



**A BŰNÖZÉS TÉRBELI ASPEKTUSAINAK
SZOCIÁLGEOGRÁFIAI VIZSGÁLATA HAJDÚ-BIHAR MEGYÉBEN**

Doktori (PhD) értekezés tézisei

**SOCIAL GEOGRAPHICAL STUDY
OF THE SPATIAL ASPECTS OF DELINQUENCY IN HAJDÚ-BIHAR COUNTY**

PhD Thesis

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Debrecen, 2007

1. Justification of the theme, aims and tasks to be solved

The **paradigm change** in the domestic geography science after the regime change enabled the occurrence of new sub-disciplines and research directions that have been present in Western Europe and in North America and the importance of interdisciplines connecting several science fields like criminal geography increased.

Delinquency, criminal investigation, crime prevention, public safety, subjective safety are phenomena interesting almost every people and influencing the life standard directly. Their theoretical and practical study requires such interdiscipline approach that shall involve geography in a significant role. In Hungary the fundamental social-economic changes occurred since the regime change like the increasing of delinquency, changing of its structure, decreasing sense of security of the population justify and make actual the **social geographical research of criminality**.

Negative phenomena are also space specific thus significant spatial differences are found in delinquency as well. **Criminal geography** studies these spatial differences and the **spatial and time aspects of delinquency** as a social mass phenomenon.

In the course of my research the study of the **criminal geographical conditions of Hajdú-Bihar county**, one of the areas that is characterised by adverse values was carried out between 1990 and 2003.

According to my opinion the criminal geographical studies are **important** (applicable in practice), **actual, pioneer** and **suppletory** (according to my knowledge the detailed criminal geographical research of a county has not yet been carried out in the country).

In the research the following **two** associated fundamental **goals** were set:

- **presenting criminal geography** to the wider public through professional literature;
- **presenting the methods, practice, application possibilities** of applied criminal geographical investigations through **concrete examples** (Hajdú-Bihar county, Hajdúböszörmény) on the basis of individual research results.

Tasks to be solved in order to reach the goals:

- determine the **term of criminal geography**, reveal its major **historical benchmarks**;
- present the **modern criminal geographical methods and tendencies** applying GIS techniques, and finally to investigate the conditions of their **domestic adaptation**;
- **construction of database** for the criminal geographical investigation of the study-areas;
- carry out **comparative analyses with space and time aspects** at several spatial levels regarding the extent, tendencies, dynamism, structure of delinquency and the effectiveness of the police work, based on this to complete the **environment qualification of Hajdú-Bihar county regarding delinquency**;
- expose the spatial **relationship** between **delinquency** and the **social-economic factors**;
- to complete the detailed **criminal geographical study** of a chosen settlement (**Hajdúböszörmény**)
 - to reveal the relationship between public safety and sense of security,
 - to analyse the volume and reasons of latent crime,
 - to investigate the practice of crime prevention and to create recommendations in order to improve it;
- **to summarise and to conclude** the role of criminal geographical research in criminal investigation and crime prevention.

2. Applied methods in the research

2.1. Preparing the information base

- **Domestic** professional literature was obtained via libraries, and professional connections. **International literature** was gained primarily from the library of the Philipps-Universität in Marburg when I spent a semester there and via inter library lending, studying foreign journals and with the help of the Internet.
- Primarily my knowledge of crime prevention was extended by my participation on the short course entitled „Training of Trainers” by the **Crime Prevention Academy of the Ministry of Home Affairs** in 2004 with the successful completing of which I became **member of the trainers’ network** of the Academy.
- The fundamental source of the **rules associated** with the research was the *CompLex CD Rules*.
- The sources of the **social, economic information** relevant to the county were the publications of the *Central Statistics Office (CSO)* and the *TEIR*.
- Greatest difficulties were presented by the construction of the **criminal statistical database** as certain unpublished data could have only been gained with the permission of the responsible office of the Ministry of Home Affairs and a part of the information was not possible to receive - due to personal rights, secretising (e.g.: in relation to organised delinquency).
 - The most important source of criminal data was the *ERÜBS* (united police-prosecution criminal statistics).
 - One part of the criminal rates was received from *Statistics Department of the Informatics Office of the Ministry of Home Affairs*.
 - The information base for the spatial distribution of the crimes in Hajdúböszörmény was obtained from the Police Headquarters of Hajdúböszörmény taken out from the *Robotzsaru-2000 integrated procurational and processing system*.
- To know the practice of criminal investigation and crime prevention in more detail problems exposing **professional talks, soft and structured deep interviews** were performed with the leaders and colleagues of professional authorities. (Police Main Headquarters of Hajdú-Bihar County, Police Headquarters of Hajdúböszörmény, MHA Informatics Office Statistics Department, Nyírbátor Frontier Guard Directorate, Orosháza Frontier Guard Directorate, Northern Great Plain Regional Headquarters of the Board of Customs and Excise, Hajdúböszörmény Civil Guard Association, Hajdúböszörmény Rural Constable Service, etc.)
- The applied social geographica studies besides official statistic data were based on broader and deeper information bases enabling the exposition of the phenomena and processes. The application of **empiric methods** is essential - as official statistic data are not always available - in the course of criminal geographical studies. Therefore a **questionnaire survey** was performed regarding the sense of security, latency, and the opinion on the work of the local Police headquarters. According to my information such survey covering a whole town and **layering those questioned based on their geographical position** has not been performed yet in Hungary.
- **Field trips** were also performed during the criminal geographical study of Hajdúböszörmény primarily in order to analyse the possibilities of architectural crime prevention.

2.2. Applied methods

- Statistic data were recorded in *tables* with the help of the software **Microsoft Excel 2000**. This software was applied to construct the *graphical figures* (graphs, diagrams) and to the application of the *mathematic-statistic methods* as well.
- The software **SPSS for Windows 8.0** helped my research in recording and analysing the *data of the questionnaire survey*.
- **Thematic maps** (104 pieces) were applied as information source, data analysis method and presentation of the results in order to show them in more striking forms. The majority of the maps were prepared by the software **ArcView GIS 3.3**.

3. Results of the research

3.1. Evaluation and critical analysis of the professional literature

- **Term and relationships of criminal geography:**

The field of science studying the spatial distribution of delinquency **not** only lacks a **generally accepted definition** but the **term** itself is **not cleared** completely in the Hungarian professional language. **The classification of the science is also doubtful.**

Studying the spatial aspects of delinquency is frequently called criminal geography and geography of crimes. In my opinion these are not the same completely as criminal geography they represent an interpretation of closer sense.

From the criminologist's point of view criminal geography or geocriminology is part of the field of criminology without geography, geographers.

Criminal geography has a geographical or more precisely a **social geographical definition** as well apart from its criminological one. (*Berényi I., Herbert, Kovács Z.*).

On the basis of the professional literature in my opinion **criminal geography is a branch of applied social geography studying the spatial and time aspects of delinquency as a social mass phenomena, it is an inter-sub-discipline between criminology and social geography.** It studies the spatial structure, extent, tendencies and dynamism, spatial intensity, social-economic background of delinquency, investigates its expected spatial shifts regarding the current social-economic processes and it contributes to the determination of space specific crime prevention strategies.

I regard it as **not an individual** discipline as its subject, terms and methods, scientific principles are based on and are dependent on the sciences of criminology, sociology and social geography. Its closest connection is found with **social geography** as an earth science and with **criminology** as a criminal science. However, it is in close connection to **sociology** as the problems of delinquency cannot be analysed in detail without its fundamentals and empirical methods. Its connection to *demography, ethnography, psychology, criminalistology, criminal law, architecture, cartography* and *GIS* can be highlighted.

- **International history of the „traditional” criminal geographical researches:**

Criminal geographical investigations were started in the **first half of the 19th century** and they are associated to the initial criminal sociological trend of criminology: the studies of *Guerry* (1833) and *Quetelet* in France were the very first ones to analyse the spatial distribution and their explanation.

Criminal geography was renewed by the so called **Chicago school from the 20s of the 20th century** starting the **second great era** of its history. The criminal ecological researches of *Shaw* and *McKay* are important even today. The essence of their widely known *zone theory* can be summarised as the number of crimes is in reciprocal ration with the distance from the town centre.

The increasing of delinquency diverted attention towards criminal geographical research again from the **1960s**. This was the time when the **third era of criminal geography** termed here as “**traditional**”. The most important results were born in the **English speaking countries** (e.g. Environmental criminology of *Brantingham* and *Brantingham*; „delinquent mobility”, „Defensible Space” of *Newman* and the „Crime Prevention Through Environmental Design” of *Jeffery* and in **West Germany** (e.g.: the researches of *Albrecht, Frehsee, Hellmer, Hentig, Herold, Schneider, Schwind*).

- **Domestic history of „traditional” criminal geographical researches:**

In Hungary *Földes B.* carried out the first criminal geographical investigation (**1889**).

From the **period between the two world wars** works of jurists, statisticians discussing the spatial characteristics of criminality can be mentioned (*Hacker E., Schneller K., Auer Gy.*).

In the 1950s it was not possible to carry out criminological researches as the data of criminal statistics were secret and criminology revived only in the **beginning of the 1960s**. After this significant researches were started many of which had criminal geographical aspects (e.g.: *Heller Farkas T., Borsi Z. and Halász K., Kránitz M., Pusztai L., Kovacsicsné Nagy K., Szabó A.*).

From the 1980s - with the increasing of delinquency - **more-and-more work was made primarily by criminologists** investigating the **spatiality of delinquency** (e.g.: *Molnár J., Vavró I., Nyári K., Szabó A. and Koltainé Tóth M., Marosi L., Kerezsi K., Ritecz Gy. and Sallai J., Kobilka I.*).

Geographers - not many of them - carry out criminal geographical research only **from the end of the 1980s**. (Kovács Z., Michalkó G., Tóth A., Mátyás Sz.).

- **Modern - applying GIS methods - criminal geography:**

Crime Mapping:

The computer and information revolution of the last two decades presented a penetration in the field of **computer criminal mapping** especially with the spreading of **GIS** methods. Besides theoretical works (e.g.: *Eck, Weisburd and McEwen, Harries, Boba, La Vigne and Wartell*, publications of the *Crime Mapping Research Center*) practical applications are also widespread especially in the United States

GIS based criminal maps became **valuable instruments**: in *depicting* and *analysing* the place, time, type and method of crimes together with the living places of delinquents and those aggrieved. They can be applied to show the areas controlled by patrols, the changing of distance and crime, revealing of series crimes or crime prevention adjusted to the local specifics. **In the Police** they can be applied in patrolling, investigation and strategy works.

In our country its practical application is way behind the still small number of theoretical works (*Erdősi S., Stauber P., Pödör A.*), (IRM “Hungarian Criminal Geographical Information System”, the Home Page of the Police Headquarters in the XIII district of Budapest, Police Headquarters in Dunaújváros) however, such systems adjusted to the local specific conditions would **have good service in the fields of criminal investigation and crime prevention in Hungary as well**.

Hot Spots Analysis:

It has no definition accepted generally but means generally such **places of relatively small extent are** meant here where **crimes are concentrated** and **crime infection is high** for a longer time period. (*Brantingham and Brantingham, Block and Block, Buerger, Eck, Sherman, Spelman*). These places may be point- (like a building) or patch-like (an area). For the determination of their area softwares have been present for more than a decade, however, a united view has not been formed yet for the aspects of map construction. Hot spots vary in space and time, they mostly occur first as slight crime concentrations and they have development stages.

- **Possible spatial dimensions of criminal geographical research in Hungary:**

With the critical analysis of former researches in Hungary I regard the analysis of the spatial structure of delinquency as beneficial at **six spatial levels**: **1. National/international level**; **2. Regional level**; **3. County level**; **4. Small region level**; **5. Settlement level**; **6. Within settlement level** - in this level I identify **three sub-levels**: *a. larger districts* (districts, police stations); *b. smaller town parts relatively homogeneous regarding human ecology*; *c. housing estates, building blocks, houses, road constructions (architectural crime prevention)*.

3.2. Comparable-analysing criminal geographical study of Hajdú-Bihar county

3.2.1. Analysing the physical and social geographical factors influencing the criminal state of Hajdú-Bihar county

In the course of criminal geographical research it is essential to investigate the **physical geographical conditions, social-economic factors potentially influencing the criminal state** of a given area. Therefore the *physical geographical conditions, place in the spatial structure, inner space structural connections, transport geographical characteristics, small region development level, demographic and settlement geographical conditions, economic position* of the county was studied in detail. The comparative analysis of the **state of the county regarding the national characteristics** and the determination of **the spatial differences within the county** were carried out.

In conclusion it can be stated that Hajdú-Bihar is a **moderately developed county** on the basis of the investigated factors. It is composed of **heterogeneous areas** from social-economic points of view and they can be classified into three major categories:

- **Debrecen rises like an oasis** from not only Hajdú-Bihar county but the entire eastern part of Hungary considering social-economic development.

- A specific urban area presents the developed **centre** area of the county situated in the area of the Hajdúság in the **central part of the county**.
- **Bihar, Ligetalja** and the **Erdőpuszták**, together with the **Tiszamente** are peripheral economically backward **multiply disadvantageous** areas lying along county and state boundaries.

3.2.2. Spatial structure of the authorities and organisations specified to investigate and prevent crime

Public safety and the sense of security of the inhabitants can be directly influenced by spatial structure - changing from time-to-time - of the crime investigation and crime prevention authorities and organisations.

- **Police:** The local organisation of the Police is the **Police Main Headquarters of Hajdú-Bihar County** the authority of which covers the area of the county. Its local authorities were **8** strongly heterogeneous - corresponding to the demographic and settlement geographical specifics of the county - **police headquarters** (their area covers not the statistic small regions of the Central Statistics Office), **20 police stations** and the **district police officers**. **There was no presence of Police in 27 settlements** out of the 82 settlements of the county (*Map 1.*).
- **Frontier Guards:** The part of the state border and border area that belongs to Hajdú-Bihar county (**98,542 m**; and between 1997 and 2001 the public administrative area of 30 settlements, **1,305.96 km²**, 21 % of the area of the county) is under the authority of the **Frontier Guard Directorate of Orosháza** and **Nyírbátor**.
- **Board of Customs and Excise:** The middle (regional) organisation of the customs office is the **Northern Great Plain Headquarters of the Board of Customs and Excise**. The local organisations are the **border customs offices** at **Ártánd** and **Nyírábrány** together with the **customs offices** in **Berettyóújfalu** and **Debrecen**.
- **Civil Guard:** in 2004 the **Hajdú-Bihar County Civil Guard Association** involved civil guard organisations operating in **70 settlements** of the county.

3.2.3. Spatial characteristics of the known crimes

The entire delinquency cannot be known completely there is a difference between the **measurement of the known delinquency** and the **estimation of the total delinquency**. The difference of real (complete) and the known delinquency is the **latent delinquency** the volume (according to the most general opinion it can be four-five times larger than the registered delinquency) structure (the latent rate is in reciprocal ratio with the weight of aggravement) and the spatial and time variations of which are not known.

In the course of my research the **ERÜBS** database was used from the **criminal statistic** systems. Its base data regarding the criminal statistic delinquency are the **known crimes** registered according to their **place** and the **known criminals** registered according to their **living place**.

- **Extent, tendency, dynamics:**

In Hungary between 1970 and 1980 delinquency was balanced (110,000-130,000 crimes per year). The number of crimes started to increase in the 1980s and the rate of the increasing was intensified in the second half of the decade (1989: 225,393 crimes). **Delinquency was increasing even faster at the time of the regime change:** the number of the known crimes increased to 2.4 times its former number between 1988 and 1991. This **increasing tendency** was continued (with smaller breaks) until **1998** when the known crimes reached their **top** with a value of 600,621. Their number was reduced after 1998 and it **stagnated** with values of 420,782-465,694 **between 2000 and 2002**.

A similar process was observed in **Hajdú-Bihar** as well (there were 5,816 crimes in 1980 and 11,908 crimes in 1989). The number of crimes increased to **three times** their former value between **1988 and 1992** and reached its **top** in **1992** (30,029 known crimes). After this the **tendency** and **dynamics** of the number of crimes **took a different fate** than the national average: the number of crimes was reduced in the following two years and then it was increased again in the subsequent two years then **after 1996** it was continuously **reduced** (2002: 20,401). Regarding the absolute number of the known crimes Hajdú-Bihar was **3-6.** in 1990-2002 in the order of the **counties list added with Budapest**. Based on the **average** of the studied time period it occupied **4th position** (*Map 2.*)

In the county the **values of Debrecen** are significant **among the eight Police headquarters**: 61.7% of the known 296,175 crimes in Hajdú-Bihar were committed in Debrecen. Considering the other seven headquarters most of the crimes was committed in the area of the Berettyóújfalu and the Hajdúhadház headquarters and the smallest number of crimes were committed in the area of the Hajdúböszörmény and Hajdúnánás headquarters (*Map 3.*).

At settlement level much more significant data characterise **Debrecen**. Between 1990 and 2002 58.7% of known crimes can be associated with Debrecen, i.e. **Debrecen has more crime problems** than the rest of the settlements together in the county. This also proves that the **most crime infected** areas are the towns especially the **cities** (reasons are: anonymity, high number of potential criminals, concentration of values, concentration of challenges, occasions for crime, smaller rate of successful investigations). Debrecen is followed by the **towns** while the **villages are “under represented”** in the number of crimes.

- **Describing crime frequency:**

In order to make them comparable the absolute numbers of crimes have to be completed with calculated values. Generally they are compared to 10.000 or 100.000 inhabitants. The comparison to the inhabitants is the primary indicator of **crime frequency** or **crime infection**.

Studying crime frequency at “**county**” level the **high values of the capital** can be observed (*Map 2.*). **In the first half of the study period Hajdú-Bihar** belonged to the **most crime infected areas**. However, its position became more favourable **after 1997**: with values under the national average and equalling the countryside average it was found **in the middle** or in the **second half** of the **national order**. **Taking the average** of the number of the known crimes per 100.000 inhabitants it occupied the **8th place** between 1990 and 2002.

At headquarters level the **crime frequency** in the area of the **Debrecen Police Headquarters** was **very high** (*Map 3.*) well exceeding the national average and increasing significantly the average of the county as well. Considering delinquency the **least infected areas** are that of the **Hajdúböszörmény** and **Hajdúnánás Police headquarters**.

The **most extreme values** are found at **settlement level** (*Map 4.*). **Debrecen** can be characterised by a **high** but not the highest value of **crime infection**. Crime frequencies of the **towns** can be classified in the **moderate categories** with the exception of the strongly infected Hajdúhadház. The settlements with the **highest values** are found in the area of the Berettyóújfalu Headquarters (Bojt, Hencida, Pocsaj, Told). The crime infection of **Ártánd** is significant where much higher values are experienced as elsewhere (the reason for this is that crimes became known along the border are classified to Ártánd). **Less crime infected settlements** are found both in the more developed (e.g. Ebes, Görbeháza) and in the less developed areas of the county (e.g. Bihardancsháza, Tiszagyulaháza).

- **Structure of the known crimes:**

The structure of crimes can be studied from several aspects: **crime** and **offence** mean **differences in the weight of punishment in the criminal law**; while **wilfulness** and **negligence** are the **form of guilt**.

Studying the **activity** of the known crimes the most important approach is the overview adjusted to the **chapters of the Criminal Code (CC)** (*Act IV. 1978*). Based on this **9 main groups of crimes** can be separated. The spatial characteristics of the structure of the crimes was investigated (the pattern of the absolute numbers and the rates at national, county and Police headquarters level) according to this classification.

- **The greatest part** with rates above 60%, 70% and occasionally even 80% was represented by **crimes against property** (primarily stealing and burglary within this). In the second part of the study period some crime main groups (e.g. crimes against public order, economic crimes) were increased against crimes against property.
- The **number** and **rate of crimes against person** endangering the most public and subjective safety are **very high** in Hajdú-Bihar.
- The **majority of transport crimes** are not causing public road accidents but **drunken driving**.
- Among the main groups the **number** and **rate of crimes against public order** (rowdysm, public document forgery, private document forgery, abuse with documents) **increased the most dynamically**.
- The variation in the number of the **crimes against property** determined fundamentally the pattern of the number of all of the other crimes. Studying its **spatiality** it can be stated that due to its significant role in the total crimes it is **greatly similar to the spatial picture of the total crimes**. Its **places** are determined by the **spatial distribution of the values**.

- **One third** of the known crimes were committed in **public areas**.
- **The rate of organised crimes was 0.7% nationally and 0.3% in the county** respectively of the known crimes.

3.2.4. Spatial characteristics of the known criminals

- **Extent, tendency, dynamics:**

The **number of known criminals and known crimes differ** from each other **significantly**. One reason for this is the variation of the *reconnaissance rate*, the other is the *mass crime committing*. The **spatial distribution of criminals** and the spatial characteristics of crimes also **differ** from each other.

The **tendency** of the number of known criminals is **essentially** the same as that of the known crimes, however, the **extent** and **dynamics** of the former is **significantly behind** the latter.

The number of known criminals started to increase in the 1980s **in Hungary**, it was 88,932 in 1989. In 1990 112,254 criminals became known and their number further increased until 1992, however, the **rate of the increase** was **behind** the rate of that of the crimes. This value was stagnating between 1993 and 1996 at 120,000 then another significant increase was experienced in 1997-1998: it reached its **top** in **1998** at 140,083. **Between 2000 and 2002** the number of criminals was reduced to around **120,000**.

A similar process was under way in **Hajdú-Bihar**: the number of known criminals was 3,373, 4,513 and 6,710 in 1980, 1989 and 1990 respectively. Their number reached its **top** in **1992** at 8,122 and it **stagnated** between **1997 and 2002** at between 7,154-7,740. The county is **5th** in the **county order counting with Budapest as well** regarding the number of criminals between 1991 and 2002. Based on the **average** of the values in the studied period it occupies the same disadvantageous position (*Map 5.*).

Among the **Police headquarters** of the county the **values of the one in Debrecen are significant**, although not so than in the case of the known crimes: between 1990 and 2002 46% of the 91,983 known criminals in Hajdú-Bihar owned a living place in the area of the Police headquarters. Considering the other seven headquarters most of the criminals became known in the area of the Berettyóújfalu and the Hajdúhadház headquarters and the smallest number of criminals became known in the area of the Hajdúböszörmény and Balmazújváros headquarters (*Map 6.*).

At settlement level the significant values of Debrecen can be observed. 41% of the criminals became known in 1990-2002 lived in the capital of the county. Debrecen is followed by the other **towns** of the county, however, only with 50-400 known criminals per year in contrary to the 3,000 criminals of Debrecen. The rate of known criminals in the **villages** exceeds the rate of the known crimes, i.e. a part of the criminals living in villages committed crimes outside their home village dominantly in towns.

- **Number of known criminals by 100,000 inhabitants:**

The **frequency of criminals** is the number of known criminals by 10,000 or 100,000 inhabitants.

The frequency of criminals at “**county**” level differs significantly from the crime frequency. The **first counties** in this respect are those **of the northeastern part of the country** together with Komárom-Esztergom (*Map 5.*). Criminals living here committed their crimes elsewhere, dominantly in Budapest. It can be stated that there is a **reciprocal proportion** between **social-economic development** and the **frequency of criminals**. In **Hajdú-Bihar** - except for two years - the frequency of criminals **exceeded the national average**. It was **placed 4th** in the county order based on the **average** of the number of known criminals by 100,000 inhabitants between 1990 and 2002.

At **Police headquarters’ level** the frequency of criminals of **Berettyóújfalu, Debrecen and Hajdúhadház** was **higher** than the county and national **average**. The values of the remaining 5 Police headquarters remained below the averages in most of the years (the frequency of criminals was **smallest** in Hajdúböszörmény and Hajdúszoboszló) (*Map 6.*).

The **most extreme values** are found at the **settlement level** similar to the crime frequency, however, such extreme case as the crime infection of Ártánd is not present (*Map 7.*). **Debrecen is higher than the county average**, however, the highest value does not belong to it. The frequency of criminals is around average or remains under it in most of the **towns** except for Hajdúhadház having high values. Criminals are **living in greatest frequency in one part of the settlements** in the **Bihar region** (Bojt, Hencida, Nagykereki, Pocsaj, Told). These belong to the most crime infected areas as well and can be characterised by the poorest public safety. Here, presumably, a group of criminals was formed to whom crime present a lifestyle. **Low**

frequency of criminals, low crime infection and the best public safety in the county characterises for example Bihardancsháza, Tiszagyulaháza, Ebes, and Görbeháza.

- **Structure of the known criminals:**

According to activities: Due to the low rate of successful investigations **less than half** of the criminals (42% in 2002) committed **crimes against property**.

According to gender: The **rate of women criminals** is **much less** than that of men in the total delinquency (**11-12%** of the known criminals).

According to age: Crimes show **significant frequency differences depending on the age of the criminals**. After becoming the age when it is possible to trespass according to the criminal law crime frequency increases steeply and reaches its **top in the young adult age**. Then it reduces first slightly and after the age of 40-45 steeply.

According to marital status: There is a clear **reciprocal proportion** between **ordered family background** and **criminal frequency**. Among criminals bachelors and maidens are overrepresented while married people and widows are underrepresented.

According to education: **With the degree of education criminal frequency reduces**. In 2002 exactly half of the known criminals in Hungary and 54.4% of them in Hajdú-Bihar completed only their elementary education.

Gypsy criminals: Official data can be found only for the time period **between 1971 and 1988** when the **Police maintained** a record on the so called **gypsy criminals**. Among criminals gypsies were **two times overrepresented**. However, in quantity the delinquency of gypsies did not differ much from the delinquency of non-gypsies living at the same standard as the gypsies. **Their delinquency** is associated to their specific **historical development** namely with that **most of them are in a multiply underprivileged situation** so it is **not an ethnic character** that - primarily - **determines** the delinquency of gypsies.

Foreign criminals: Crimes committed by foreign people presented **2-2.5%** of the total known crimes between 1990 and 2002. The rate among **criminals** was only **4.5%** (2.7% in Hajdú-Bihar).

According to antecedent: In 1990-2002 **37.4%** of the known criminals were **old offenders** while **13,8%** of them were **backsliders** in Hungary. These rates were 3% higher in Hajdú-Bihar (40,8% and 16,8%).

According to the staying at the place of the crime: The **majority** of the criminals were **local inhabitants**, 61.2% in the national level and 71,5% in Hajdú-Bihar in 1990-2002.

3.2.5. Spatial characteristics of known offended people

In Hungary the number of **offended natural persons** (60% of offended persons) was **280,000 as an average** between 1991 and 2002. It was around **14,000 people in Hajdú-Bihar**. The pattern of its number and dynamism is only partly the same as the pattern of the number and dynamism of known crimes, the main reason for this that offended persons can be not only natural persons but corporations as well.

Hajdú-Bihar was in “good” positions regarding both the number and frequency of offended persons: in 2002 based on the **absolute numbers** it was **4th**, based on the **value to 100,000 people** it was **3rd** behind Budapest and Somogy county that was second due to the “infection” of the southern shores of the lake Balaton.

Considering the **classification** of the offended persons **more than 80% of them suffered from crimes against property**; the rate of **men** was **2/3** (much more women were involved as offended persons than as criminals); **younger people** become offended persons more frequently than older ones; the rate of **foreign citizens** is **4-6%**, it was **1-2%** in the less attractive **Hajdú-Bihar** regarding tourism.

3.2.6. Delinquency and some of its social-economic relationships

Delinquency is a mass phenomenon determined by social-economic conditions and it is in **stochastic relationship** with other social mass phenomena. Due to its complexity **mathematic-statistic methods** can be applied **cautiously**.

Such investigations belong not to criminal geography in the closer sense but I felt it important to reveal the direction and closeness of the connection between the social-economic life and delinquency by the methods of **correlation counting**.

The results of the investigation are similar to the earlier studies (*Ferge Zs., Takács L.*):

- **There is a close positive connection between delinquency frequency and economic development** (based on GDP, number of operating enterprises, average wage, tax income). Most of the crimes are committed not in the poorest areas but where challenges are greatest. This is proved by that values correlation co-efficients are higher in the case of crimes against property. In the case of crimes against person and economic crimes - probably due to their specific character - no correlation was detectable by co-efficients.
- The **frequency of criminals** shows a weak negative connection with the factors of economic development and a close **positive connection with unemployment**. This is more characteristic in the case of young and already punished criminals. Unemployment is a significant **determinative factor in the case of delinquency**.

3.2.7. Assessing Police work based on investigation success and investigations against unknown criminals

The effectiveness of the work of the Police can be analysed with the help of the **investigation success** (number of successful investigations compared to the number of the known crimes) and the **index of investigations against unknown criminals** (results of investigations against unknown criminals).

After the regime change the effectiveness of Police work was reduced due to the rapid increasing of delinquency and the change of its structure. In 1990-2002 **investigation success was 50% in average** nationally and in Hajdú-Bihar as well. In the county **in the 1990s** this value was **below the national average** while **it exceeded the national average in 2000-2002**. Hajdú-Bihar was in a disadvantageous position in the **county order** as it was placed in its **second half** except for 2000. At the **level of Police headquarters** the values of Debrecen are below the county and the national average while that of Hajdúszoboszló remain around the average and the values of the rest of the Police headquarters are well over the average (especially in the case of Hajdúnánás and Hajdúböszörmény).

Investigations against unknown criminals were successful in **38% as an average** nationally and in the county as well. This value in Hajdú-Bihar was **smaller than the national average between 1990 and 1998** then it **became greater** than the average. The county was found frequently in the **last third of the county order**. In the case of Police headquarters the situation is similar to that stated in the case of investigation success.

3.2.8. Criminal geographical study of the public road accidents with personal injuries

The **investigation of road accidents** (most of them are not crimes!), preparation of **accident dot maps**, contribution to accident prevention, accident focus liquidation and traffic security improvement are important **sub fields of criminal geography**.

In Hungary **9/10 of the traffic accidents with personal injury** are **road accidents**. The number of accidents reached its **top in 1990** (27,801 accidents) then their number was significantly reduced varying between 17,493 and 20,722 in 1990-2002. The **number of injured or died people** due to accidents was also continuously **reduced** until **2000**. However, in the last two years of the study a slight increase can be observed (1,429 people were died and 25,978 people were injured on the roads in 2002). **The seriousness of the accidents was reduced**, however, **accident danger** is still **high**.

A **similar process** was observed in **Hajdú-Bihar county** as well: **after 1990** (1,618 accidents) the number of both **accidents** (1,033-1,278 in the last ten years of the study) and **injured people** (2002: 1,670 people out of which 99 were died) was **reduced**.

Both the absolute and relative numbers of public road accidents (accidents to 100,000 inhabitants, 100km², 1,000 cars; number of died, injured people to 100,000 inhabitants) reflected the **very disadvantageous position** of the county: Hajdú-Bihar belongs to the counties of **greatest accident risk**.

Accidents were also analysed and compared to national values regarding their **result, nature, causes and causers**.

The **spatial distribution** of accidents showed great similarity to the traffic load of the public roads. **More than 2/3** of the accidents **happened in built-up areas**, especially **in Debrecen**. From non built-up areas the **main roads are highlighted**, primarily the number of accidents on the roads running **into and out of Debrecen**.

In the case of the **time dimension** of the accidents the study covered the *monthly* (maximum in October), *the days of the week* (higher values on Friday and Saturday) and the *day hours* (top between 15 o'clock and 19 o'clock) distribution.

3.2.9. Detailed criminal geographical study of a chosen settlement, Hajdúböszörmény

- **Short social geographical description of the town:**

The local characteristics of delinquency can only be assessed in the knowledge of the local social-economic conditions.

Hajdúböszörmény is **second regarding the number of inhabitants** in Hajdú-Bihar county (2002: 32,220 people). Its **demographic state** has been **stable** for decades. Its public administration area is 370.78 km² and with this it has **the fourth largest area** in Hungary. There are three village like areas several kilometres away from the central area belonging to its public administration area, *Bodaszőlő*, *Hajdúvid* and *Pród*.

Its **spatial structural position** is characterised by **duality**: it is situated in a **less developed part of the country**, however, in a **more developed centre area of Hajdú-Bihar county**.

This duality is also characteristic for its **social-economic indexes**: the data of the town are usually **above the county average but below the national average**.

- **Analysis of the police statistic data:**

Based on the data of the ERÜBS the number of known crimes and the number of known criminals varied between 411-830 and 224-372 respectively in the studied time period. **Criminal infection** of the town **is average**, however, it falls **below average** comparing to other similar sized towns (*Maps 4. and 7.*), **its public safety position has been stable** for years that is proved by the title of "**Safe settlement**" given by the Ministry of Home Affairs in 2003.

As the data of the ERÜBS are not suitable for localising the place of the crimes accurately the information taken from the database of the **Robotzsaru-2000** were used for this purpose. These are cases when **investigations were started with the suspect of crime** (data related to the criminals were not possible to analyse). **Six crime types** were selected that can be **associated with the geographical space** and occur in relatively greater number in Hajdúböszörmény: *assault, rowdysm, stealing, burglary, robbery, impairment*. All together 919 events were taken into the system of the Robotzsaru-2000 between 1st January 2002 and 30th June 2003 72.5% of which was the 6 types mentioned (666 events from which 394 stealing, 86 burglary).

The **spatial distribution** of six crime types associated with geographical position is shown on the digitised map of the centre of the town. Their **aggregated dot maps** are also prepared and the **crime infected areas** are marked with the help of the software ArcView (*Map 8.*). **Five areas having larger crime density** can be separated out of which the **centre of the town is highlighted** regarding the number of crime events.

Besides spatiality the **most characteristic events, their relationship to the social-economic factors of the town parts** and the **time dimension** of delinquency were analysed.

In the course of the research the number, structure, spatial distribution and time aspects of **road accidents with personal injuries** were also investigated. Within the public administrative area of Hajdúböszörmény 95 and 75 such accidents happened in 2002 and 2003 respectively. Based on the **accident dot map** of the centre area (*Map 9.*), it is stated that **there are no accident high points** in the town.

- **Practice of crime prevention:**

The representatives of the **authorities** taking part in crime prevention, *Civil Guard, Rural Constable Service* and *Public Place Control* are collating with the staff of the *Police* on a weekly basis. The **Crime Prevention Council of Hajdúböszörmény** was formed in 2003. Its task is to recommend measures in order to increase the sense of security of the inhabitants, prevent crimes and improve the public safety of the town. The **Crime Prevention Conception** of the town was completed with help of the council.

- **Questionnaire survey among the inhabitants:**

In the criminal geographical questionnaire all three aspects of **subjective safety** (*cognitive, affective, conative*) and the **social elements of the criminal attitude system** are covered. The **denunciation attitude**

(with the help of the *latency rate*), the reasons for the missing denunciations and the opinion on the work of the police were also asked regarding the social elements of the criminal attitude system. The last questions considered the **knowledge on crime prevention** and the **attitude** of the inhabitants towards this.

The **sampling framework** of the survey covered the inhabitants older than 18 years (excluding Hajdúvid, Pród, the vineyards and the farms). With a 3 % sampling it covered **691 people**. Sampling was **layered according to the geographical position** (according to the rate of inhabitants in the different parts of the town) and although it is not representative the difference between the distribution of the samples and the distribution of the base abundance is not significant.

The first questions were personal ones (gender, age, family status, schools) and these **background variables** were the basis for the separate groups the answers of which were compared.

- Those who were questioned fundamentally respect the town and especially their immediate living area as **safe**. The delinquency of the more distant areas were asked (national conditions) the larger it was assessed by the asked people (**problem distancing**). Regarding town districts most positive answers were given by those living in the centre and the most negative answers were coming from those living in Déli Lucernás and in Bodaszőlő.
- In 2002-2003 14.6% of those questioned **suffered from criminal offence** in the town. 41.6% did not report it to the police, i.e. almost half of the crimes remained in **latency**. **Considering the missing of denunciations** 1/3 of the responders thought the crime as unimportant and another 1/3 has doubts in the success of the investigation.
- The criminal investigation, crime prevention and administration, handling of reports of the **Police in Hajdúböszörmény** were regarded as very poor or poor by 13.8 and 17.2% of those questioned respectively 36.6 and 30% regarded it as appropriate, and 17.9 and 18,3% regarded it as good and excellent respectively, a relatively high ratio (31.5 and 34.6%) knows nothing about these activities of the Police.
- **Sense of security** was smallest at night outside the house: 28.2% of those asked said it was not safe to be outside alone, the other extremity was represented by staying in the house at daylight this was considered unsafe by only 4,4%. Men, youngsters, bachelors and maidens, more educated people and those who suffered not from criminal events before had greater sense of security were afraid less than the members of the opposite group.
- **After sunset** 26.9% of those questioned **alone avoid certain streets and places** while 31.7% not even leave the house alone after sunset. 59.7% of those avoiding certain areas named the Déli Lucernás and those areas populated by Gypsies.
- **From the seven precautions** listed the majority of those questioned (58.4%) performed two or three in order to protect his personality and property. Many houses and flats are equipped by some sort of security instrument, however, the number of modern, really effective security equipments is low.
- **Summarising the results of the research, crime prevention recommendations:**

One of the most important statements of the research is that the **most crime infected areas are not completely the same as those regarded least safe by the inhabitants**. The Déli Lucernás, the vineyards and Bodaszőlő are those areas where complex measures (not only police and crime prevention) are required in order to increase public safety and the sense of security of the inhabitants and to stop the **already started segregation process**.

Finally, **crime prevention** and **traffic safety recommendations** are discussed based on my investigations (concentrated patrolling, improving the image of the local Police headquarter, more significant publicity for the successful police actions, starting the Neighbourhood Watch Movement, establishing area cameras, architectural crime prevention, etc.).

3.2.10. Studying miscarriages revealed by the Frontier Guard

Studying **miscarriages associated with the state border** and the **border region** can be regarded as a **special sub-field of criminal geography**.

Together with the opening of the borders **after the regime change** the **number of miscarriages** revealed by the Frontier Guard **was significantly increased**. Hungary from an emitter country turned to be a (illegal) **migration transit** and **receiver country** rapidly. There were 14,199 such activities revealed, their number was doubled in 1991 and since then - depending on the international situation especially the changes in the neighbouring countries - it has been always above 20,000 (except for 1996). **Its structure has**

changed as well: new forms of organised delinquency appeared crossing the borders. The **most frequent** miscarriage was **forbidden border crossing and its attempt** (mostly **outward from the country**).

The **number** of miscarriages was continuously **high** along the **Romanian border**. Romania is one of the largest **migration emitter** country in the region and using its **liberal visa politics** many people arriving there with legal papers tried to move into the West illegally. The number of miscarriages reached its top in the early 1990s (1991: 8,614) and it stabilised around 5,000. Considering the **absolute numbers** the Romanian border was **second** most frequently behind the Austrian border and regarding the number of miscarriages to **1 km of the border** it was in the **middle** of the order - generally **exceeding the national average**. Regarding its structure the **rate** of miscarriages associated with **illegal migration** was **significant**. The majority of the **FBC activities** were **directed inward** and the rate of **offences associated with the provost of foreigners** was very **high** exceeding the national average.

In the state borders and border regions belonging to **Hajdú-Bihar county** the **vast majority** of miscarriages revealed by the five frontier guard and the two border traffic branch offices were **associated** with the **Frontier Main Headquarters in Biharkeresztes**. The primary reason for this was the enormous traffic of the public **road border crossing point in Ártánd**. The number of miscarriages revealed by the branch offices reached its top in 1994 (3,288) and it stabilised from 1996 around 772-1,393. Studying the **time aspect** it can be stated that there were **no significant differences** regarding the monthly, daily or hour distribution of the miscarriages associated with the borders or border regions.

3.2.11. Studying the miscarriages revealed by the Board of Customs and Excise

Many crimes and offences were revealed by the Board of Customs and Excise in the northeastern part of Hungary. One of the main reason for motivation is that poverty and unemployment are great in the border-side regions of Hajdú-Bihar and Bihor counties therefore many people tried to **obtain** (extra) **income** by **committing offences** using the **differences in price levels** between the two countries.

The 4 customs offices of Hajdú-Bihar revealed 1,348 and 1,945 **miscarriages** in 2002 and 2003 respectively. **4/5** of them were revealed by the **customs office at Ártánd**. At the border customs offices characteristically investigations were initiated for **customs offences to smaller values** (*illegal trade, customs reset*). **Revenue crimes** (*abuse with revenue, revenue reset*) were revealed by the **customs office in Debrecen** in larger number and rate. The primary subjects of crimes were **cigarette, alcoholic drink, clean alcohol** and **petrol**. The **value** of the revealed miscarriages was 260 million forints in 2002 and 294 million forints in 2003. Regarding the value again the **customs offices of Debrecen and Ártánd** were significant.

4. Spatial aspects of delinquency in Hajdú-Bihar county - summary

4.1. Environmental assessment of the settlements in Hajdú-Bihar county considering delinquency, crime prevention recommendations

In order to classify the settlements of the county from the aspect of delinquency a scoring system was applied. As a result the 82 settlements were placed on a 5x5 cross board where the columns represented the crime frequency and the rows represented the frequency of criminals.

The crime and criminal frequency is **very low in 10 settlements** (Bihardancsháza, Görbeháza, Újtikos, Nagyrábé, Álmosd, Tiszagyulaháza, Monostorpályi, Nyíracsad, Körösszegapáti, Tépe). These are the settlements having the **best public safety** in Hajdú-Bihar. They can be found in the area of 5 Police headquarters of the county (a smaller concentration can be observed only in the northwestern part of the county).

The number of the **most infected** settlements having the **poorest public safety** is **11** (Tetétlen, Nagykereki, Egyek, Told, Konyár, Bojt, Pocsaj, Hencida, Hajdúhadház, Bocskai kert, Debrecen). This group is very heterogeneous: it involves **Debrecen** characterised by the harms of city delinquency, **Hajdúhadház** named as “the most sinful Hungarian town” by the media and 6 settlements from the multiply underprivileged southeastern part of the county. In these settlements the reduction of delinquency requires different but **complex crime prevention measures**.

In the cases of those settlements where crime frequency is (relatively) much higher than the frequency of criminals primarily **situational crime prevention**, the **reduction of crime occasions** and the **minimisation of the potential to become victims** are required. Such settlements are for example **Hajdúszoboszló** and **Hortobágy** where tourism has a significant role and presumably criminals living in other settlements try to use it for their own purposes.

In contrary, where the frequency of criminals is (relatively) much greater primarily the **prevention of people from becoming criminals** and the **prevention of criminals to repeat their crime** or to **become old offenders** have to be focused on (e.g.: Nyírmártonfalva, Kismarja, Újléta).

Studying the absolute numbers and rates of delinquency, the spatial structure of Police, the demographic and settlement geographical conditions together with the traffic geographical conditions **recommendations are given** for the changing of the spatial structure of the Police: to establish a **Police station in Hajdúsámson** and **district police offices in three settlements** (*Bagamér, Bojt, Váncsod*).

4.2. The most important new scientific results of the research, their application in practice

- Following the critical study of the professional literature I made an attempt to clear and **define the term of criminal geography** less known in the domestic science of geography. Its **science historical benchmarks** are discussed in detail and its **most modern directions** and the necessity of their adaptation is also noted.
- According to my knowledge this is the first study to investigate the **criminal geographical characteristics of the county** in such **diverse views** and in **comparative style** with relation to several segments of criminality and covering several provost organisations.
- Another **novum** is the analysis of the relationship between the public safety conditions by town districts in Hajdúböszörmény and the subjective sense of security of the inhabitants. In the course of this - besides analysing the official statistic data - a questionnaire survey was carried out as a **new research method** among the inhabitants according to their spatial layering.

Due to the dual character of the aims **two fundamental elements of practical application** can be mentioned:

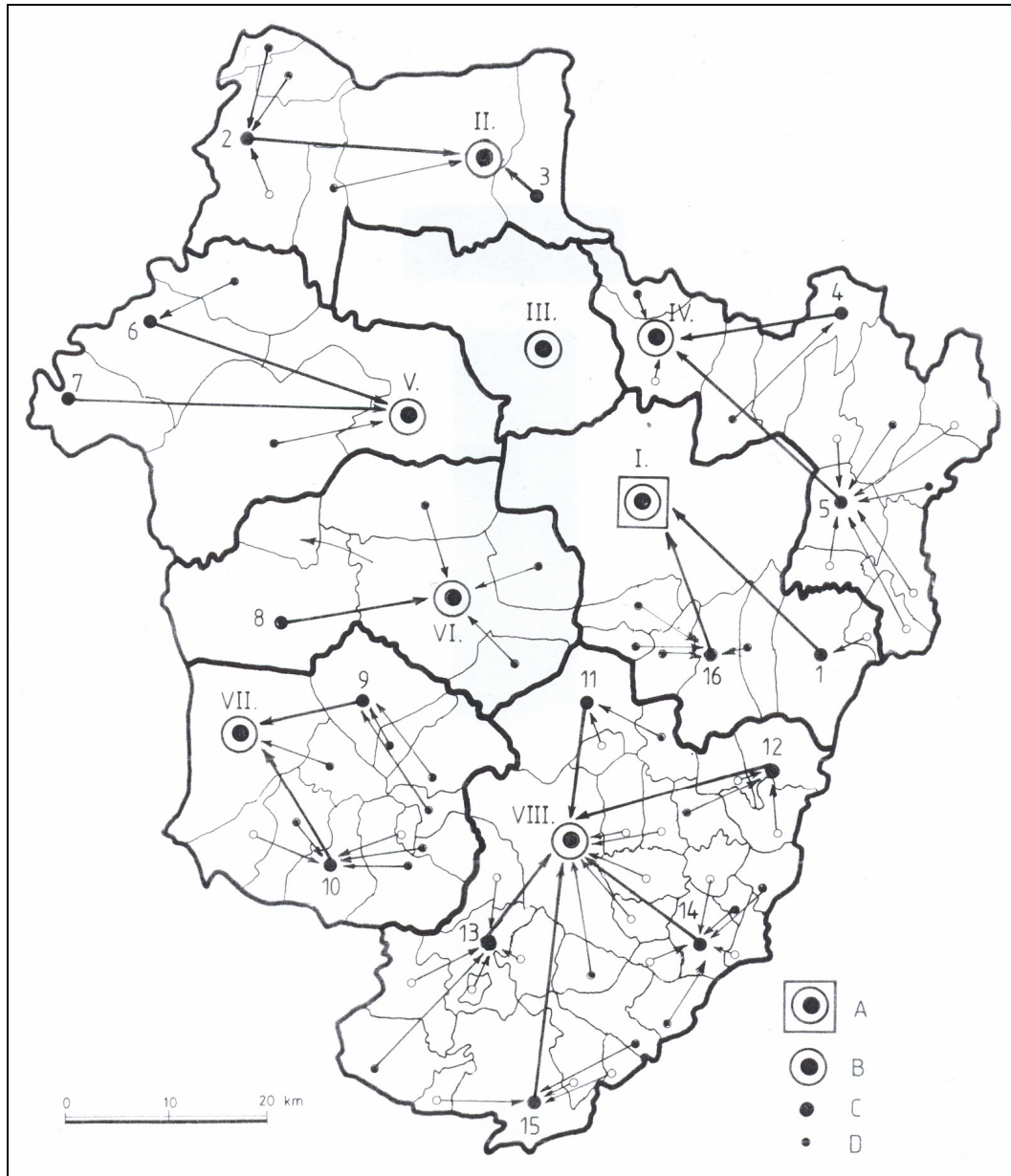
- The study may present a **starting base**, a guide, potential research aspects, directions, examples for professionals dealing with the questions of criminal geography.
- The concrete research results related to Hajdú-Bihar county and Hajdúböszörmény and the recommendations based on these **may contribute** to the **continuation of a more successful provost activity**, preparation of strategic plans and in some respect to the operative work as well in the fields of space specific crime prevention and investigation.

Hopefully this **dissertation** triggers further thinking in the topic together with professional discussions and **contributes to the spreading of geographical aspects and the spatial view** in the scientific research of criminality and in crime investigation and prevention.

4.3. Potential directions of further research

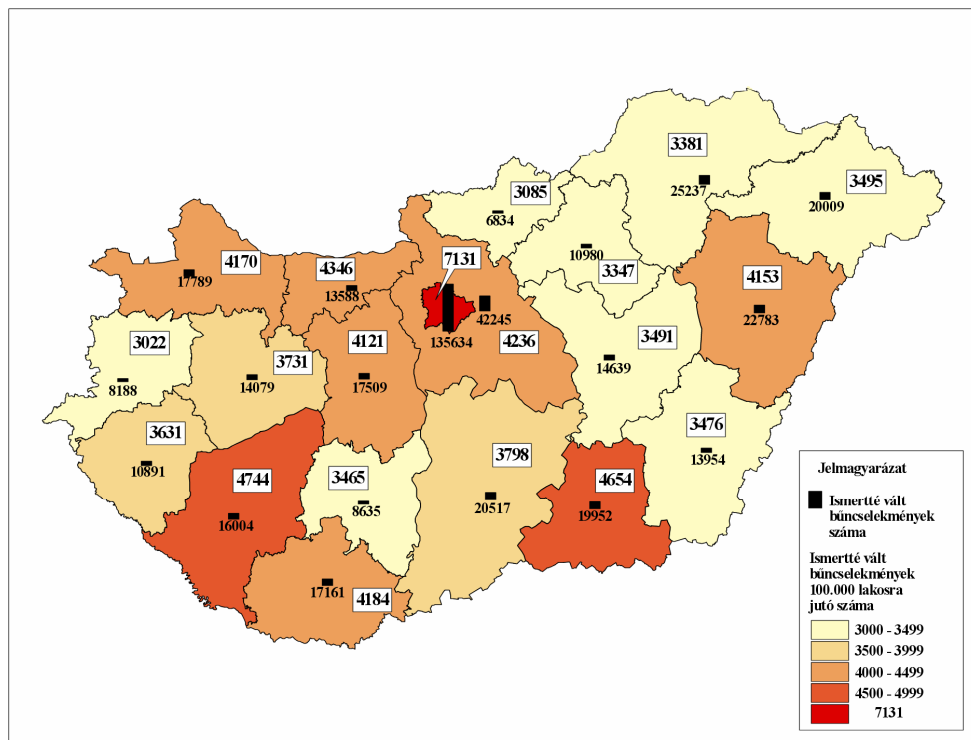
- In my opinion domestic criminal geographical studies **have to focus** on primarily the **settlement** and **within settlement level**. These levels present the real potential to investigate the deeper connections of delinquency and social-economic factors, to apply social geographical methods and to reach results applicable in practice.
- **Impact of joining the European Union** on delinquency with special regard to miscarriages associated with the state border and border regions, to illegal migration.
- In order to show delinquency in more complex style to **weight** the **given crimes** with their social danger and to **calculate criminal index**.
- To extend the research onto **offences** as many people consider it as the “hall” of crimes. Data collection and analysis is difficult as there is no such database in operation as the ERÜBS in the case of offences and their legal regulation is very heterogeneous.
- Application of the **mathematic-statistic methods** in a much more diverse style to the character and volume of the connection between criminality and social-economic phenomena associated to each other.

MAPS

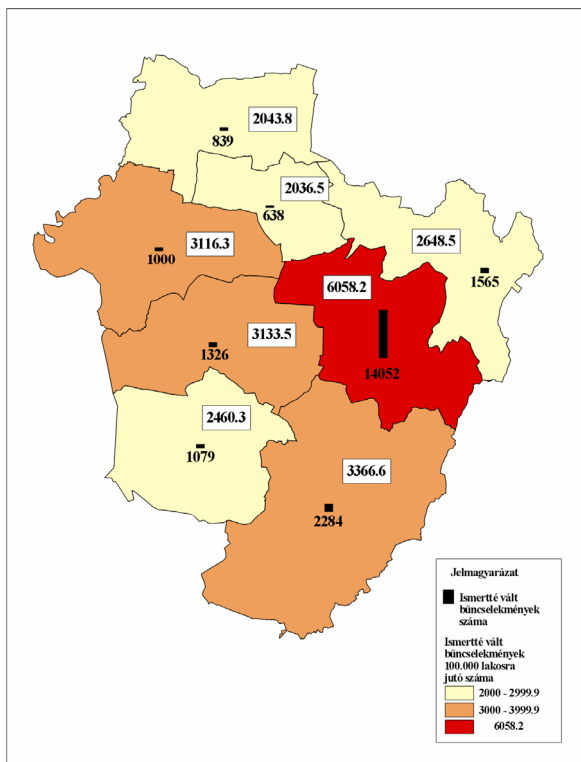


LEGEND	
A	Police Main Headquarters
B	Police Headquarters
C	Police Station
D	District Police Officer

1. Spatial structure of the Police Main Headquarters in Hajdú-Bihar county (2002)
Database: Police Main Headquarters of Hajdú-Bihar County

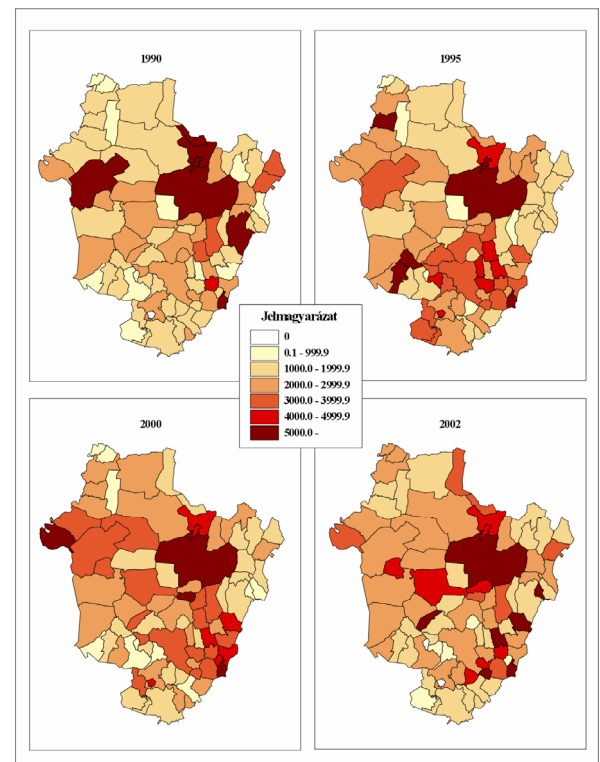


2. Average of the number of crimes known and their number by 100,000 inhabitants (1990-2002)
Database: ERÜBS (united police-prosecution criminal statistics) (own calculation)



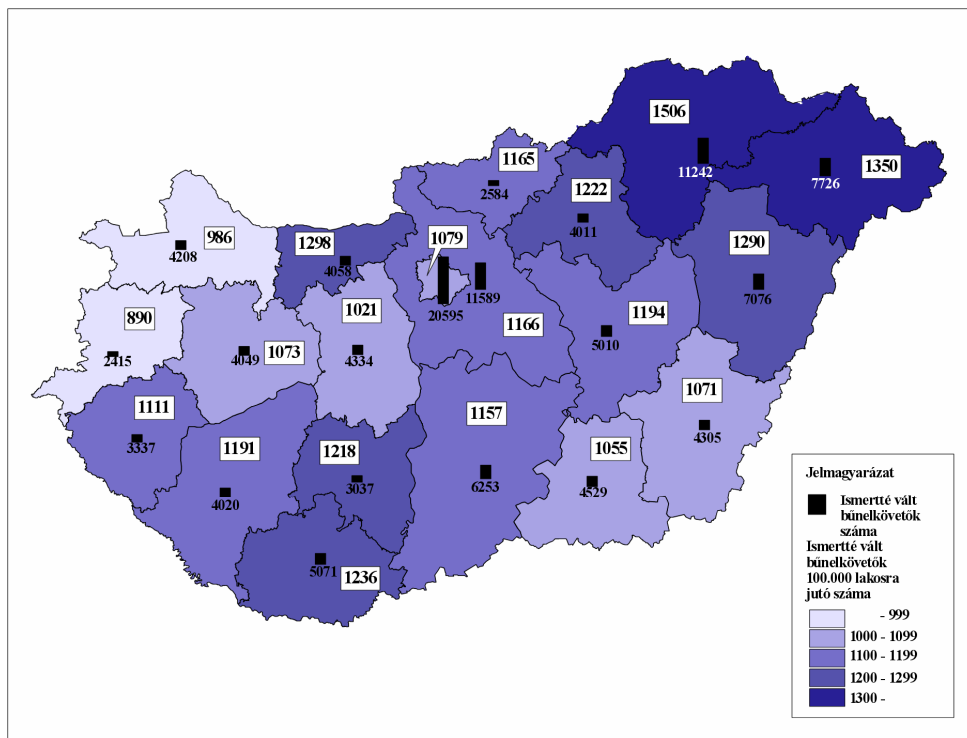
3. Average of the number of crimes known and their number by 100,000 inhabitants in Hajdú-Bihar county by Police headquarters (1990-2002)
Database:

ERÜBS; BM Informatikai Hivatal Statisztikai Osztály
 (Statistics Department of the Informatics Office of the
 Ministry of Home Affairs)
 (own calculation)

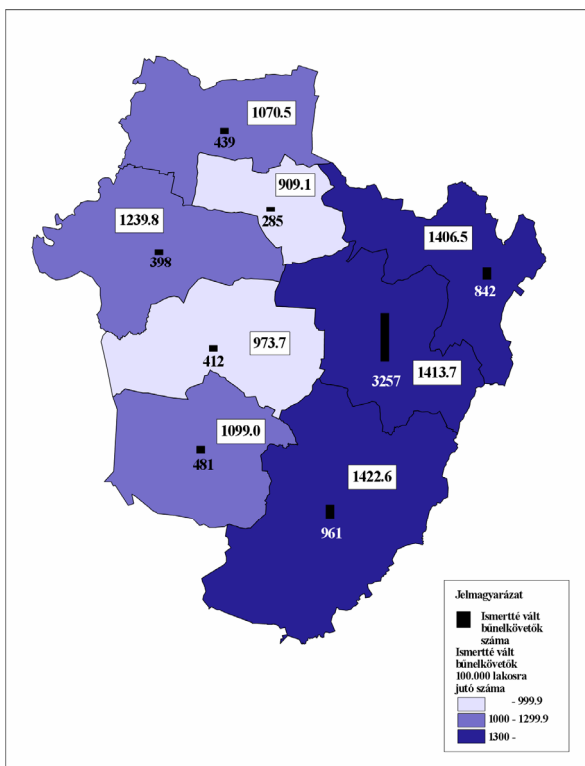


4. Number of crimes known by 100,000 inhabitants in Hajdú-Bihar county by settlements (1990, 1995, 2000, 2002)
Database:

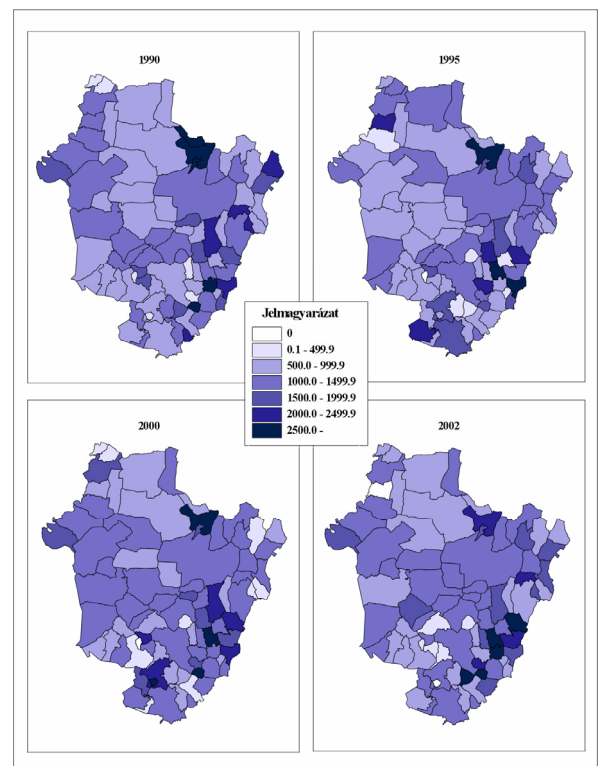
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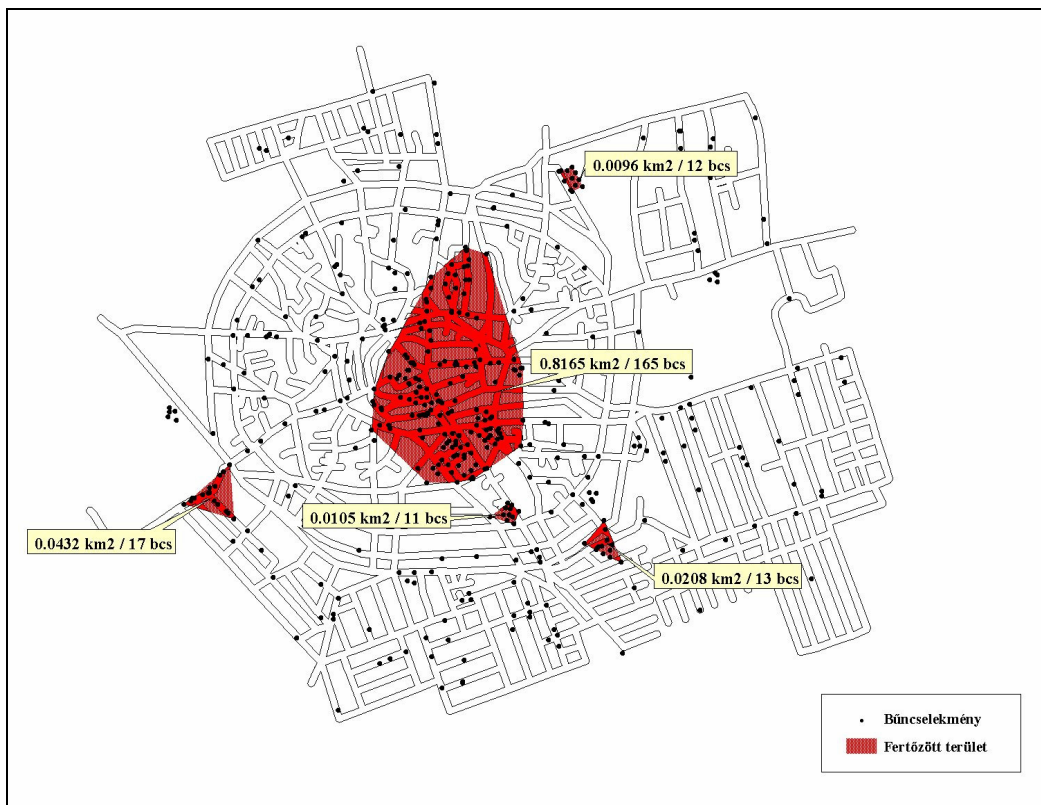
5. Average of the number of criminals known and their number by 100,000 inhabitants (1990-2002)
Database: ERÜBS (own calculation)



6. Average of the number of criminals known and their number by 100,000 inhabitants in Hajdú-Bihar county by Police headquarters (1990-2002)
Database: ERÜBS; BM Informatikai Hivatal Statisztikai Osztály (own calculation)

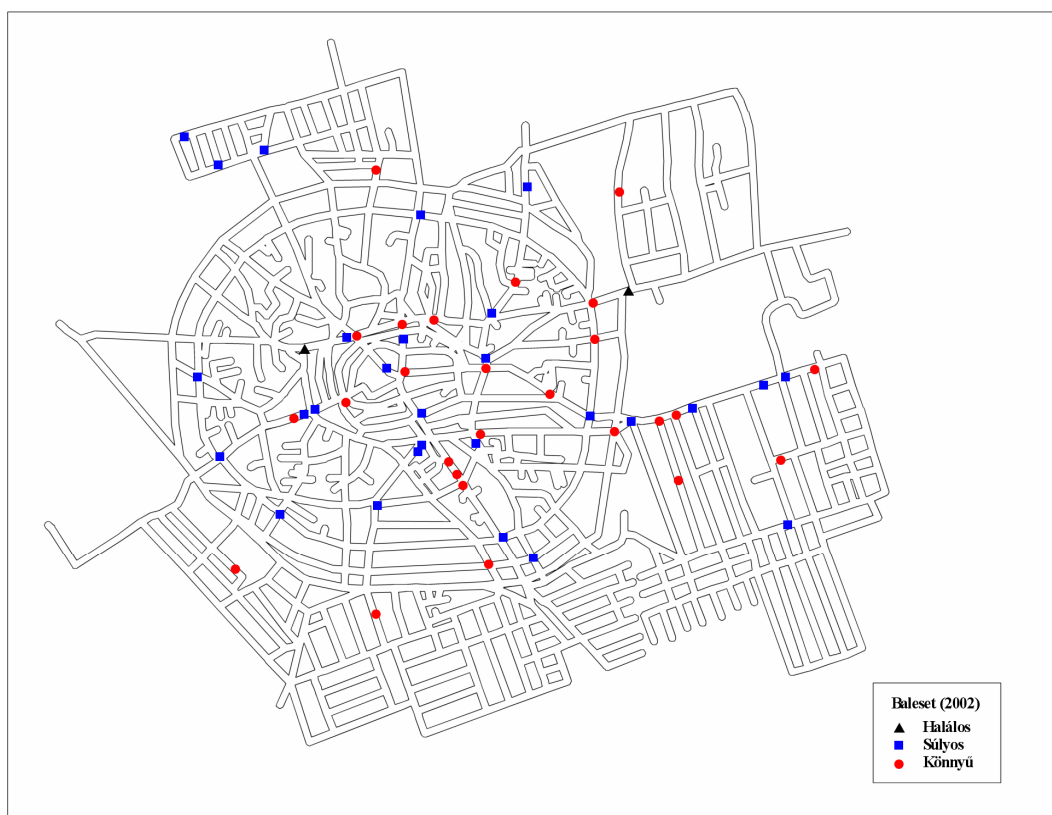


7. Number of criminals known by 100,000 inhabitants in Hajdú-Bihar county by settlements (1990, 1995, 2000, 2002)
Database: BM Informatikai Hivatal Statisztikai Osztály



8. Crime infected areas in Hajdúböszörmény (2002-2003. first half year)

Database: Police Headquarters of Hajdúböszörmény
(based on denunciations received)



9. Accident dot map of the downtown of Hajdúböszörmény (2002)

Database: Police Headquarters of Hajdúböszörmény