings novel results in human geography why it was evaluated and examined in the meanings of the production of space. That is how we found connection between the spatial distribution of locals and their social status, the structural features of their informal networks, and their relation to the place they live. As a notable outcome of these, we did not found connection between the spatiality of isolating groups and the sizes of the settlements or their geographical position. Thus, the process of spatial exclusion cannot be linked to the physical peripheries and small villages, because the groups going under perforation were found all over the research areas, even in micro centres. The size and position of the settlements are at most effected the number of social groups.
- The research was able to highlight how important space representation and the relation with inhabited villages are in the social processes of the rurality. Out of the empirical variables in the thesis the representation index shows the most unexpected values sometimes in contradiction with other indices. On the contrary, representation index values showed a relative strong relation with interview results which expressed the effects of local leaders, institutions and governing on local representations. With this we found an unexpected result: in the process of perforation physical isolation does not necessarily create negative relations with locality, but the management of spatial amenities forms and shapes representation more remarkable.

- From a methodological point of view, we did not use any innovative method during the research, although the attitude analysis as an evaluation process could be emphasised. By scaling the empathy and financial background of the interviewees, four attitudes of the settlements were defined, which are able to position on the one hand the leader governance of the villages, on the other hand their approaches to maintain local settlement networks. According to our opinion attitude analysis could be implemented in other human geographical researches in the fields of urban planning, rural development, tourism, or economic geography, as a qualitative method.
- In relation with this, an important result of the research was the introduction of the four settlement attitudes and specify their relation to the fragmentation of settlement network. The attitude analysis also pointed out the importance of empathy and social motivated activities in local governing in the processes of perforation. Another aspect of the attitudes was their connection with representation index, for example in the cases when paternalist attitudes were compared with a relatively high representation. In contradiction, lower representation was measured in dissociated villages in the Baranyai-Hegyhat.

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