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AN AETIOLOGY OF CRIME IN THE SUBURBS: THE CASE STUDY OF BRATISLAVA

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Abstract
In the course of less than three decades the suburbs of Bratislava have undergone a dynamic development connected with the intensive process of suburbanisation. Of the whole country, the suburbs of Bratislava have experienced significant positive changes that have distinctively increased their importance. However, dynamic development has also brought negative sides into the suburbs, and some problems connected with crime, too. The aim of this contribution is to capture the contemporary scene, development, and changes related to crime in the suburbs of Bratislava, and to identify the main causes and conditions which determine the incidence of crime. The results showed that the Bratislavan suburbs are safer than the capital, and also confirmed the connections and links between the selected kinds of crime and some of the monitored indicators.

Key words
Crime, suburbs, crime aetiology, crime indicators, Slovakia.

INTRODUCTION

The process of suburbanisation, which began to manifest itself in the suburbs of Bratislava in the second half of 1990s, has gained in intensity in the last few years. Originally, this was a marginal process, where members of a narrow wealthy class were the particular actors, but it became a society-wide phenomenon that has reshaped the spatial organisation of society (Šveda, 2016). In the course of less than three decades, the suburbs of Bratislava have expanded spatially, but also in terms of population. This dynamic suburban development has now also changed, and prompted more questions related to socio-pathological phenomena. One of these is crime, which has been a relevant object of complex suburban research in advanced countries for more than half a century. Another related subject of research has been in the countries of Central and Eastern Europe, where research (with some exceptions) has focussed on issues concerning crime in new, but also older, residential quarters of the suburbs of big cities, and this has been absent in analyses and the monitoring of suburbanisation. However, in this region's countries, the need for crime research shows itself, each time, to be more urgent in these

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dynamically developing territories. It is not possible to simply transfer the existing knowledge of crime in the suburban environment from the experience of advanced Western countries to the countries of Central and Eastern Europe. Substantially different development in post-socialist countries, and the retarded process of suburbanisation there probably does not reflect all the aspects, character, signs, and consequences of the suburbanisation process in advanced societies. This study has been prompted by the reasons stated, and thus its aim is to capture the level, development, and changes in crime in this 'new' environment, in one respect that is distinctively different; namely that it is in the suburbs of Bratislava—the capital and metropolis of Slovakia. Fortunately, there is an abundance of knowledge and experience of crime research on the suburbs of cities, as well as many relevant theories and concepts which identify not only the processes of crime development and changes in the suburbs, but also their determinants. On this basis it is possible not only to capture various aspects of crime in this specific area, but also to explain connections relatively precisely, which would remain hidden otherwise. We believe that generally valid and often empirically verified and accepted concepts will help us to clarify and explain the relevant issues connected with changes in crime in the suburbs of Bratislava. The study reflects not only the development, alterations, and contemporary level of crime in the suburbs, but also identifies the main causes and conditions which determine the occurrence of crime. It analyses and explains the changes that have taken place in particular suburbanisation zones, and it identifies the causes of their similar or differentiated development.

LITERATURE REVIEW OF CRIME IN THE SUBURBS

The rapid suburbanisation in the USA since the 1970s distinctively changed the situation in the suburbs of the big metropolises. In many cases, it meant an increase in crime. The distinctive and dynamic process of suburbanisation stimulated an interest not only in knowledge of the suburbanisation process itself, but also in an examination of its (negative) impacts. Among other things, this included interest in alterations in suburban security provision, and then interest in the development and changes of the crime level in suburbs. Already at the beginning of the 1980s in the USA, research and publications focussed on suburban crime in the context of the consequences of dynamic suburbanisation had come into existence. It is possible to classify Stahura et al.'s work (1980) as being among that which was orientated towards suburban crime research. This study was dedicated to structural models of suburban crime, and utilised elements of ecological and criminological theory. From an analysis of models based on data from 645 suburbs, the authors found that a certain percentage of inhabitants with low income were the key indicator in explaining the rate of violent and property crimes in the suburbs. Also, the physical and social and demographic characteristics of the suburbs (their position and size) had a relevant influence on the crime level in the

suburbs researched, in particular, their density of population and employment levels. Brown (1982) and Fyfe (2000), as well as other authors, confirm the generally accepted knowledge that crime in suburbs is lower in comparison with cities but, at the same time, they state that the suburbs are distinguished by an increased level of property crime. This fact is a consequence of more causes and reasons.

Hakim (1980), Hope (1999), and many more authors, see behind an increased level of property crime in particular, the fact that richer residential suburbs with family houses attract more property-related criminal activity, especially thefts by break-ins to houses and flats. In other words, the increased level of property crime is a consequence of plenty of opportunities that are offered by these areas. Interpreting their opinions, they are mostly grounded in the theory of opportunity quantity. Other authors ascribe the observed increased level of crime to economic benefits, and they pursue the theory of national choice, risk, and gain balance for their starting point. They demonstrate the fact that richer residential suburbs with an anticipated high yield from break-ins, combined with simple and easy access to dwellings, weak formal (e.g. the absence of police patrols) and informal checks, where there is a low density of dwellings, and a large number of 'dead'[1] houses, seem to be easy 'prey' for thieves. Some authors ascribe the increased level of property crime, especially in less developed or neglected suburbs, to changes connected with their diverging development. These authors are particularly grounded in the concept of social disorganisation. They state that relatively quick suburbanisation has led to the diversification of the social and economic situation in the suburbs, and to instability and changeability of the social environment; this has caused an increase in social problems, and contemporaneously it has led to a rise in crime. Other authors see the causes of crime in the suburbs as attributable to the existence of various delinquent subcultures orientated, in particular, to property crime. These authors take as their starting point the differentiated association theory based on the writing of E.H. Sutherland (1947). Previously mentioned authors, such as Hakim (1980), Brown (1982), Stahura and Sloan (1988), and others have also identified the 'pouring over' of crime from town centres into the richer and more accessible suburbs as a consequence of the increasing mobility of urban delinquents, and of the improvement of suburbs' accessibility. Hakim (1980), who concentrated on the 'attractiveness' of the suburbs from the perspective of property crime, states that the 'importers' of crime into suburbs especially choose those which are in immediate proximity to a city, with good traffic accessibility. Brown (1982), who researched the spatial distribution of crime

1 A house where nobody is regularly home (mainly during working hours), which seems to be particularly rich, and is separated, or on a corner. It also may have an entrance or windows on a terrace, and it is situated in a chaotic environment, or there is a lot of vegetation cover (trees, shrubs, and the like).

in the Chicago suburbs by means of spatial autocorrelation and regression analysis of crime occurrence, states that the spatial crime model shows that crime falls in relation to increasing distance from the city. Property crime is an exception, as it shows neither spatial autocorrelation or relation to distance from Chicago. Instead of this, it is closely linked with the placement of retail and production activities. In their second work, which focussed on the complex changes and spatial dynamics of suburban crime, Brown and Oldakowski (1986) stated that social and economic states dominate the process of change in suburbs' relative security. The social and economic levels of the suburbs cause high rates of crime, and their relative security gets worse over time. Conversely, in suburbs with a higher social and economic level they mention the process of 'consolidated advantage' in a spatial sense. This means that over the course of time, suburban areas, which were originally safe, are more able to strengthen their original and primary advantage. Morgan (2001, p. 84), who dedicates his research to recurrent thefts in suburbs, and to short-term and long-term risks, states that the 'experience from previous breakings into and dwelling localization of households' are the most important factors of property crime, especially the break-ins. In particular, he indicates, the attractiveness of domestic objects, and the low degree of weak security checks, as relevant prerequisites in connection with successful thefts by break-in. He considers there to be a high probability of their repetition ('repeat victimisation') for important and typical signs of thefts by break-in. Cozens (2008) adds to the 'quantity of opportunities' more properties in the suburbs that enhance their attractiveness for property crime, namely lower population density that, among other things, means fewer supervising eyes ('eyes on the street') and streets without pedestrians that are easily passable.

The work of Roh and Choo (2008) can be considered as a case study of testing the influence of social disorganisation on crime in the suburbs; they researched this relationship in the suburbs of four Texan cities. By deployment of social disorganisation theory, they found that, among other things, poverty and ethnic heterogeneity have a positive relationship with crime, while conversely, population mobility has a negative connection with crime. Also, the work of Kneebone and Raphael (2011) is interesting and very stimulating in terms of suburban crime research; it analyses and compares the trends of crime development in the 100 biggest metropolitan territories of the USA in 1990 and 2008. On the basis of the results obtained, the authors state their positive development from the aspect of security. They document a substantial fall in the measurement of crime in all three types of communities,[2] even if in two types of suburbs they observe a moderate increase in violent and patrimonial criminal acts. Between 1990 and 2008, they pointed to the narrowing of the gap between urban and suburban

2 High-density suburb, mature suburb, and emerging suburb.

criminality, and they emphasised that crime was already not exclusively an urban challenge, but was also a metropolitan issue. Hirschfield et al. (2014) tried to test, in turn, how demographic structures of areas neighbouring suburbs could improve the prediction of the number of break-ins, only based on their interior sociodemography. They found that some neighbouring areas had significantly stronger effects/influences on crime rates by break-in than others. They stated that even when the prevalence of break-ins was well known, the risk from surrounding areas was insufficiently explored. Likewise, they indicated that if it were possible to improve the surroundings of the suburbs, it would be unequivocally possible to await a positive influence on the crime rates. They also draw attention to one of the weaker spots of 'ecological' studies about crime which mostly suppose that identical surroundings mean that different neighbouring quarters/complexes/areas are equivalent/equal. Their mission is to discover the considerable influence/importance of the surroundings (from various angles) of diversified neighbouring complexes/areas on crime in the suburbs. Hirschfield et al. (2014) enlarges traditional ecological crime analyses by a new dimension, whereby the risk of crime is influenced not only by its interior characteristics, but by the many properties and character of the environs. This new approach is very well applied within ecological analyses of the study of crime in the suburbs because the level of their security is conditioned by their environs to a considerable degree, particularly by their proximity to a metropolitan centre. Namely, it is evident that suburbs of many cities are 'supplied' with offenders from metropolitan centres or by lagging behind surrounding territories. Our traditional theories that explain the geography of crime (routine activity theory, rational choice theory, and the geometry of crime) all consider criminal events at the micro-spatial unit of analysis, but research has shown that neighbourhood level characteristics help explain micro-spatial crime patterns (Weisburd et al. 2012 cited by Braga et al. 2017).

In the book *America's safest city*, Singer (2014), dealing with juvenile delinquency, presents a new and innovative contribution to comprehension of crime in the suburbs. For his starting point, Singer makes the assumes that there are preconditions of low 'suburban crime' which have considerable potential for the creation/existence of social processes to control crime. Studying these processes can help us to comprehend why the crime is low in these areas and, conversely, why it is higher in other areas (for example in densely populated towns). Singer proposes a new theoretical perspective which he calls 'relational modernity'. Relational (also interconnected) modernity refers to relations among people, institutions, family members, schools and the like (this is the 'relational' part) in contemporary society, which is affected by the requirements for more adjustments, by a need for autonomy and other rationalities (this the 'modernity' part). Theoretical approach takes the control theory as a starting point, and it focusses on how life influences relationships in a modern context, and how these

leads either to conformity or to deviation. Posick and Rocque (2017) react to Singer's work by stating that it not only provides a new view for understanding crime in America, but it also throws light on little-explored parts of the country up to now—the suburbs. They comprehend 'relational modernity' as a new theoretical perspective that needs to be critically explored and evaluated from the perspective of the contribution it makes.

The stated works show a shift towards – and the relatively strong interest in – suburban crime research in advanced states, to which the countries of the Central and Eastern European region have not reacted all the time, in consequence of various circumstances. Even if several minor works focussed on suburban crime research do exist, these do not have a geographical dimension. The work of Temelová et al. (2014) can be considered as one of the few exceptions; it is focussed on the research of crime in the suburbs of Prague. From the relevant literature mentioned above, and the results and knowledge derived from it, it is evident that the crime rate in the suburbs of cities is a relatively complicated problem that can be differentiated in terms of level, development, changes, causes, and consequences, and it has various signs and characters which can be variously interpreted in relation to the dependence on causes and conditions which determine it. On the other hand, there are criminological theories (whether classical or relatively new ones, such as 'relational modernity') and concepts which manage to capture relevant aspects of crime in the suburbs.

THE AETIOLOGY OF CRIME IN THE SUBURBS

The question of how to explain a person's criminal behaviour is one of the key orientations and theoretical tasks of criminology since the very beginning of its formation (Lubelcová, 2014). An etiological paradigm has emerged from this orientation, which focuses on explaining the conditionality of criminal behaviour and uncovering the causes of crime. The history of this etiological paradigm also reflects the basic theories and interpretations of the spatial aspect of crime, depending on the various properties and character of the territory. Interpretations derived from so-called integrated theories of crime are the basic framework of the explanation of crime in the suburbs. These are based on the interconnection of formed theoretical approaches, rather than on a more complex explanation and interpretation of crime. The integrated crime theory is most capable of explaining variations in crime. Besides the interconnection of 'traditional' partial theories, their meaning lies in looking for relationships among the most influential theories by means of their conceptualisation as one integrated paradigm. This (the integrated paradigm) is consistent with previous findings, and it also offers an explanation of contradictory findings (Lubelcová, 2009). It seems that it is possible to best explain suburban crime with the aid 'theory of rational choice' with its two complementary parts. The logic of rational choice is suitably complemented by the theory of routine

activities (the theory of everyday or current activities), and the theory of opportunity quantity. The theory of routine activities was outlined by Cohen and Felson (1979) at the end of 1970s. These authors are guided by a thesis that connects three elements: namely, the presence of motivated offenders, suitable goals, and the absence of capable guardians who could intervene. Crimes are created by the interactions of potential offenders with potential targets in settings that make doing the crime easy, safe and profitable (Brantingham and Brantingham, 1995).

The crime rate in the suburbs can also be partially explained by the quantity of opportunities to commit a crime, because the number of suitable targets of crime opportunities increased distinctively in these dynamically developing/emerging territories. This helps to better comprehend the conditions, connections, and context in which the potential offender decides to engage in a criminal act. Gaining knowledge of the space–time specifics of criminal behaviour is becoming more relevant. Research is particularly focussed on differentiated specific criminal behaviour in various regions, localities, and places, and it analyses not only local conditions, but also conditions in the surrounding community.

DATA, THE TERRITORY STUDIED, AND THE METHODOLOGICAL PROCEDURE

The area explored comprised four suburbs, of which a major part of the territory and municipalities (111, in total) belong to the adjacent areas of Bratislava. It was necessary to work at the level of spatial units lower than, for instance Nomenclature of Territorial Units for Statistics (NUTS 3), but this caused more problems, especially with data. The number of administrative units at the NUTS 4 level (of districts) is considerably more diverse than the Police districts, for which crime data are collected and registered. While there are 79 administrative districts in Slovakia, the total number of Police districts (further PD) is 53. Eighteen police districts form the united districts of the Slovak Republic (further SR). As a consequence of organisational changes in departments of the Police Force, inconsistency was the next problem connected with obtaining the necessary data. The lack of an opportunity to create an analysis over a longer period of time, on the basis of which the development of crime could be documented in the suburbs monitored in particular stages of suburbanisation, was a concrete example of data problems for the suburban territories monitored by us. For this reason (that of the comparability of data for equal territorial units), we only traced suburban crime and its respective development from 2010. In spite of this, the relatively short period analysed indicates not only the crime level and its development, but also further aspects of it. We consider the stated period to be an important one from the viewpoint of continuing intensive suburbanisation, and because of the distinctive changes that have taken place in the suburbs of Bratislava, which also form and have a relevant influence on their security.

As an exploration of the contemporary state and development of crime in the suburbs of Bratislava, we only focussed on selected kinds of crime that were 'typical' for the suburbs. Based on the above-mentioned works, and with regards to the amount of information and knowledge on suburban crime, we chose five types of crime, which we supposed would sufficiently map out the situation in the suburbs of Bratislava with regards to security. We chose and focussed our attention on the analysis and monitoring of the following kinds of crime: violent crime (herenaifter referred to as VC), thefts by break-ins (TbB), thefts by break-in flats (TbBiF), thefts by break-in cottages (TbBiC), and car thefts (CT). We analysed the rate and development of the indicated types of crime in the suburbs of Bratislava, in its four regions of suburbanisation.[3] The first region is created by a northern suburb (hereafter it will be indicated as the N suburb) which is for the most part covered territorially, administratively, and statistically by Malacky PD. The second region is formed by the north-east suburb (hereafter the NE suburb) which is territorially and statistically precisely identical with Pezinok PD. The third suburb is the east one (hereafter the E suburb) covered by Senec PD, and the fourth and last region is represented by the south suburb (hereafter S suburb), to which the municipalities in the north part of Dunajská Streda PD belong (see footnote 4).

SITUATIONAL CONTEXT IN THE SUBURBS OF BRATISLAVA

The suburbs of Bratislava that have been identified are different not only in size and population, but also in terms of their social and economic conditions and the demographic structures of their populations. These are consequences not only of the historic development of individual territories, but also, to a considerable degree, because of the intensive process of suburbanisation in the last 20 years. The suburbanisation processes first began to manifest in greater measure in the N and NE suburbs, and especially in the territory lying in immediate proximity to Bratislava. This first wave of suburbanisation had many specific characteristics. Its most typical signs were that the most valuable lots, especially those on the slopes of the Carpathian Mountains (on both sides), were taken over in close proximity to the town. The wealthiest social strata of the population were its carriers. This self-evident fact influenced many aspects of the new residences, from architectural creation (there were houses with high walls kept safe with the latest security and technical means, and their own security services), to the building of closed communities with gates which were isolated from their surroundings. We can see different character of suburbanisation in E suburb but also in S suburb. This

3 For the fifth, west suburbanisation region we did not succeed in gaining the necessary data because this region is formed by more municipalities lying in two other countries (Austria and Hungary), where also a relatively significant number of inhabitants of Bratislava have moved, some of whom are also working in these countries.

concern 'later' suburbanisation which was conditioned by economic growth and its influence and impact on wider (in large part, the middle) classes of population. Improvement of their financial and economic conditions, credit facilities, the better availability of mortgages, and mainly the lower price of pieces of land had facilitated this wave of relatively 'massive' suburbanisation. In particular, the middle class became its carrier, and smaller parcels of real estate on less expensive plots were its typical features, and they were in a greater distance from Bratislava. The demographic and socioeconomic character of the carriers was (and continues to be) distinctively varied, and this was substantially reflected in the varied architectural styles of the houses, as well as by the diverse composition (age, economic, and social mix) which formed the communities. We believe that these stated facts, together with other specific characteristics of the individual suburbs, have also conditioned the differentiated development of crime, its level and structure among particular suburbs, as well as in comparison with Bratislava.

DIFFERENTIATION OF CRIME LEVEL AND A COMPARISON OF URBAN AND SUBURBAN CRIME

The spatial differentiation of crime in the suburbs is another factor besides the causes mentioned above, along with a lot of subsequent factors which support or slow down its further development. A wide spectrum of conditions and causes, as well as many factors distinctively determine crime, especially level, distribution and development. A map, which unequivocally shows the current level of individual kinds of monitored crime, captures very well the contemporary crime rate in the areas being explored (Fig. 1). We used absolute numbers to elaborate the map of distribution and the spatial differentiation of crime in the monitored suburbs, as well as the relative indicators (number of registered criminal acts per 10,000 inhabitants) for monitored (selected) kinds of crime. From the results obtained of the evaluation of spatial differentiation for selected kinds of crime pictured on the map, the disproportions are evident among individual suburbs. In absolute values, the inequalities in the crime rate are not distinctive in any way.

Average values for the period monitored, and all monitored crime types in the suburbs for 2010–2019, rose from 359 in the NE suburb to 445 registered criminal acts in the E suburb (by comparison, in Bratislava there were 1,657 criminal acts). However, when monitoring the crime by number of inhabitants we can see a differentiation of particular suburbs, as well as in comparison with the crime level in Bratislava. From the perspective of the suburbs, the worst situation was in the E and NE suburbs where the number of selected crimes reached 60 and 59 criminal acts, respectively, per 10,000 inhabitants. This represents almost twice the number in the south suburb (31), and was only a few less than the number of 64 in Bratislava. In addition to the map capturing absolute and relative levels of crime in the suburbs and of Bratislava (hereafter BA), it also shows the structure and

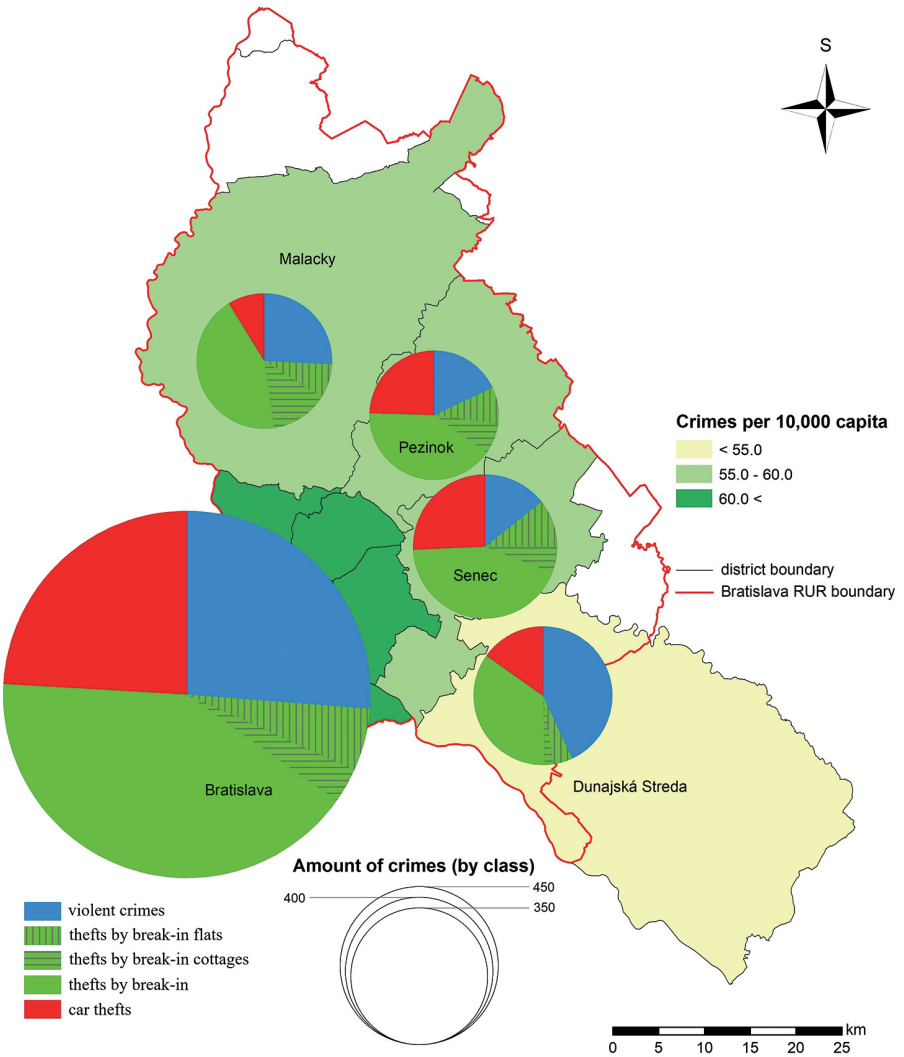

Fig. 1 Selected kinds of crime in Bratislava and its suburbs 2010–2019 (average values)
Source: Presidium of Police Force of the SR (2020).

distribution of selected types of crime. With regard to the relative values of violent crime, the most critical situation is in the S suburb (13) and, the most favourable (7) situation is in the E suburb (by comparison, it is 16 in BA). We can see a distinctive difference among the suburbs in the total level of thefts by break-in (TbB), where three suburbs reach very high values from 29 to 31, and only the S suburb showed a very low level, where merely 12 criminal acts of thefts by break-in occurred per 10,0000 inhabitants (BA 29). However, this difference between indicated suburbs

is also reflected at the lower level with thefts breaking into flats (TbBiF) and thefts by breaking into cottages (TbBiC). While in the S suburb these values are relatively low (TbBiF 1.4; TbBiC 0.6), in other three suburbs they reach high values from 3.0 to 6.4 (BA 3.3; 1.8). We can also see a very distinctive difference among suburbs with regard to car thefts. While in the S and N suburbs their level is low (4.5), (4.2), respectively, in the E and NE suburb their level is much higher: 13.3 and 12.3 (BA 14.2). The stated lower or greater differences of crime types analysed are a consequence of the relatively distinctive differentiation of individual suburbs, and, to a large degree, they are a reflect of their specifics.

With regard to all monitored crime types, the capital demonstrates the biggest difference in comparison with the S suburb. Within all suburbs, the E suburb shows the worst situation, and the best situation is in the S suburbs. In spite of a total fall in monitored crime types, Bratislava had considerably higher levels, and at the same time it showed a lower fall in monitored crime types in comparison with the suburbs.

DYNAMICS AND TRENDS OF DEVELOPMENT OF SELECTED CRIME TYPES

We constructed a time sequence to register and express crime development and dynamics that showed us how quickly its level changed, and whether it rose or fell. For the expression of development and trends, we utilised absolute and relative indicators of number of registered criminal acts. In general, it is possible to state a fall in the monitored crime in all suburbs in the period explored (between 2010 and 2019). However, in the analysis of developmental trends of particular monitored kinds of crime, we could observe diverse trends which in some cases were connected to the so-called 'journey to crime' within their neighbourhood, and their respective position to Bratislava. We watched the development and its dynamics by means of average growth coefficient (AGC),[4] which we compared with the initial year (2010). The figures obtained indexed very well, and, relatively precisely, captured and reflected the development and changes in the last eight years. We could observe very well on group bar charts whether the gap between metropolis and suburbs was enhanced/deepened with regard to this aspect of crime or, on the contrary, whether it was diminished (Fig. 2).

The charts capture the situation very well, and shows the developmental trends of monitored types of crime in the town/metropolis and in its four suburbs. Chart 1 shows the development of VC. In the chart we can see that it falls either in Bratislava or in its three suburbs. In two suburbs (the E and S suburbs) it falls more than in Bratislava, and in one suburb (the NE suburb) it falls less than in Bratislava.

4 It is possible to speak about the average coefficient of drop because we registered a drop in selected criminality types during the monitored period.

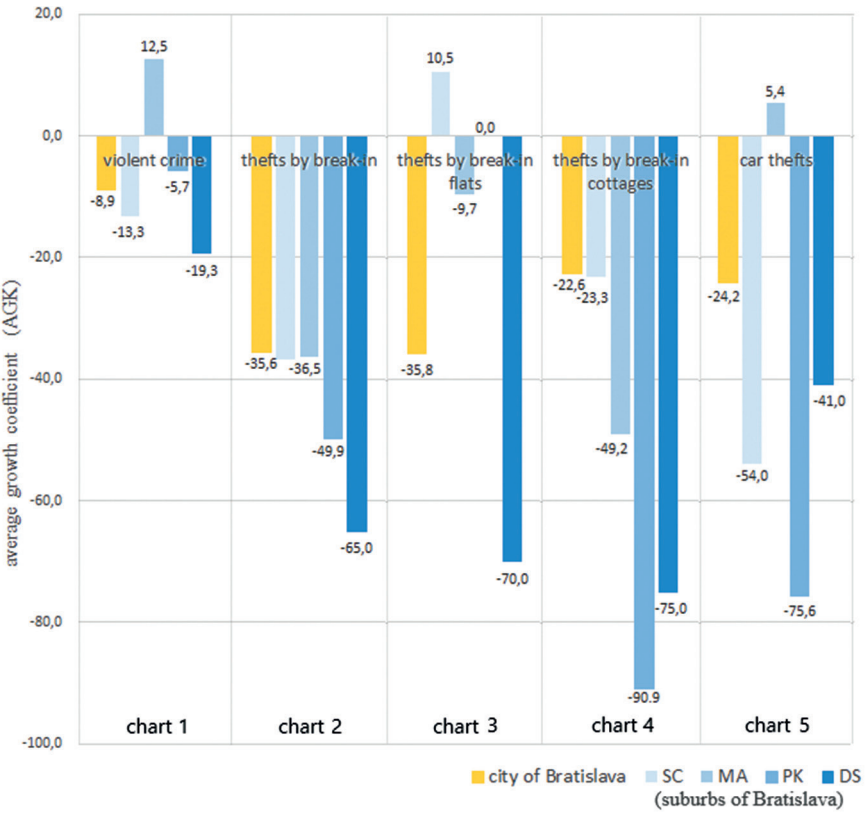

Fig. 2 Developmental trends of monitored crime in Bratislava and its suburbs 2010–2019
Source: Presidium of Police Force of the SR (2020).

Its relatively high rise is a surprise in spite of the general drop in VC in the N suburb by more than 12%. The second chart captures TbB which in Bratislava, as in all suburbs, shows a relatively distinctive decline. We can observe other trends with regard to TbBiF (chart 3), specifically, that in Bratislava and in two suburbs (S and N) the share declines, in one (NE) suburb it remains equal, and in one (E) suburb it rises. The fourth chart registers TbBiC which in Bratislava shows a relatively distinct decline, as in all suburbs. Finally, a development trend in terms of CT is shown in chart 5, which recorded a fall except for the N suburb. Conversely, the N suburb showed an increase. In general, we can thus state a drop in monitored crime types that is replicated to a greater or lesser degree at the national level. On the other hand, this fall is considerably different in the suburbs and also in comparison with Bratislava. Furthermore, the findings are interesting, in that in spite of the drop in violent crime, whether at the national or regional level, this has increased relatively distinctly in the N suburb during the monitored period. At the same time,

this suburb is also distinguished by the growth of car thefts, whilst in Slovakia total number of car thefts declines. Also, a noteworthy fact that can be observed with regard to the E suburb is that in spite of a general fall in TbBiF during the monitored period, there was an increase by more than 10% there. It is thus possible to state that during the monitored period, the fall in selected types of crime was manifested at the national level, which was evident by their drop both in the metropolis of Slovakia, and also in its suburbs. In spite of this, it is possible to state a negative/worsening situation with regard to CV and CT in the N suburb, and of 'TbBiF' in the E suburb, which, on the contrary, recorded an increase in the indicated types of crime. We can thus answer the question posed in the introduction of this subchapter, that for monitored types of crime, the gap is enlarged between the metropolis and the suburbs, as a consequence of their greater decline in the metropolis than in its suburbs. There are only three exceptions of 'approximation' with regard to the N suburb in relation to VC and CT, and of the E suburb in relation to TbBiF. In relation to these types of crime, the metropolis recorded a smaller drop (of VC) or a greater one (of TbBiF and CT) and, on the contrary, the stated suburbs recorded a growth.

CRIME INDICATORS IN SUBURBIA

The different levels and dynamics of monitored types of crime in individual suburbs reflect differentiated 'criminogenic' conditions, especially those of a socio-economic and demographic character. Examining the factors that engender delinquency is part of the 'environmentally' focussed research of crime, for which the identification of the main causes and conditions determining the occurrence of crime is one of the main goals. To identify the complex connections between conditionality and crime, and to understand the causes of their nonuniform deployment in the suburbs of Bratislava are natural questions and research goals. More indicia imply that not only general criminogenic factors, but also concrete/specific factors and conditions of different qualities and directions, are acting on various parameters of crime in the spatial units investigated. Identifying the factors, which are actual or potential ones determining the occurrence of delinquency in the monitored spatial units, was the target of this contribution. In the context of this goal, our intentions were to choose, study, and explore the interrelationship between relevant factors conditioning the level and development of the monitored types of crime in particular suburbs of Bratislava. We tried to disclose the interior socioeconomic and demographic situation of this currently dynamic and developing territory on the basis of indicator series, and in so doing, contribute to the knowledge of the causes of the multilayer reality of the occurrence, development, and changes in the level of delinquency. We searched for answers to the following two questions:

(1) What/which are the deciding factors of spatial differentiation of selected types of crime in the monitored suburbs of Bratislava?
(2) To what extent do these factors take part in, condition, and determine the occurrence, level, and alterations, of single types of crime in the monitored territory?

Specialists have searched for responses to the first question in environmental analyses geared towards the identification of the main causes and factors conditioning miscellaneous aspects of the occurrence and character of crime in a particular space, as the case may be in geographical units of diverse size (areas, regions, precincts, localities, etc.). On the basis of the quantity of environmental research on delinquency, we can state that the differentiation of crime in suburban space is related to, in particular, the size and density of the population, the movement and structure of the inhabitants, and the overall socioeconomic character of the individual suburb. In general, it is a valid observation that a large population, with its enhanced population density, excepting anonymity and further socially unfavourable phenomena, increases criminal activity connected with delinquency. Equally, a rapid population growth, particularly as a consequence of the migration, and mixing of populations of various cultures, and an unfavourable composition of the population from economic, social, religious, and educational aspects, also increases, in general, the level of tension, and unfavourably influences certain types of crime (Bannister et al., 2019; Donnermeyer et al., 2006; FBI, 2006; Lubelcová, 1996; Wikström, 1991; Herbert and Hyde, 1985). According to many studies, a high crime level shows a fundamental dependence on further significant indicators, such as above-average and long-term unemployment, low income, substandard levels of dwellings, age (there are a number of groups at high risk of criminality as offenders [from 12–25 years] or victims [up to 15 years and over 65 years]), nationality—particularly minorities, and so on (Clark, 1970; Gest, 1995).

Even 'specific' attributes of suburbia, for instance, the proximity and availability of the centre contribute and influence to a certain extent (in a positive or negative way) various aspects of delinquency in suburbia. Based on research, it is also evident that social disorganisation, weakened social control, lifestyle, a state of social anomie distinctively influence crime in suburbia. Similarly, as in cities, in the majority of suburban regions, we can observe debilitated social mechanisms of formal and informal social control, which have negative impacts on some kinds of crime (e.g. on their growth, unfavourable development, concentration etc.). Although the influence and reach of social control, as well as further immeasurable and dimensionless phenomena (of social anomie, anonymity, and hostility) on the level of crime is hardly ever possible to quantify, it is important to consider them because they influence the level, structure, and future attributes of crime in a substantial way. The level, spatial occurrence and differentiation, character,

structure, and further properties of crime are then a result of a large quantity of multifactorial elements and of lawful, but also random, phenomena.

Additionally, in many suburbs of Bratislava, the different levels and concentrations of crime are conditioned by many factors (position; social, economic, and demographic conditions; urbanisation, etc.), which support or inhibit its development. Differentiated conditions of these specific areas by means of many factors determine not only the level and structure of crime, but also further aspects. Crime in the suburbs of Bratislava is, in the same way as the suburbs of other towns, interconnected in a relatively complicated way with a number of previously discussed, but also future, phenomena and dimensions. It depends on a whole complex of causes, and is a result of the synergy of many phenomena (of complex factors), whereby the character, significance, reach, and influence of individual factors on crime are variable. In order to gain a better understanding of the differentiated occurrence of crime in particularly the suburbs of Bratislava, we tried to select and quantify parameters, which we consider in general, but also with regards to the criminogenic factors in the monitored suburbs. The aim was to reveal the varied structure of the suburbs of the capital from the viewpoint of its influence on the occurrence of the monitored types of crime. For the suburbs of Bratislava, we analysed the relationship between the level of selected types of crime on the one hand, and the selected demographic and socioeconomic indicators on the other hand, on the basis of 12 chosen indicators. They were selected based on the research discussed and general knowledge acquired with regard to suburban crime. The hypothetical expectation was that the selected indicators would have an influence on, or, more precisely, a meaningful range for, the level and further significant aspects of crime in the suburbs examined. The analysis was grounded on available regional data from the Statistical Office of the SR (2020) and the Head Office of Labour, Social Affairs and Family (UPSVaR, 2020). All data are related to the year 2019. The selected indicators are as follows:

- Number of inhabitants in the district
- Share of inhabitants of cities in the district (in %)
- Density of population
- Share of inhabitants aged 65 and over
- Natural increase (per 1,000 of the population)
- Gross rate of migration balance (per 1,000 of the population)
- Gross rate of total population growth (per 1,000 of the population)
- Share of inhabitants with no religious creed (or of unbelievers)
- Unemployment rate (%)
- Share of long-term jobless people placed on file (over 24 months)
- Share of inhabitants with an insufficient income (%)
- Average wage (in €)

INFLUENCE OF SELECTED INDICATORS ON THE MONITORED TYPES OF CRIME IN THE SUBURBS OF BRATISLAVA

As stated above, environmental concepts and analyses of crime have been pursued in research on the multifactorial agency of sundry phenomena and dimensions on crime, and these also include analyses of the (social) environment, phenomena, relations, and interdependencies. These concepts are focussed not only on research of the spatial connections and conditionality of crime, but also on a valuation of the influence (force) of individual factors/phenomena on various aspects of crime. Knowledge is being developed from a determination of the rate of influence of various factors on crime, and it is employed to draft new modern procedures aimed at revealing crime's aetiology (e.g. theories of the general and spatial aetiology of crime, factor criminology, theories of 'clusters' of crime etc.). These are key for the acquisition of answers and knowledge on the causes and conditionality of crime, characteristic signs of criminal environments, profiles, the criminal activities of offenders, and so on.

By identifying the 'size' of the influence of the factors examined on the overall, or concrete kind of crime, we were able to obtain the answer to the second question of this subchapter—to what extent do the factors partake in, as the case may be, and condition crime's occurrence and level in the monitored suburb? The methodology of examination used comes from the values of chosen indicators/indices for the crime in individual suburbs (Table 1). These appear as independent variables and are examined for selected kinds of crime (dependent

Tab. 1 Values of chosen variables/indicators in suburbia in 2019

suburbia/district	Senec	Pezinok	Malacky	D. Streda
Number of inhabitants in the district	90,141	65,127	74,373	122,407
Share of inhabitants of cities in the district	23.8	60.0	40.1	41.6
Density of population	250	173	78	114
Share of inhabitants aged 65 and over	12.8	15.6	15.5	16.2
Natural increase	6.3	3.3	1.9	- 0.4
Gross rate of migration balance	33.2	10.5	7.2	8.0
Gross rate of total population growth	39.5	13.8	9.1	7.6
Share of unbelievers	18.3	18.1	17.6	9.1
Unemployment rate	3.3	2.4	3.3	2.2
Share of the long-term jobless people	2.5	2.5	6.5	9.8
Share of inhab. with a material emergency	0.21	0.46	0.87	1.69
Average wage	1,244	1,147	1,330	1,078

Source: Statistical Office of the SR (2020), Head Office of Labour, Social Affairs and Family (2020).

variables). Through an examination of correlation dependence, we identified correlation which characterises tightness, or rather a degree of dependence. Bonds between dependent and independent variables were examined by the use of correlation analysis, which showed a dependence among quantitative values of some monitored phenomena. The Spearman's correlation coefficient was used and revealed the force of statistical dependence among quantitative variables. Spearman's correlation coefficient is written as *r* and calculated as follows:

$$r_s = 1 - \frac{6(\Sigma d^2)}{n(n^2 - 1)}$$

The results of Spearman's correlation are displayed in Table 2. The correlation analysis of partial dependences pointed out the meaningful influence (on high or very high dependence among quantitative values) of some selected variables on the monitored types of crime.

The interpretation of the correlation coefficient depends on the context. If it interprets the achieved values of gained correlation coefficients in the sense of

Tab. 2 Spearman's correlation between the level of monitored kinds of crime and selected variables/indicators in 2019

Independent variables	Spearman's correlation				
	VC	TbB	TbBiF	TbBiC	CT
Number of inhabitants in the district	**0.903**	**0.761**	-0.992	-0.564	-0.183
Share of inhabitants of cities	0.123	-0.003	0.174	**0.876**	-0.509
Density of population	-0.481	**0.794**	0.263	-0.510	**0.980**
Share of inhabitants aged 65 and over	0.456	-0.533	-0.147	**0.803**	-0.906
Natural increase	-0.763	0.517	0.563	-0.367	0.543
Gross rate of migration balance	-0.661	**0.757**	0.395	-0.604	**0.955**
Gross rate of total population growth	-0.695	**0.807**	0.444	-0.546	**0.961**
Share of unbelievers	-0.994	**0.842**	**0.977**	0.267	0.423
Unemployment rate	-0.543	**0.755**	0.668	0.565	0.266
Share of the long-term jobless people	**0.894**	-0.997	-0.829	-0.088	-0.711
Share of inhab. with a material deprivation	**0.958**	-0.966	-0.861	-0.011	-0.711
Average wage	-0.424	-0.068	0.543	0.492	-0.474

Dependent variable: the concrete kind of crime in 2019.
VC – violent crime, TbB – thefts by break-in, TbBiF – thefts by break-in flats, TbBiC – thefts by break-in cottages, CT – car thefts
Source: Statistical Office of the SR (2020), Head Office of Labour, Social Affairs and Family (2020).

Cohen (1988),[5] then the most meaningful relationship (a very large dependence) for violent crime is observed for the inhabitants with a material emergency, the total number of inhabitants, and an increased share of long-term unemployed persons. The 'most numerous' very high dependence (up to six indicators) is shown by thefts by break-ins, whereby three of them are from the group movement of the population (natural increase, gross rate of migration balance, and gross rate of overall increase of the population). Additionally, the dependence on religious creed (share of non-religious inhabitants) on the density of the population and unemployment rate is very significant. It is evident that the high growth of inhabitants in the suburbs, connected with the density of the population, is caused by a very high concentration of population, and an increase in the number of dwellings, thus leading to the build-up of delinquency connected with burglaries. The religious structure, in other words the share of inhabitants with no communion of faith or allegiance (communion or membership) to some church, is the most meaningful variable influencing the level of thefts from flats by break-ins. This also shows a minor, but steadily significant, dependence on the unemployment rate and wage level. The share of population in towns and inhabitants over 65 years have a distinctive influence on thefts of cottages by break-ins. The kind of crime indicated also exhibits a dependence on the rate of unemployment. Car thefts show the highest values of dependence on the monitored types of crime, as they exhibit a high dependence on population density. With this indicator, the Spearman's value reached 0.980. It is obvious that with the arrival of inhabitants, the number of cars also increases, as do 'occasions' for their theft.

The meaning of monitored variables is spatially differentiated according to the particular types of crime monitored. In the case of violent crime, the three most significant variables reach the worst values in the southern suburbs (Dunajská Streda district). In this district (suburb), the values of monitored variables, as well as the size of the population, are much higher than in the other suburbs. The unemployment rates and rates of long-term unemployment are similarly high. For the eastern suburbs (Senec district), thefts by break-in are a typical crime, and these are dependent on six previously mentioned variables. These are the only ones to achieve the worst values in the district with respect to this specific crime. Thefts from flats by break-in are the most frequent in the north-eastern suburbs (Pezinok district), whereby the district is simultaneously distinguished by the worst values of variables that determine the occurrence of this kind of crime. The district has the highest rate of unemployment, but also a high (the second highest) share of inhabitants with no faith. It is equally distinguished by the highest level of thefts from cottages by break-in, and the worst values of variables which showed the

5 Correlation (in absolute value) under 0.1 is trivial, 0.1–0.3 is small, 0.3–0.5 is middling, 0.5–0.7 is big, and over 0.7 is very great/significant.

highest dependence on this crime (especially the share of population in towns and the population over 65 years). The very high level of car thefts in the eastern suburbs is 'accompanied' by very high values for all four main criminogenic factors (growth of population and density of population).

CONCLUSIONS

The intensive process of suburbanisation which has occurred in Slovakia in the suburbs of big cities has become an object of interest for many areas of specialist research. In spite of this fact, in Slovakia but also in the countries of Central and Eastern Europe, studies focussing on one of the most significant aspects of these areas have been almost absent; namely the examination of crime in the suburbs. In this respect, the study has attempted to fill the gap, and to provide basic knowledge on crime in a newly emerged environment, which has altered considerably, namely the suburbs of Bratislava. The space surrounding this metropolis is characterised by significant dynamics in consequence of the suburbanisation process which has substantially formed it, both in positive and negative ways. We have attempted to answer questions connected with the situation of the suburbs of Bratislava with respect to crime. Whether also Bratislava suburban zone (suburbs) is characterized by distinctively lower crime rate than the town whether equally as elsewhere the richer residential environment with family houses attracts, particularly, the crime connected with property, what are causal factors and determining conditions of crime occurrence and what is the crime aetiology in suburbs. The study and results have shown that the Bratislavan suburbs are, in general, safer than the space of the capital. It has been shown that all suburbs are characterised by a lower crime rate than Bratislava. The results also confirmed that, as in advanced countries, the suburbs of Bratislava distinguish themselves by an increased level of property crime, especially, thefts by break-in.

The results of these analyses have highlighted relatively complicated interconnections and bonds between selected kinds of crime and some of the indicators monitored. They have shown that the monitored variables determine at the most, thefts by break-in, and they exhibit a very considerable association with car thefts. Demographic factors, as they are connected with very high population growth and concentration, had the most distinctive influence on the monitored types of crime. Conversely, the socio-economic indicators had a disproportionately minor influence, although somewhat more distinctive, on violent crime. We are aware that the 12 selected indicators are only a fraction of a large group of possible predictors, some of which could have higher correlations with the chosen types of crime than the monitored ones. In this respect, however, a question is already emerging: how can one qualitatively express significant dimensionless, particularly social, characteristics, which have, in general, but also in the concrete space of the suburbs, a distinctive influence on the crime, as the case may be, and its different

kinds? In the area of social characteristics, it concerns, for example, the status of social linkages (of anomie, aid, solidarity etc.), of social control and behaviour and so on. In spite of the stated facts, we think that the results acquired have provided new knowledge and important information. These can be utilised in security, social, regional, and municipal policies for the control of delinquency, but also for crime prevention, and especially for the creation of effectively and precisely focussed activities in the concrete environment of the suburbs of Bratislava.

The approach and analysis used are more or less also applicable for suburbs of other Slovak metropolises. The results of this study can also provide an initial knowledge basis for the research of crime in the suburbs of other cities, particularly in surrounding countries. The present and similar research can also form a basic assumption for comparative studies which are absent in countries of this region.

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