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SPATIAL PATTERN OF SOCIAL CONFLICTS BASED ON STATISTICS DATA

Beáta Siskáné Szilasi[1] - Péter Vadnai[2]

[1] associate professor PhD; ecobea@uni-miskolc.hu; [2] research assistant; ecovape@uni-miskolc.hu

University of Miskolc; Institute of Geography and Geoinformatics

Abstract

Social conflicts are present today not only at the level of individuals, but also at the community and the settlement levels. Some of the conflicts are visible, meaning they are not only perceived by the parties involved but also to others, but most are unexplored because they are out of the public domain. The aim of our research is to reveal the conflicts in the settlements, either well-known or hidden, and to confirm their existence with the help of secondary statistical databases (HCSO – Hungarian Central Statistical Office, TEIR). The establishment of a primary database is essential for accurate identification and more detailed knowledge, which is carried out through questionnaires and interviews in the settlements. The purpose of creating and developing the database is the spatial representation, the creation of so-called social informatics maps.

Keywords: settlement conflict, statistical database, social informatics maps

1. Introduction, research questions

The aim of the basic research presented in the paper is to better understand the nature of social conflicts, to systematically describe them in the Northern Hungary region, and to propose possible solutions for managing different types of social conflicts. The research is being carried out in the framework of the project EFOP-3.6.2-16-2017-00007 „Aspects on the development of intelligent, sustainable and inclusive society: social, technological, innovation networks in employment and digital economy.” at the University of Miskolc. In connection with the project, a statistical work group has been set up to continuously expand the secondary database with the aim of assisting in the exploration of settlement conflicts. The basic concept of research is based on the idea that conflicts in operation and in everyday life make settlements difficult or in many cases difficult to operate. It is important to resolve ongoing stretches and conflicts of interest, it is important to take steps and find solutions in order to create a viable settlement environment and well-being.

The aim of research is to explore as many conflicts as possible, to gather the factors that trigger problems and to show them all. The first action of the work group was the establishment of a data warehouse, as it was necessary to identify those settlements in the Northern Hungary region that will be subjected to empirical research. The settlements were classified according to their population and in Borsod-Abaúj-Zemplén County two towns (Ózd and Sátoraljaújhely) and three villages (Bükkszentkereszt, Kistokaj and Fulókércs) were selected. The main questions of our research are the following:

- In case of what statistical indicators do settlement conflicts appear?
- Do territorial disparities confirm the presence of conflicts indicated in questionnaire surveys?

• How do the settlements involved in the primary research fit into the characteristics of their immediate environment, and what position do they have within the districts?

This paper briefly presents the results so far, based on two case studies. One analysis is related to conflict types (demographic characteristics - social connection; residence - crime), while the other case study attempts to answer the above questions using the example of the Ózd district.

2. Literature review; data and methods

Conflicts can be classified by several aspects. The importance of model creations lies in choosing the right treatment method. In previous studies, for example, they were based on the level at which the human relationship system operates.

Another type-creating feature is that the basis of the conflict exists in reality or only in the perception of the participants (imaginary). The base of “real” conflicts are the conflicting goals, emotions, values and interests between the parties. In contrast, “imaginary” conflicts are the result of human misunderstanding, delusion, historical tradition, stereotypes, prejudices or hostility.

Conflicts can be classified into different types based on the root causes of their origin.

• Relationship (intrapersonal, interpersonal) conflicts
• Value conflicts
• Structural conflicts
• Communication and information conflicts
• Conflicts of interest (http://konszenzus.org).

Analysis and exploration of social conflicts in the 21st century has become more widely interpreted than in previous decades. Social conflicts are no longer specific to socio-cultural, ethnic, religious, political or economic conflicts, no longer clear in nature and scope, but become multi-faceted. Conflict research is not a homogeneous field of research in the sense of a specialized discipline as found in academic science; it develops in changing forms of specialization and knowledge combinations that are described as inter- or transdisciplinary (Nowotny et al 2001). Complex social conflicts have various reasons and causes, as well in the lifeworld of people, as in the structures of societal systems, in the structures of power and forms of ownership, and in the ways humans deal with nature and use natural resources (Bruckmeier 2014).

The statistical research team is constantly expanding its secondary database to assist in the exploration of settlement conflicts and to enable the spatial, later interactive display of statistical data. To display it on a map, in the first step of the social informatics maps we used data from the following indicators:

• Population change (2001-2016) by district level of Borsod-Abaúj-Zemplén county
• Number of registered job seekers (2001, 2011, 2016) by district level for the three counties
• Population at the end of the year (2001) by settlement level
• Population at the end of year (2011, base index, base year: 2001)
• Population at the end of year (2016, base index, base year: 2001)
• Total number of registered job seekers (persons) (2001) by settlement level
• Total number of registered job seekers (persons) (2011, base index, base year: 2001)
• Total number of registered job seekers (persons) (2016, base index, base year: 2001)

• Population aged 0-14 at the end of the year (persons), Population aged 65 and over (persons), aging index settlement level

The sample settlements were selected by a simple random sampling method, and ArcGIS software was used to map the statistical database.

3. Statistical confirmation of social conflicts

This section presents some examples of the results obtained from the processing of statistical data and questionnaires. In the case of the Northern Hungary region and Borsod-Abaúj-Zemplén county, the increase of differences between the regions is common on a social level. In the case of larger cities, it is the risk of ghettoisation, population decline and aging population in the villages of the closed districts. A significant number of young graduates have left the region over the past decade, influencing and forming labour market processes. Demographic indicators show that where the Roma population lives in a higher rate, the standard of living, educational level, the comfort level of buildings are lower than average. In deprived settlements, the number of people in need of social assistance and the number of unemployed is high (Gelsei et al. 2005).

In recent years, significant demographic changes have taken place in Borsod-Abaúj-Zemplén County as well, which meant a decrease in the number of 15-74-year-olds considered to be economically active besides population decrease. According to the aggregate data of the HCSO publication, the county had a population of 675,000 in 2014 (compared to 753,497 in 2000). Labour market data show that in 2014 there were 243,500 people employed, of which nearly 64% had secondary education, 21.8% had a diploma and 14.1% had a lower qualification (Siskáné Sz. B. 2018).

The first type of conflict involved is the exploration of (intergenerational) problems based on demographics, which is becoming an increasingly important issue in today’s Hungarian context as the process of population aging is continuing. The basic data were: population at the end of the year; three age groups of the population; migration balance. The population change that is the basis of Figure 1, which is given by the base index (the base year was 2001), shows that there are no districts in the region where there has been a positive population change. Four districts represented the highest values (population decrease over 20%): in Nógrád county, in Bátonyterenye district, in Heves county, in Bélapátfalva district, and in Borsod-Abaúj-Zemplén county, in Sátoraljaújhely and Tokaj districts. The decrease in population was also influenced by the increase in the share of foreign labour, not only by the internal migration losses, and the settlements (Figure 2) where the aging index is very high can be clearly distinguished in the region based on the statistical data.

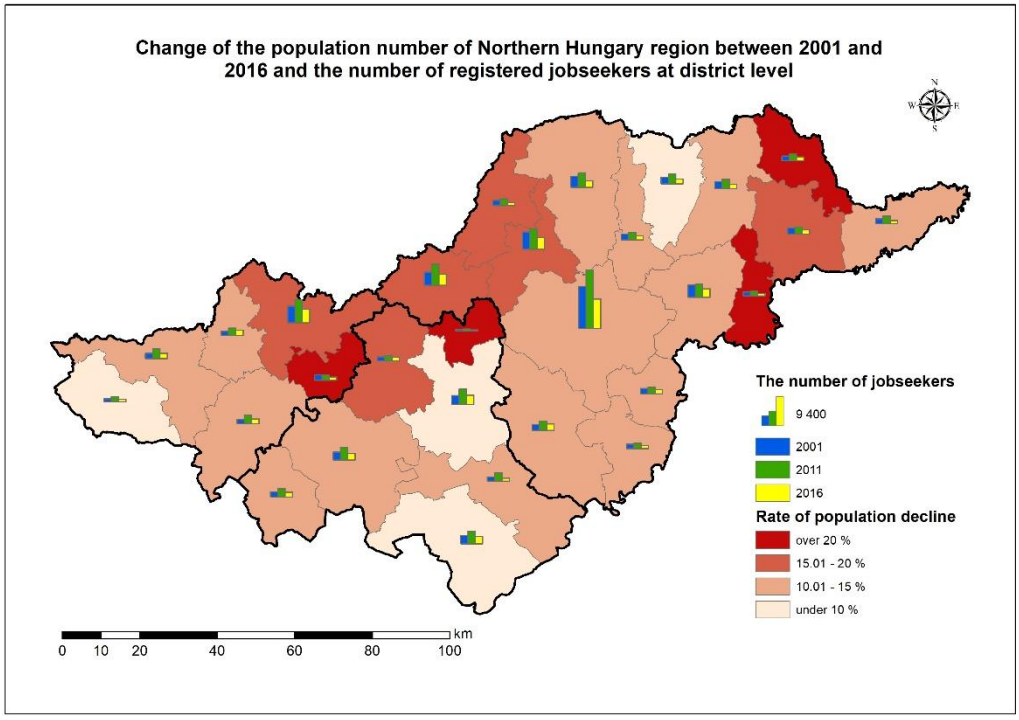

Figure 1 Change of the population number of Northern Hungary region (between 2001 and 2016) and the number of registered job seekers at district level (2001, 2011, 2016)
Source: Hungarian Central Statistics Office, edited by P. Vadnai

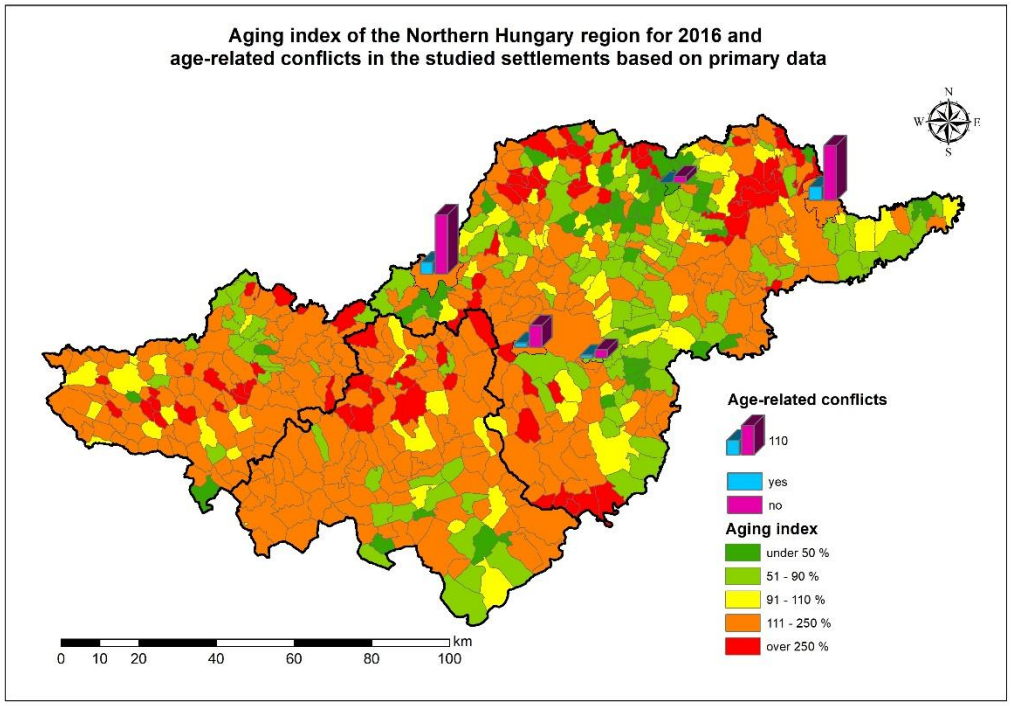

Figure 2 Aging index of the Northern Hungary region for 2016 and age-related conflicts in the studied settlements based on primary data.
Source: primary databases, edited by P. Vadnai

The growing proportion of older generations means not only a shrinking population or even ’depopulation’ of villages and towns, but also a disparity of behavioural and moral standards, which can be a source of conflict. Figure 2 shows that in each of the examined municipalities the age-related tensions appeared. In terms of ratios, ’yes’ responses were found with similar frequencies for settlements of different sizes, suggesting that this type of conflict is present in urban and rural social spaces regardless of settlement size.

For the institutional topic, the following indicators have been selected: educational institutions; general practitioners, social services, disadvantaged people, unemployment rate, public work. In the case of settlements, one of the most important issues is the existence or lack of job opportunities. Based on the statistical data (Figure 1), which shows the change in the number of registered job seekers, it can be concluded that a significant improvement can be observed for the municipalities surveyed between 2011 and 2016.

The reason for this positive change is related to the labour market transformations connected to the global crisis. One possible response to the processes generated by the global economic crisis, introduced by many countries (including Hungary), is the employment-related policy trend model of the workfare society. In Hungary, the public employment system has been transformed since 2011, with the aim of achieving a form of employment that is socially useful and generates value, based on the principle of ’giving jobs instead of subsidies’ (Koós B. 2016).

Public employment rates are reflected not only by actual numbers, but also by direct job creation costs, which may vary considerably from country to country. In case of Europe in 2012, Hungary, Ireland, Bulgaria and France spent the most on direct job-creating public employment programs. Expenditure increased subsequently in only three countries in the following period: Bulgaria, Latvia and Hungary. The rate of participants in direct job creation varies between countries, the highest rates (above 5% per 100 job seekers between 2006 and 2012) can be found in Slovakia, Bulgaria, Luxembourg, France, Ireland and Hungary (Siskáné Sz. B.-Halász L. 2017).

The rates shown in Figure 1 are therefore the result of this economic measure. It will be an important question for the future as to how many people will be transferred from the public work program to the primary labour market, as this form of employment is not for long-term sustainment. The empirical study revealed that the inhabitants of the settlement are more satisfied with the working conditions (Figure 3), but there are differences, as the inhabitants of Bükkszentkereszt are less satisfied than the inhabitants of Kistokaj. There are also differences between the two towns, those living in Ózd preferred to choose between values 3 and 4, while in Sátoraljaújhely most respondents indicated values of 4 and 5. The statistical data also confirm the changes in employment, as in the HCSO’s 2016 micro-census statistics, in the topic of the economic activity of the population, the ratio of the employed in the Northern Hungary region is 42.7%, and in Borsod-Abaúj-Zemplén County 42.4%. These values are much higher than those recorded in the 2001 census, which was only 28.1% for the county.

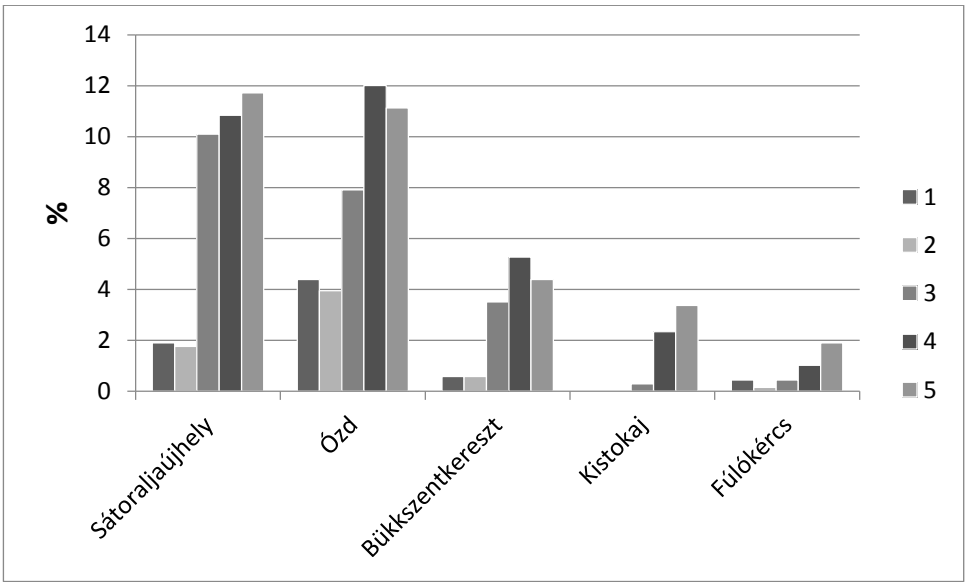

Figure 3 Percentage of job satisfaction in the surveyed municipalities (on 5 value measurement scale; 1= not in the least, 5= greatly)
Source: primary databases, edited by B. Siskáné Szilasi

The characteristics and image of the settlements are shaped by the people living there within the natural and built environment. However, settlements are constantly changing over time, and the strengthening of certain factors (society, economy) may make a living space attractive, while others (decline, crime, segregation) may make it repulsive, leading to depopulation and then extinction. Some of the conflicts within settlements are related to these components, some of which are determined by crime-related events. In our crime map for the Northern Hungary region, we could use the HCSO data for 2016 (Figure 4) and compared it with demographic situation and educational attainment.

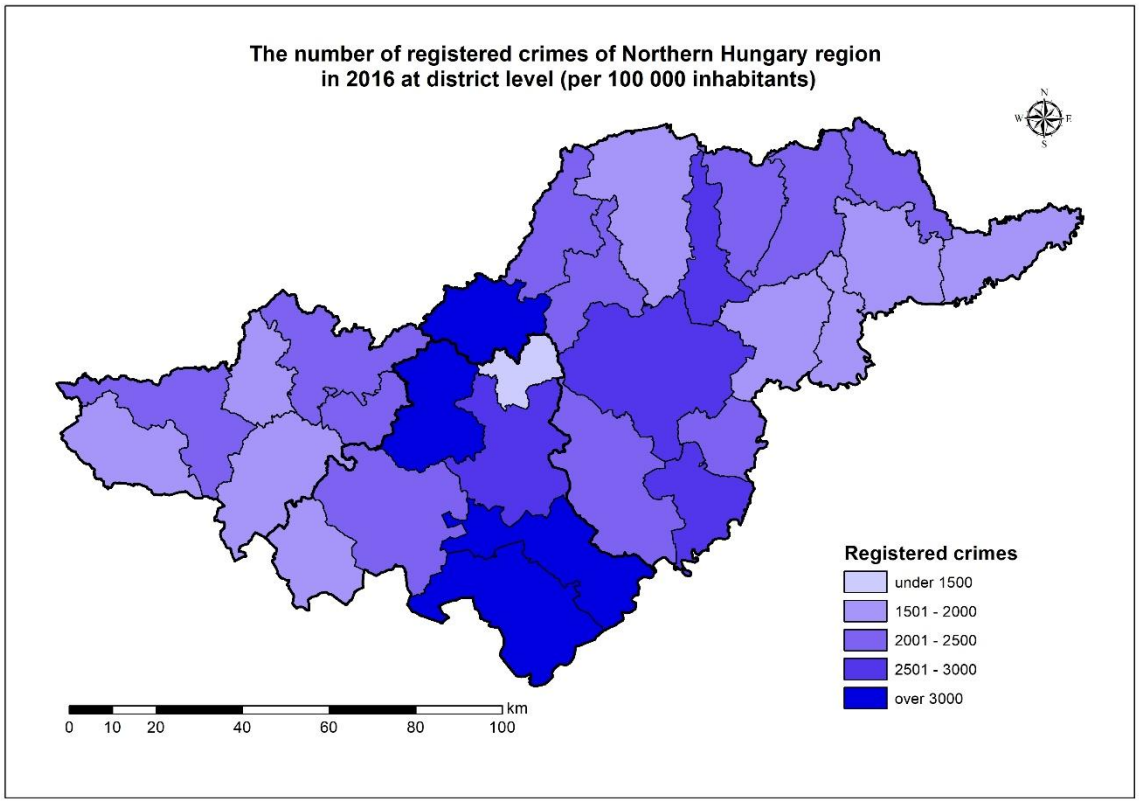

Figure 4 The number of registered crimes of Northern Hungary region in 2016 at district level (per 100 000 inhabitants)
Source: Hungarian Central Statistics Office, edited by P. Vadnai

In the case of the examined settlements, two important factors can be observed in the light of the new data: one is that the crime data did not increase, that is, there is no increase in the number of criminal offenses in the region, which may be due to the decline in economic indicators and the economic power of society (impoverished and aging population of small villages). Another factor is that generational crises, as a result of migration losses (internal or external), may gain more and more space in municipalities. It is also reflected in the different quality and ways of life.

As a result of the increasing emigration, villages (rural areas) are becoming more and more empty, the average age of the population remaining in the area is increasing, and the resistance to crime (thefts, burglaries) is decreasing. In the future, it will be an important question whether crime in these areas will increase as a result of the demographic shift.
Another important question is personal involvement. In the primary research, respondents were asked whether they had been involved in a crime or if they had been victims of crime e.g. theft. The distribution of answers are shown in Figure 5.

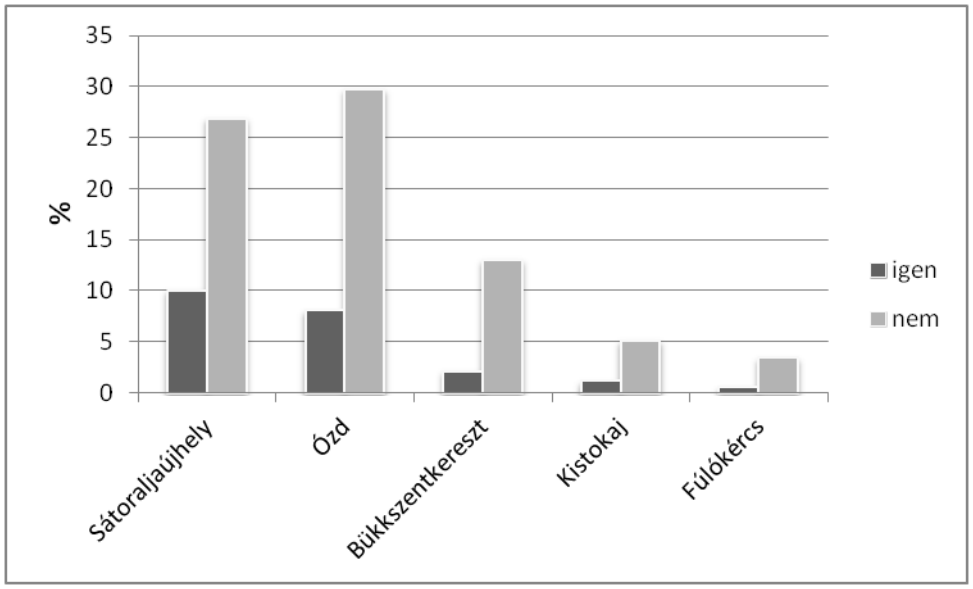

Figure 5 Have you been the victim of any crime related to valuables, such as theft?
Source: primary databases, edited by B. Siskáné Szilasi

In the case of the two towns we got almost the same proportion of the affected population, 10% of the respondents of Sátoraljaújhely answered ’yes’, while in Ózd the proportion was 8.01%. In case of the villages, between 0.5% and 1.1% of the respondents in Fulókércs and Kistokaj were affected by theft, in Bükkszentkereszt the response rate was 2.12% for all respondents.

4. Case study - Ózd and the settlements of the Ózd district

The development of Ózd began in the 18th century, when coal mines were opened in succession and an iron refinery and rolling mill plant were built. Thanks to these developments, by the 1930s, the town has become one of the country’s major industrial centres. The daily lives of the people living there, their way of life, their livelihood, as well as their community life were determined by the factories and the working life. The settlement was awarded the town status in 1949 and its population has already exceeded 20,000 people (24,830 people). The Roma population in the settlement was around 2000 at that time (Esélyteremtő Programterv 2015).

It was also common for mining settlements and ironworks centers to employ a greater number of people with lower qualifications for auxiliary and unskilled labour. In the case of such settlements, the closing of factories and mines resulted in much greater social conflict because of the generally mono-industrial economic structure. Thus, after closures, due to lack of education and occupation, some people were unable to find work elsewhere and remained largely in the respective municipalities, thus increasing the number of unemployed. The economic conflict was also significant, as formerly workers with a lower qualification at mines and factories earned quite high salaries, but after closures they became completely vulnerable to subsidy programs, and their social recognition also changed significantly. In many towns and villages with similar characteristics, this process can be observed, which can cause more serious tensions at the municipal level (Siskáné Sz. B. 2006).

After 1990, Ózd experienced the greatest crisis in its modern history with the parallel regression of metallurgy and mining. At the time of shutting down, there were only a few parts of the plant that were still profitable to operate, so they were successfully privatized. However, only a fraction of the remaining jobs could be used by those living there, as the establishment of the industrial park created in 1995 to promote urban rehabilitation succeeded in employing only 1,400 people. We could say that this was a good number if it were not known that more than 10,000 people became unemployed when the factories closed down. Mine closures due to the uneconomic nature of coal mining have further aggravated the unemployment situation in the region. Coal mining for heavy industry in the county previously employed about 12,000 people (Esélyteremtő Programterv 2015).

The Ózd district is one of the most unfavorable districts of Borsod-Abaúj-Zemplén county in terms of unemployment, for example, in 2012 the unemployment rate was 21.4%. Nowadays, this has been reduced to over 10% thanks to public works programs. However, the proportion of long-term unemployed in the Ózd district was slightly above 40% in 2015, compared to 46% in Ózd. It is a particularly difficult situation in terms of social conflicts, especially since we are dealing with a lasting and long-term process.

Of the 17 settlements belonging to the Ózd district, two have a city rank (Ózd, Borsodnádasd), only the district center has a very large population (Figure 6). By the size of the settlement there are 4 smaller villages (Bükkmogyorósd, Kissikátor, Lénárddaróc, Uppony); 5 small villages (Borsodbóta, Csernely, Csokvaomány, Domaháza, Nekézseny); there are also 5 larger villages (Borsodszentgyörgy, Farkaslyuk, Hangony, Járdánháza, Sáta) and one village with the largest population (Arló).

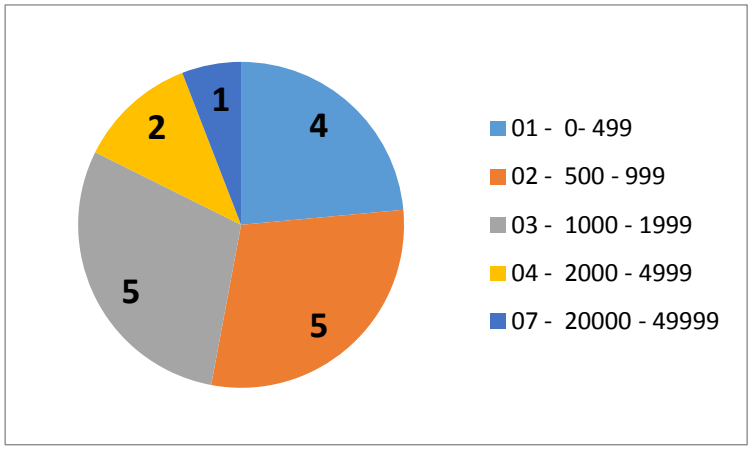

Figure 6 The distribution of settlements in Ózd district by size of settlement (Source: Hungarian Central Statistics Office)

The population of settlements in the district has begun to decline as a result of the regression of iron manufacturing since 1985. Figure 7 shows the previous census and 2017 population (without Ózd). It can be seen that the population has decreased in all settlements during the 6 years since the census, which is due not only to the decrease in the number of live births, but also to the migration balance. There are settlements where the number of births has increased compared to the year of the census (Borsodbóta, Borsodnádasd, Csernely, Domaháza, Hangony, Járdánháza, Sáta, Uppony). However, it can be seen in Figure 8 that these settlements had a significant emigration compared to the average internal migration in the district, which resulted in a decrease in the population with a higher birth rate.

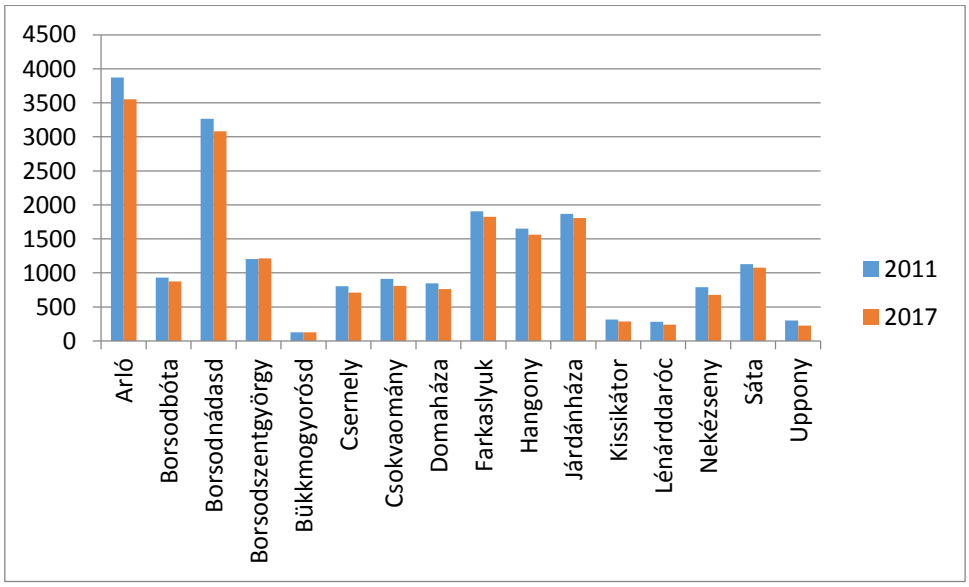

Figure 7 The population number in settlements of Ózd district in 2011 and 2017 (without Ózd; Hungarian Central Statistics Office)

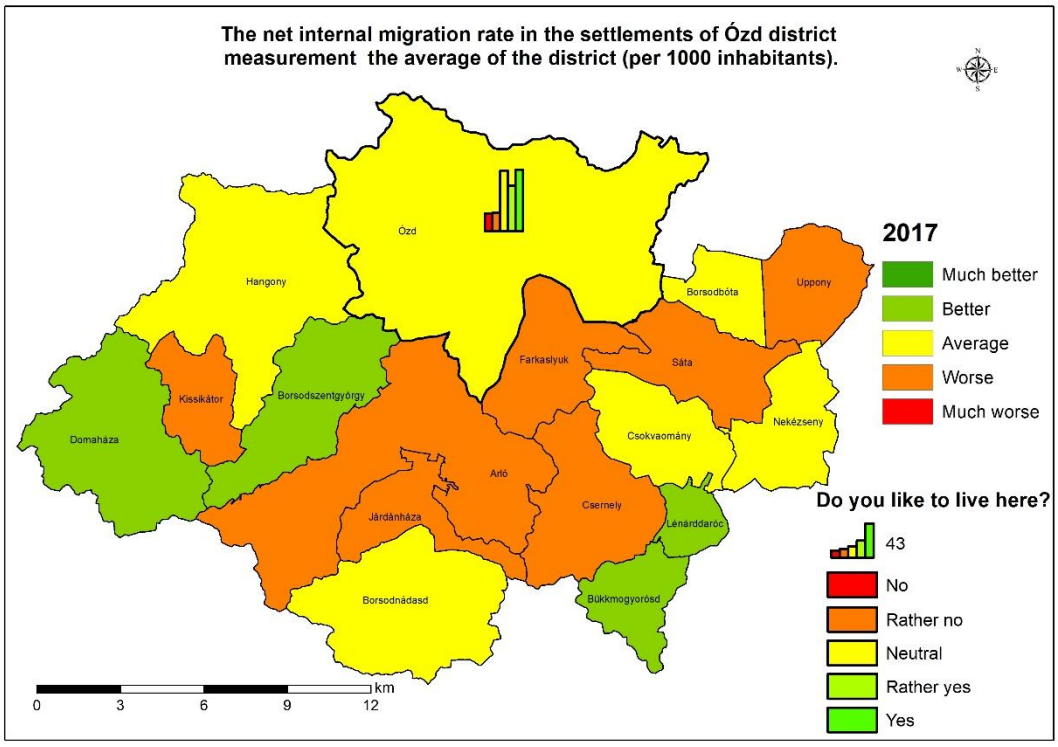

Figure 8 The net internal migration rate in the settlements of Ózd district measurement the average of the district (per 1000 inhabitants). (Database: B. Szilasi Siskáné; edited by P. Vadnai)

The data of Ózd are analyzed separately because, as we can see in Figure 5, it has a much higher population than the other settlements in the district. Ózd reached its population maximum in the 1980s (1985: 48 990 people), and since then the population has been declining steadily. By 2005, the population of the town has dropped to 37,528, and by 2017 it

has fallen to 32,564, which has been significantly contributed by the persistent migration losses in recent years (Figure 9).

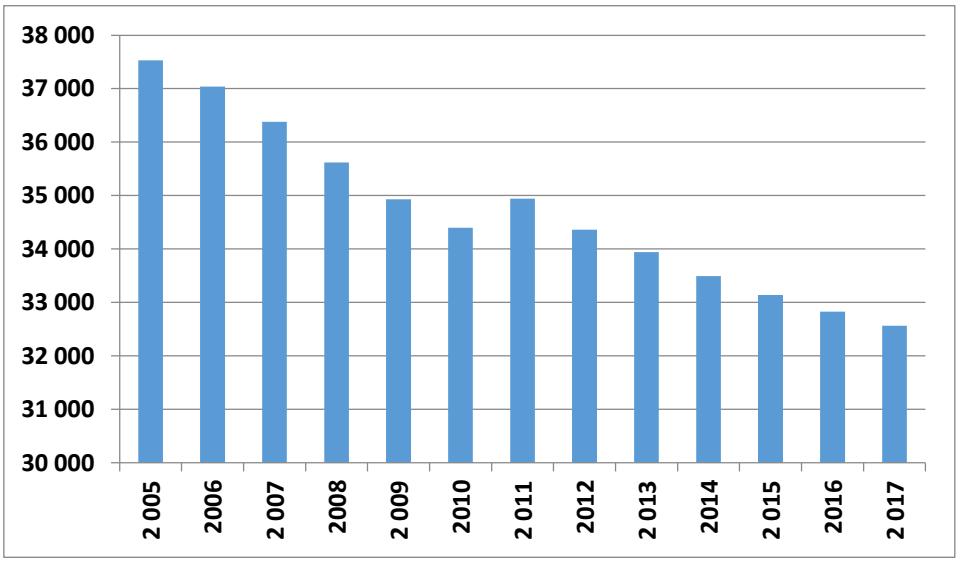

Figure 9 Change of population number of Ózd between 2005 and 2017 (Hungarian Central Statistics Office)

In the case of Ózd there were changes in the structure of settlements accompanied by a significant increase in population, as the settlements forming the town of Ózd (Ózd, Sajóvárkony, Bolyok, Vasvár) were agricultural settlements. The conflict between nature and man emerged when the growth of the settlement and the construction of new dwellings caused the elimination of the former agricultural areas. The anthropogenic landscape formation process was already started before World War II because of continuous modernization of the factory. As a result of the expansion of the factory area and the continuous construction, the unfavorable urban structure, which still exists today, has been created, which has also determined the development opportunities for a long time. An industrial estate is located in the central area, so the living areas were constantly contaminated by iron dust and noise pollution. From 1969 onwards, the construction of the new city center began with ten-story buildings and the service function was installed there (Centrum Department Store, District Office, Police, Court, Post Office). Until iron production stopped in Ózd, the elimination and management of environmental pollution causes were significant sources of conflict, one of the steps of which was the establishment of well-arranged green areas (F. Dobosy L. 2001).

For Ózd, the change of regime brought about significant economic changes, mainly in the transformation of the labour market, the creation of new employment opportunities and the management of high unemployment. Businesses have played and still play an important role in the city and district (Figure 10).

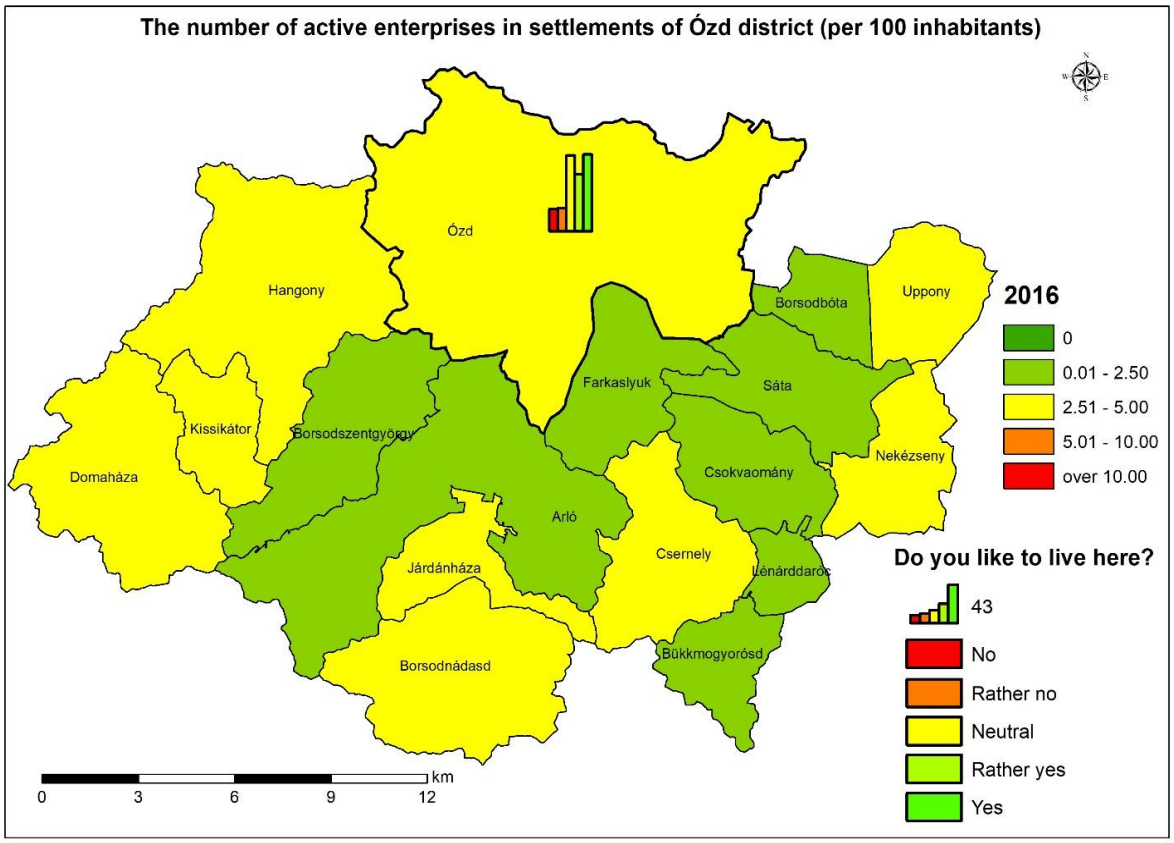

Figure 10 The number of active enterprises in settlements of Ózd district (per 100 inhabitants) Databases B. Szilasi Siskáné; edited by P. Vadnai)

The restructuring of the economic structure and the transition to a market economy brought two important measures, one for the establishment of the Ózd Industrial Park and the other for the promotion and support of businesses, for which the city established separate organizations in the 1990s (Ózd City Economic Development Office, Ózd Industrial Park Ltd., Ózd Business Center etc.).

Small and medium-sized enterprises were established and developed in the city, with more than 400 social enterprises, cooperatives and 1,100 sole proprietorships in the early 2000s (F. Dobosy L. 2001).

In recent years, there have been nearly the same number of corporations (Table 1), and also non-profit and non-governmental organizations are present. In 2017, there were 120 non-profit organizations and 113 NGOs in Ózd. The number of registered job seekers was 2037, while that of the public employed was 1337.

Table 1 The number of enterprises and employments in settlements of Ózd districtt (Source: Hungarian Central Statistics Office)

	Number of active enterprises (According to business demography) - GFO\'11, GFO\'14	**Number of nonprofit organizations** (2017 data)	**Number of NGOs** (2017 data)	**Number of registered job seekers (person)** (2017 data)	**Number of public employees (person)** (2017 data)

	(2016 data)				
Ózd district	**548**	**191**	**175**	**4022**	**2570**
Arló	**11**	**6**	**5**	**587**	**215**
Borsodbóta	**2**	**3**	**2**	**79**	**105**
Borsodnádasd	**34**	**12**	**11**	**265**	**128**
Borsodszentgyörgy	**11**	**7**	**7**	**68**	**31**
Bükkmogyorósd	**2**	**1**	**1**	**9**	**6**
Csernely	**12**	**3**	**3**	**63**	**96**
Csokvaomány	**8**	**3**	**3**	**52**	**58**
Domaháza	**8**	**4**	**3**	**142**	**41**
Farkaslyuk	**14**	**3**	**3**	**248**	**118**
Hangony	**14**	**11**	**10**	**149**	**115**
Járdánháza	**37**	**5**	**5**	**151**	**139**
Kissikátor	**3**	**2**	**1**	**23**	**8**
Lénárddaróc	**1**	**1**	**1**	**15**	**10**
Nekézseny	**4**	**4**	**3**	**35**	**28**
Ózd	**380**	**120**	**113**	**2037**	**1337**
Sáta	**4**	**-**	**-**	**91**	**114**
Uppony	**3**	**6**	**4**	**8**	**21**

We have seen earlier that one of the main problems in the Ózd district is employment, and the presence of a significant Roma population makes it even more complicated (Table 2). The low employment rate in the Ózd district is made up of several factors - lack of jobs, high number of job seekers and unemployed, long-term unemployment rate, high number of inactive population, low entrepreneurial activity, transport difficulties, lack of work experience, and unskilled labour (Esélyteremtő-programterv 2015).

In Ózd, the number of unemployed people for longer than 180 days is high, with the proportion of around 50% of the registered unemployed with up to primary education (in the percentage of all unemployed).

Table 2 Rate and number of roma population in settlements of Ózd district (Source: Gyerekesély Kistérségi tükör, municipal estimate)

Settlement	**Resident population number (January 2010) (person)**	**Roma estimated population**	
		number (person)	**rate (%)**

Arló	**4 008**	**2 000**	**49,9**
Borsodbóta	**943**	**470**	**49,8**
Borsodnádasd	**3 380**	**600**	**17,8**
Borsodszentgyörgy	**1 248**	**200**	**16**
Bükkmogyorósd	**145**	**15**	**10,3**
Csernely	**846**	**171**	**20,2**
Csokvaomány	**963**	**114**	**11,8**
Domaháza	**902**	**450**	**49,9**
Farkaslyuk	**2 023**	**1 000**	**49,4**
Hangony	**1 694**	**520**	**30,7**
Járdánháza	**1 886**	**849**	**45**
Kissikátor	**345**	**0**	**0**
Lénárddaróc	**311**	**7**	**2,3**
Nekézseny	**812**	**0**	**0**
Ózd	**38 344**	**-**	**29-33**
Sáta	**1 274**	**400**	**31,4**
Uppony	**351**	**4**	**1,1**
Ózd district	**59 475**	**6800**	**24,4**

Due to the presence of families with long-standing low incomes and the high proportion of beneficiaries, the district’s population is heavily indebted. Due to difficult financial conditions, the population also has to face poor housing conditions. The condition of the houses is deteriorating and there are no financial resources for renovation work. The stock of municipal rental housing is decreasing. The number of people living in low-comfort houses is high and there are segregated areas and areas at risk of segregation in the municipalities. Here, the disorder of the living environment and the deterioration of public security place an increasing burden on the city administration (Esélyteremtő-programterv 2015). Both in the life of the city and the district, these characteristics can be regarded as the causes of the everyday settlement conflicts.

5. Conclusion

Based on the data available so far, the research has shown that conflicts in the operation and everyday life of settlements in many cases make it difficult or hinder functions. In order to resolve the ongoing tensions and conflicts of interest, it is important to take steps and find solutions for the creation of a liveable settlement environment, also for the sake of human well-being. Secondary statistical data have contributed to the selection of sample settlements, and primary research data have helped to identify actual conflicts.

The database, created from two statistical sources and continuously expanded, helps to display spatial processes, identities and differences, thus providing additional information to the system of settlement conflicts. Demographic, institutional, labour market and crime-related conflicts in municipalities have been identified so far. These are the types of conflicts that occur in both urban and rural areas and determine the daily lives of those living in the settlements. As the investigations progress, we will get even more detailed data that will help establish a general action plan, a conflict management model. In the case of the conflict types presented in the first case study, it has been demonstrated that demographic statistical indicators can be used to identify those settlements with a higher chance of conflict. Labour market, employment-related and crime statistics can also be used to confirm problems identified in primary research.

The second case study shows that it is worth comparing the data of the given settlement with its immediate surroundings and the characteristics of the settlements belonging to the district, because this way the regional disparities are more visible. Primary research supports the information that appears in statistical data and maps, helping to understand why a particular type of conflict appeared in that particular settlement. In further analyses, we will align primary and secondary data, continue mapping, and locate sample settlements within the districts.

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