

The impact of proximity on the relations between settlements – the case of Győr-Moson-Sopron County



Today, the concept of proximity can be interpreted in many aspects. Besides the geographical proximity in the traditional sense, other dimensions of proximity have been formed that came to the fore due to the economic, social and technological changes of recent decades. Regional science places emphasis on examining these dimensions because proximity influences many regional and economic relations and development. In the present study, the author will focus on two dimensions of proximity – the geographical and the relational proximity. The first part of the article presents the theoretical framework of proximity and network relations that gives the background to the empirical research. In the analysis, the relations and networks will be examined in one of the most developed counties of Hungary, which will be introduced in the second part of this study. The author gives an overview of the results of the quantitative research, the aim of which was to explore the different types of relations between towns in the county and to gain an insight into the underlying different dimensions of proximity.

INTRODUCTION

In the study, based on relevant proximity approaches in the literature and on today's dominant theme of networking, relationships and their systems between municipalities in a Hungarian county will be described.

The paper consists of two main parts; the first introduces the conceptual theoretical framework regarding different aspects of proximity. In the second part, the empirical research, its methodology and the main findings will be highlighted. In the case of relations between municipalities, the basic dimensions of proximity will be demonstrated which allows some tendencies of networking process to be presented.

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THE INTERPRETATION OF PROXIMITY AND DISTANCE IN REGIONAL SCIENCE

An outstanding research area of regional science is the examination of the distance-proximity paradox, which is extensively studied by both Hungarian and international literature from a number of different perspectives. First, the term 'distance' and its interpretations will be introduced.

If we use the ordinary meaning of the word, it means the length of the shortest path between two points of space.^[2] According to scientific definition, distance is the degree of spatial differences between two places (or two figures)^[3] – thus, the term covers in all cases some kind of comparison; spatial comparison between two points.

It is important to note that there are researchers who prefer the usage of the term 'distance'^[4] and those who use the term 'proximity'. Distance is a basic spatial element of several scientific models (e.g. accessibility models,^[5] centrum-peripherie models). Matuschewski analyzes both distance and proximity and also classifies them.^[6]

In terms of terminology, the usage of proximity is primer and an anthropologist E. T. Hall had outstanding role in its spread.^[7] He was a researcher who analyzed the spatial dimension of interactions between people and its differences in cultures; and this scientific area is called proxemics.

Being close to something (to a person, an object or a place, etc.) affects the "participants" – whether effect is positive or negative, conscious or not (externalities, agglomeration economies).^[8]

DIMENSIONS OF PROXIMITY

Nowadays, the "shortest route" includes not only geographical proximity but can be also interpreted based on different factors. Nemes Nagy (1998, 2009) differentiates two types of spaces – the outer space which is related to the geographical location; and the inner space which concerns the relations and relational

[2] Lengyel, I. – Rechnitzer, J. (2004): *Regionális gazdaságtan*. Dialóg Campus Kiadó, Budapest-Pécs.

[3] Nemes Nagy, J. (1998): *A tér a társadalomkutatásban. Bevezetés a regionális tudományba*. Hilscher Rezső Szociálpolitikai Egyesület, Budapest. 168.

[4] Erdősi, F. (2013): *Távolságfogalmak értelmezése és alkalmazásuk*. Tér – Gazdaság – Ember, 1(2). 27-48.; Nemes Nagy, J. (1998): op. cit.

[5] Erdősi, F. (2003): A kommunikáció környezeti szempontból „Janus-arcú” globalizálódása. In: *Környezetvédelmi Mozaikok. Tiszteletkötet Dr. Kerényi Attila 60. születésnapjára*. Debrecen. 58-70.; Tóth, G. – Kincses, Á. (2007): *Elérhetőségi modellek*. Tér és Társadalom, 21(3). 51-87.

[6] Matuschewski, A. (2012): *Vorlesung „Einführung in die Wirtschaftsgeographie”*. Geographisches Institut Bayreuth. http://www.wigeo.uni-bayreuth.de/de/download/SS_2012/vorlesung_wigeo_1_einf_hrung.pdf. Downloaded: 03. 07. 2015.

[7] Hall, E. T. (1990): *The Hidden Dimension*. Anchor Books, New York.

[8] Brueckner, J. K. (2011): *Lectures on Urban Economics*. The MIT Press.

network of certain social groups as a space. In this study, most of the dimensions and approaches of proximity will be introduced, than the author will focus on those, which are relevant in the case of the empirical research.

If enterprises are concerned, the following types of distance/proximity should be taken into consideration during business decisions:

- Proximity of transport network: that is measured by actual roads/rail routes,
- Proximity of time: which shows how much time is required for the transport,
- Cost/economic proximity: this gives the cost of transportation.^[9]

These dimensions of proximity should be interpreted differently if the subjects of the analysis are the “traditional economic actors” but regions and, in this case, municipalities.

The importance of geographical proximity is queried in several pieces of research, which draw attention to the tendency that in today’s information and communication technology-driven and -networked world, different types of proximity will be primary.^[10] In particular, these views came to the fore by the appreciation of the role of knowledge.

The French school, the member and representatives of the Proximity Dynamics Group (Gilly and Torre) make a distinction between traditional geographical proximity and organisational proximity. The authors try to open the black box of proximity; the phenomenon of knowledge spillover was involved in their research and studied what kind of relations of these proximity dimensions could be demonstrated and how these are reflected in innovative milieus.

Geographical proximity expresses the distance between two spatially separated objects, the rate of which can be justified objectively. In contrast, organisational proximity plays an important role in promoting the creation of interactions between communities of organisations. This type of proximity is based on two kinds of logic; according to the adherence logic members of a certain organisation will form relations easier and will cooperate because they belong to the same space of relations (e.g. firm). According to the similarity logic, actors close in organisational terms are quite alike because they speak the same language and share the same values and knowledge (e.g. same corporate culture). Based on this description we can conclude that the measurement of organisational proximity is very complex and has no unit of measurement.^[11]

[9] Lengyel, I. – Rechnitzer, J. (2004): op. cit. 120.

[10] Gallaud, D. – Torre, A. (2004): Geographical Proximity and the Diffusion of Knowledge. In: Fuchs, G. – Shapira, P. (eds.): *Rethinking Regional Innovation*. Springer, USA. 127–146.; Basile, R. – Capello, R. – Caragliu, A. (2011): Interregional Knowledge Spillovers and Economic Growth: The Role of Relational Proximity. In: Kourtit, K. – Nijkamp, P. – Stough, R. R. (eds.): *Drivers of Innovation, Entrepreneurship and Regional Dynamics. Advances in Spatial Science*. Springer-Verlag, Berlin–Heidelberg. 21–43.; Bönte, W. (2008): *Inter-firm Trust in Buyer-supplier Relations: Are Knowledge Spillovers and Geographical Proximity Relevant?* Journal of Economic Behavior & Organization, 67. 855–870.

[11] Torre, A. – Gilly, J-P. (2000): *On the Analytical Dimension of Proximity Dynamic*. Regional Studies, 34(2). 169–180.

Legendijk and Lorentzen outlined the dimensions of proximity according to the French School as starting points and during the analysis the authors examine proximity in the case of geographical (and not economic) peripheries e.g. in Britain and in Norway. They conclude that in the acquisition and transfer of knowledge virtual, cognitive, organisational, institutional, temporary and economic proximities come to the fore while overcoming physical distance.^[12]

The study of proximity is also a core area for the representatives of the so-called evolutionary economics. The most famous and most quoted researcher is Ron Boschma who analyses proximity in the context of innovation; and states that proximity plays a primarily role in forming and maintaining of local innovative milieu and positive externalities.^[13]

The different proximity dimensions can reduce uncertainty and “solve the problem of coordination, and thus, facilitate interactive learning and innovation”.^[14] The author presents five dimensions of proximity, organisational, cognitive, social, institutional and geographical proximity.

Geographical proximity means physical closeness in this case, the positive effects of which are embodied in the emergence of the economies of agglomeration, knowledge spill-overs, in the exchange of tacit knowledge and low-risk information. Organisational proximity covers on one hand the proximity and tightness of relation within an organisation and between organisations. The tighter the relation, the greater the likelihood of knowledge sharing and creation of innovations.

Institutional proximity also includes two levels; the formal (e.g. laws) and informal (e.g. common language) institutional backgrounds provide a business environment which facilitates the development of cooperations based on homogeneity. Cognitive proximity builds on the similarity of companies, i.e. on the feeling that the other company is alike thus close to me. “People sharing the same knowledge base and expertise may learn from each other (...) and facilitates effective communication”.^[15] Social proximity is defined in terms of socially embedded relations between actors at a micro-level based on friendship, kinship and past experience.^[16]

Florida (2005) does not primarily deal, yet his works also outlines the notion, especially the reality and relevance of geographical proximity. The author considers human capital to be extremely important and believes that in order

[12] Legendijk, A. - Lorentzen, A. (2007): *Proximity, Knowledge and Innovation in Peripheral Regions. On the Intersection between Geographical and Organizational Proximity*. *European Planning Studies*, 15(4). 457-466.

[13] Broekel, T. - Boschma, R. (2012): *Knowledge Networks in the Dutch Aviation Industry: the Proximity Paradox*. *Journal of Economic Geography*, 12. 409-433.

[14] Boschma, R. (2005): *Proximity and Innovation: A Critical Assessment*. *Regional Studies*, 39(1). 61-74., 62.

[15] Boschma, R. (2005): op. cit. 63.

[16] Boschma, R. (2005): op. cit. 67.

to develop networks between firms, cities or regions, the role of human factor is vital and outstanding.^[17]

Basile et al. (2011) started to study the role of proximity and the common effects of spatial and relational proximities in the case of knowledge spill-overs and economic growth between regions. Relational proximity indicates the interactions between participants which influences the learning process and which is defined by the relative difference in trust between regions.

The time-based competition has been evolved in case of certain companies by the appreciation of time factor. In this type of competition, being close to the suppliers and to customers is important, thus the proximity of partners is relevant which covers both, geographical and organisational proximity.^[18]

In the era of computers and the web, cyberspace and virtual proximity are increasingly used notions. Related to these, many researchers are talking about the death of geography and distance.^[19] Tranos and Nijkamp (2011) studied this area, particularly whether the physical proximity and geographical space is neglected through the presence of cyberspace. The authors highlighted the spatial dimensions of the Internet based on the outlined dimensions of proximity and found that geography has an important role still today, even in cyberspace.^[20]

In 2006, two authors attempted to synthesize the different dimensions and perceptions of proximity and to eliminate the overlaps between them.^[21] Those dimensions are involved in the analysis, which can be relevant in the cooperation and relation between organisations, therefore focusing on three types – geographical, organisational and technological proximity. Technological proximity is based on shared technological experience and knowledge,^[22] and it is in strong relation with the absorptive capacity of organisations.

Lengyel (2008) draws attention to two processes which are the opposite of each other and which should be considered when analysing proximity. In the case of traditional producing economic activities, geographical proximity has an important role. However, in the case of knowledge-based activities, beside spatial proximity, other dimensions (e.g. organisational proximity) also play a crucial role.^[23]

[17] Florida, R. (2002): *The Rise of the Creative Class*. Basic Books.

[18] Demeter, K. (2013): *Time-based Competition - the Aspect of Partner Proximity*. Decision Support Systems, 54. 1533-1540.

[19] Jakobi, Á. (2007): *Hagyományos és új területi különbségek az információs társadalomban*. Doktori értekezés. ELTE TTK Földtudományi Doktori Iskola, Budapest.

[20] Tranos, E. - Nijkamp, P. (2011): *The Death of Distance Revisited: Cyberplace, Physical and Relational Proximities*. Tinbergen Institute Discussion Paper. <http://dare.uvu.vu.nl/bitstream/handle/1871/38500/12066.pdf?sequence=1>. Downloaded: 13. 07. 2015.

[21] Knoblen, J. - Oerlemans, L. A. G. (2006): *Proximity and Inter-Organizational Collaboration: A Literature Review*. International Journal of Management Reviews, 8(2). 71-89.

[22] Knoblen, J. - Oerlemans, L. A. G. (2006): op. cit. 77.

[23] Lengyel, I. (2008): A közelség alakváltozásai a tudásalapú helyi gazdaság-fejlesztésben. In: Lengyel, I. - Lukovics, M. (eds.): *Kérdőjelek a régiók gazdasági fejlődésében*. JATEPress, Szeged. 109-129.

Today, research on networks and networking is a hot topic and used in a number of scientific fields to outline the relations between different objects, agents or firms.^[24]

The present study focuses on two basic dimensions of proximity; geographical and organisational proximity where social proximity defined by Boschma is taken into account. Research questions are the followings:

1. Are the relations between established settlements based on geographical proximity?
2. Which dimensions of proximity are available in the case of relations between settlements?

The primary research indicates the data, which helps to answer these questions.

RESEARCH METHODOLOGY

The primary research was conducted in autumn 2014, which was quantitative research through questionnaires. The questionnaire included both questions with given options and open questions in order to obtain wider information.

The questionnaires were sent via email to the leaders of all settlements of the previously appointed sample. The population of the present study was the settlements in Győr-Moson-Sopron County in Hungary, consisting altogether of 181 settlements. The city of Győr, a city with county rights and the head of the County, was not involved in the research because the author wanted to focus on the relationship between the settlements and the “big city” from the perspective of the settlements of the County.

The final sample consists of 28 settlements with a relatively high mailing responsiveness of 15.5%, which is quite high taking into account the objects of the research.

The questions contained some demographical data of the settlements but focused on the relations between the towns and villages. These relations covered the following areas:

1. partner municipalities at a national and international level,
2. relations with neighbouring municipalities,
3. relations with other settlements,
4. relationship with Győr, the head of the County.

The next chapter contains the findings of the quantitative research and attempts to find evidence based on the theoretical framework in practice on how the dimensions of proximity appear in the relations between municipalities.

[24] Barabási-Albert, L. (2008): *Behálózva. A hálózatok új tudománya*. Helikon Kiadó, Budapest.

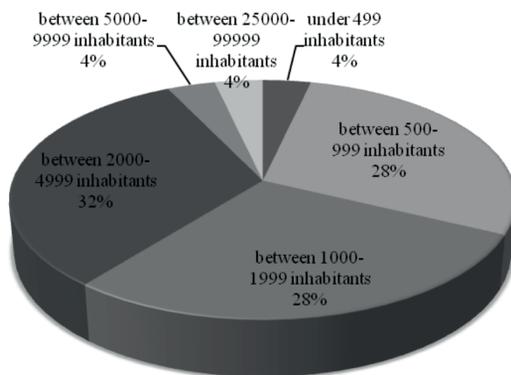
FINDINGS OF THE EMPIRICAL RESEARCH

The following settlements answered the questions of the primary research, which are all situated in Győr-Moson-Sopron County, in Hungary. The map (seen in Appendix I) shows the analysed county and the settlements situated there.

- | | | |
|---------------------|----------------------|---------------|
| 1. Abda | 11. Győrszemere | 21. Pereszteg |
| 2. Bezi | 12. Halászi | 22. Rajka |
| 3. Börcs | 13. Hidegség | 23. Sopron |
| 4. Dunaszeg | 14. Jánossomorja | 24. Szany |
| 5. Dunaszentpál | 15. Kimle | 25. Szárföld |
| 6. Dunasziget | 16. Kisbajcs | 26. Táp |
| 7. Enese | 17. Lövő | 27. Tényő |
| 8. Fertőhomok | 18. Mecsér | 28. Újrónafő |
| 9. Fertőszentmiklós | 19. Mosonszentmiklós | |
| 10. Gyarmat | 20. Nagylózs | |

Taking into account the number of population, settlements with 500 to 5000 inhabitants were the most active in giving answers. Figure 1 represents the distribution of settlements based on the number of their population.

Figure 1: The distribution of settlements based on population



Source: own edited (2015).

In the case of partner municipalities, both national and international relations were analysed. Based on the answers of the sample settlements, the relations with partner municipalities are interpreted mostly in an international dimension since from the 28 analysed settlements only four has a relationship with other Hungarian settlements (Lövő - Zalalövő, Kisbajcs - Nagybajcs and Vének, Tényő - Magyarszék, Újrónafő - Hajdúböszörmény).

On the other hand, 21 settlements possess foreign partner municipalities - in the case of small villages with lower numbers of inhabitants mainly one relation while settlements with more than 2000 inhabitants, named at least 2 foreign partner municipalities. If the home countries of these partner settlements are taken into account, it is clear that primarily the neighbouring countries of Hungary have priority; the highest rate belongs to Slovakia, the north neighbour country of Hungary, with 20 mentioned settlements. Besides this, five German, four Romanian (more accurately Transsylvanian), three Austrian, two Italian and Polish, and one Dutch, Greek, Swiss and Israeli settlements were mentioned.

Regarding the characterisation of relations with neighbouring settlements, the leaders indicated they are mostly positive but this type of relationships should be analysed in details. The question related to this kind of relation was an open one, thus the mayors could word the answer themselves; however, these answers contain relevant and interesting information.

Some of the settlements in the sample mentioned the joint maintained local government, which has an important impact on relationships and creates links between neighbouring municipalities. Regarding the dimensions of proximity, it is necessary to admit that geographical proximity plays a very important role since many settlements are built close to each other or even sometimes built together (e.g. in the case of Szany and Rábaszentandrás).

Regarding Sopron, the second biggest city in the county, the Local Governmental Association of Sopron and its Region should be outlined which includes 26 settlements and acts as a formal framework for cooperations and relations between the partner municipalities. This region of the County is a special one because the relationship between the settlements situated in this region is stronger due to common historical events which resulted in an intense development in the relationships.

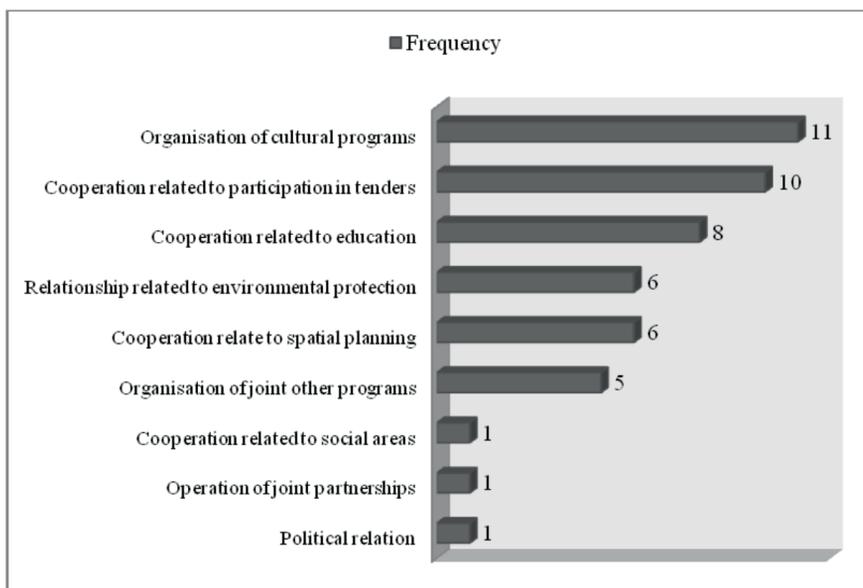
After World War I, the territory of Hungary was divided; as a consequence many former Hungarian settlements were assigned to other neighbouring countries. In the case of the region of Sopron a referendum was held in 1921 in which some settlements wanted to become part of Hungary and according to their will, they were annexed back to Hungary. Thus, Sopron is called the loyal city. This type of relationship is strongly connected to relational proximity where trust and former common traditions and history have an impact.

The share of best practices is a widely used form of relations between settlements in the county, which can be seen as a special knowledge sharing process. All of these relations have a base in the form of geographical proximity; however, with the passage of time relational proximity also started to play a relevant role in it.

The intensity of relations between neighbouring municipalities can be measured at mostly daily (19 times) and in 9 cases, there is a case-by-case relation.

Beside the relations with neighbouring settlements, the level of districts was highlighted which is a spatial level under the county level and in which geographical proximity has a primary role. These relations are listed in Figure 2.

Figure 2: The distribution of types of relations between settlements



Source: author's own (2015).

The relationship based on cultural grounds is the most common, followed by common participation in certain tenders. Cooperation related to education, environmental protection and spatial planning are relevant areas mostly in the case of neighbouring municipalities.

On the level of settlements, geographical proximity is crucial which is outlined not only in the relation of neighbouring municipalities but also in the case of foreign partner municipalities.

CONCLUSIONS

In reply to the research questions, it can be concluded that the primary dimension of proximity is the geographical, which can be observed in relations and cooperations between municipalities. However, it should also be highlighted that due to continuous physical proximity, trust was also established throughout history between the leaders of those settlements, which shows that relational proximity plays a relevant role as well.

The size of the municipalities is an important factor in cooperations, especially if the relationship to the county head is concerned. Mutual interdependencies emerged between neighbouring settlements - whether taking into account any actual types of cooperation or not, all mean benefits for every participant.

In many cases, geographical proximity means the basis for relational proximity described by Basile et al., i.e., physical proximity is an essential criterion for relationships of trust, which was also determined in this study.

Networking between the settlements in the county is present and its basis is both geographical and relational dimensions of proximity. Although the whole population was not studied in this research, according to the introduced answers some regions can be outlined by which settlements are cooperating with others and which involve not only bilateral mutual interdependencies but also more participants.

In further studies, the unanswered questions should be analysed by focusing on the networking processes in the area and their impact.

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HUNGARIAN SUMMARY

Napjainkban a közelség koncepciója számos megközelítésben értelmezhető, beleértve a hagyományos földrajzi eltérés mértékét, akár csak az utóbbi évek infokommunikációs, gazdasági és társadalmi változásai hatására formálódó “új” közelség meghatározásokat. Jelen tanulmányban a szerző a földrajzi közelség mellett a kapcsolati közelséget elemzi, mind az elméleti áttekintés során, mind pedig az empirikus kutatás esetében. A primer kutatásban a Győr-Moson-Sopron megyei települések kapcsolatrendszerét, és az azt befolyásoló két közelség-dimenziót tanulmányozom.