

DEVELOPMENT OF REGISTERED CRIMINALITY IN THE SLOVAK REPUBLIC AND ITS COMPARISON WITH CRIMINOLOGICAL PROGNOSSES

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Abstract

The article focuses on the problem of improving forecasts of criminality in the Slovak Republic and other European countries involved in international scientific conferences devoted to criminological forecasting and crime prevention. The possible solutions were assessed statistically in the Slovak Republic and presented at international conferences.

Key words

Crime, criminal prognosis, crime prevention, crime factors, statistical regression analysis, dynamic regression analysis (ADL), co-integration.

Introduction

Certainly, there will never be a society without crime and other anti-social activities. Despite this certainty, it is necessary to do everything possible to effectively control crime and reduce it. In addition to repression, crime prevention is an important part of crime control.

Since 1989, crime in the Slovak Republic has changed both quantitatively and qualitatively. Quantitatively, since 1989 crime increased until 1993. Then crime began to hold steady and even decline, nevertheless the incidence of crime is still twice as high as before 1989. [5] The quality of crime since 1989 varies considerably:

- immoral and violent crime is increasing,
- crimes are committed in public places and in broad daylight, particularly murder, robbery, car theft etc., which previously was a unique phenomenon,
- the number young offenders is increasing, and the age of offenders continues to drop,
- domestic violence, especially abuse of children, women and older persons is increasing,
- "white collar" crime is increasing due to lack of control over corruption, even at the national level,

- organized crime is more dangerous and sophisticated and includes an international element,
- criminal drug activity and crimes associated with are increasing. The Slovak Republic is no longer simply a county where drugs are consumed and a route for traffickers, but also a country where drugs are being produced, particularly synthetic drugs such as pervitin, whereas in the past marijuana and heroin were more common,
- cyber crime is increasing,
- the personal profile of offenders is also changing.

Quantitative and qualitative changes in crime are related to processes of globalization and urbanization, in addition to (?) changes in society and especially in economics, to technological progress, family crises, the emancipation of women and children, changes in the education system, the violation of traditional values and other social changes. The existing system of nation-wide crime control is not sufficiently effective. Traditional institutions such as police and the courts have not adequately reduced crime. Changes within these institutions and in the laws of the Slovak Republic (hereinafter the SR) may have positive effects but will not fundamentally control crime.

State security policy must focus on prevention to achieve a greater positive change. Therefore it is gratifying that governments in the Slovak Republic are adopting crime prevention strategies.

The first strategy was Government Resolution No. 482 of 9 June 1999, for the years 1999 to 2002, which laid the foundation for a coherent concept of crime prevention. It was the first institutional step towards increasing the security of citizens by protecting their life, health and property through prevention. Prevention strategies used in 1997 and 1998 were used to develop the strategy along with documents from the Council of Europe and the United Nations.

Due to the success of the first strategy, the second comprehensive crime prevention strategy, Government Resolution no. 286 of 23 April 2003, was prepared for the years 2003 – 2006. New crime prevention activities have been established for 12 selected departments, regional offices and regional cities. Prevention measures have also been instituted at the local level, where crimes are usually committed and prevention is absolutely necessary.

The third crime prevention strategy was adopted for the years 2007 - 2010. This strategy maintains crime prevention at the three levels of government - national, regional and local.

Predicting delinquency and its recorded development

The three strategies will not eliminate crime but help to reduce it. The success of the strategies depends on their implementation. However, is it possible to measure the effectiveness of crime prevention by the incidence of crime? If crime prevention was 100% effective, then the incidence of crime should

approach 0. The incidence of crime is only indirectly related to prevention and is related to the current level of crime. (?)

The Police Academy has presented statistics on crime in the SR and recommendations on its control three times at the international seminar "Current issues in criminological forecasting since 1995."

The first forecast of medium-term development of criminality in Slovakia was published in 1995, with a forecast to the year 2000 and beyond (prognosis 1). The second forecast was a Prognosis and development of crime control in Slovakia in 2001 with a forecast for each year up to 2003 (prognosis 2). Mainly two methods were used for forecasting – the Delphi method and brainstorming. The third was in 2006 with a forecast of crime until 2009. I compared the prognosis of selected types of crimes listed in the forecasts with recorded crime development (the number of registered crimes) in the graphs 1 to 4 below [2, 8].

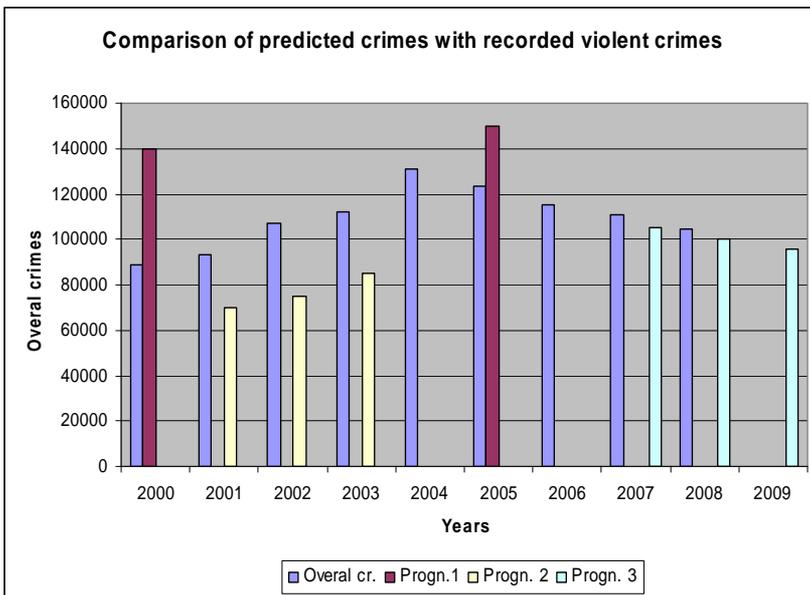


Fig. 1
Comparison of predicted crimes with recorded crimes in the SR

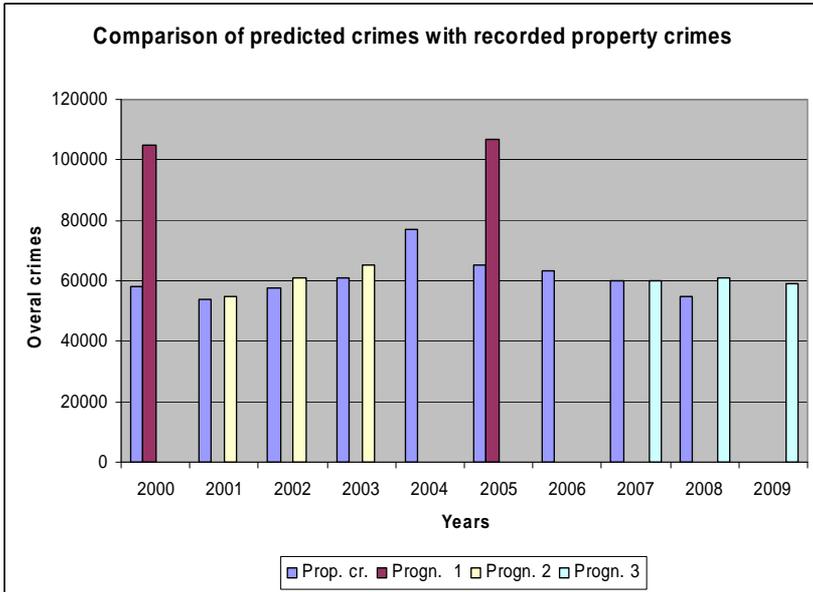


Fig. 2
Comparison of predicted crimes with recorded property crimes

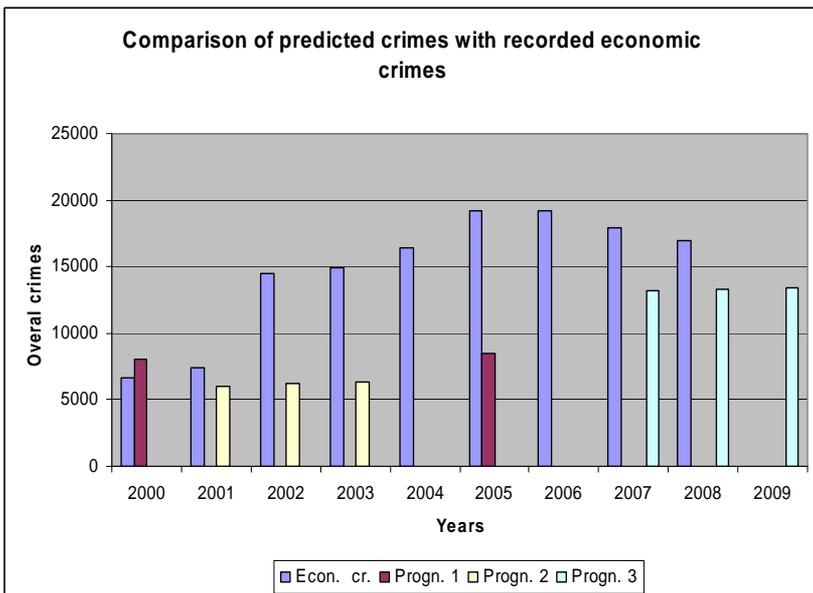


Fig. 3
Comparison of predicted crimes with recorded economic crimes

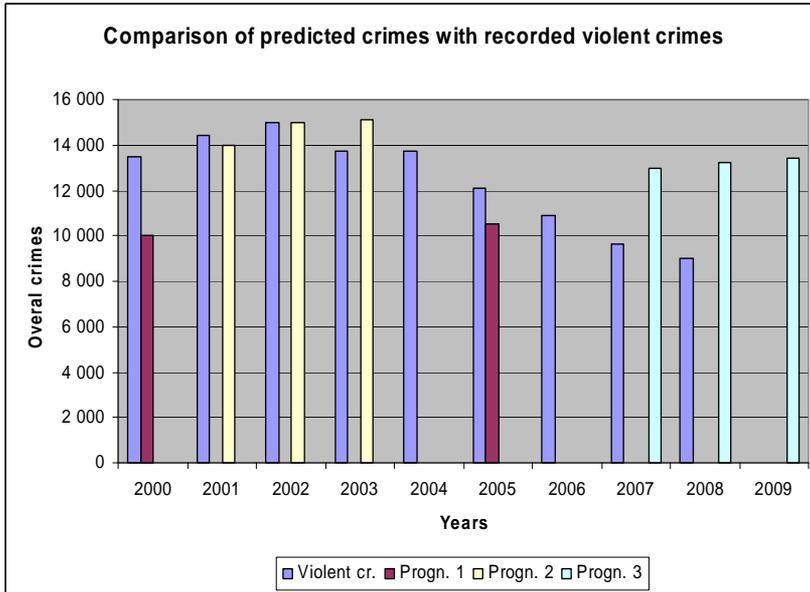


Fig. 4

Comparison of predicted crimes with recorded violent crimes

The first prediction of overall crimes is very pessimistic because the total recorded crime was considerably lower, and conversely the second forecast was too optimistic because the actual overall crime was higher. Accurate was the last - The third prediction was the most accurate because the forecast was close to the actual number of crimes.

Property crime was reliably forecast in the second and third prognoses.

The forecast of economic crimes has the best indicators. The first two prognoses were too optimistic, given the actual level of economic crimes. The fact is that even the medium values of the third prognoses are optimistic in comparison with the actual level of crimes.

Prediction of violent crimes is from all assessed types of crime the most accurate. The first two predictions are almost identical with the actual level of crime, the third one is pessimistic compared with the actual level. There is a presumption that the factors that retard or accelerate crime have changed.

The accuracy of forecasts is and will be, dependent on perfect knowledge of criminological factors that determine its development. The professional literature provides from 250 to 450 criminological factors (Holcr, Chalka, p. 54). We have analyzed the essential factors that impact overall crime.

These factors can then be expressed as formulas:

$$Y_t = f(X_{nk}), \text{ for discrete random variables or}$$

- where: Y_t – is crime forecast in time t, dependent variables,
 X_{nk} – are crime factors, independent variables,
 k – is k^{th} independent variable, which is a natural number 1,2 k,
 n – is the n^{th} independent variable, which is natural number 1,2....n.

Taking into account various criminal factors, the prognosis of crime can be expressed by:

$$Y_t = f(X_{n1}, X_{n2}, X_{n3}, X_{n4}, X_{n5}, X_{n6}, X_{n7}, X_{n8}, X_{n9}, \dots, X_{nk}),$$

- where: X_{n1} – economic factor,
 X_{n2} – political factor,
 X_{n3} – social factor,
 X_{n4} – cultural factor,
 X_{n5} – safety factor,
 X_{n6} – educational factor,
 X_{n7} – demographic factor,
 X_{n8} – geographic factor,
 X_{n9} – crime prevention factor,
 X_{nk} – other criminal factor.

The economic factor can be expressed by:

$$Y_t = f(X_{11}, X_{21}, X_{31}, X_{41}, X_{51}, X_{61}, \dots, X_{n1}),$$

- where: X_{11} – amount of gross domestic product per capita,
 X_{21} – industry structure,
 X_{31} – dependence of local economy on the global economy and the share of multinational companies,
 X_{41} – self-sufficiency of raw materials,
 X_{51} – level of production technology,
 X_{61} – minimum height (?) and average wages,
 X_{n1} – other economic factors.

The political factor can be expressed by:

$$Y_t = f(X_{12}, X_{22}, X_{32}, X_{42}, X_{52}, X_{62}, \dots, X_{n2}),$$

- where: X_{12} – level of state security policy,
 X_{22} – adoption and application of legislation and standards,
 X_{32} – activity of legislative bodies,
 X_{42} – stability of the political system,
 X_{52} – citizen confidence in the executive and legislative institutions of the State,
 X_{62} – relationship of citizens to the institutions of the European Union,
 X_{n2} – other political factors.

The social factor can be expressed by:

- $$Y_t = f (X_{13}, X_{23}, X_{33}, X_{43}, X_{53}, X_{63}, \dots, X_{n3}),$$
- where:
- X_{13} – state social policy and welfare system,
 - X_{23} – level of social pathologies in the society,
 - X_{33} – number of socially deprived families,
 - X_{43} – ratios of the poorest and richest sectors of society,
 - X_{53} – unemployment,
 - X_{63} – health state of population,
 - X_{n3} – other social factors.

The cultural factor can be expressed by:

- $$Y_t = f (X_{14}, X_{24}, X_{34}, X_{44}, X_{54}, X_{64}, \dots, X_{n4}),$$
- where:
- X_{14} – focus of television, print media, literature, film,
 - X_{24} – impact of the Internet and other audio-visual media on society,
 - X_{34} – church influence on society,
 - X_{44} – value orientation of society,
 - X_{54} – penetration of another culture in society,
 - X_{64} – level of social control and anonymity in society,
 - X_{n4} – other cultural factors.

Factors of safety, prosecutors and courts can be expressed by:

- $$Y_t = f (X_{15}, X_{25}, X_{35}, X_{45}, X_{55}, X_{65}, \dots, X_{n5}),$$
- where:
- X_{15} – system of state security forces,
 - X_{25} – trust of the society in the State security forces,
 - X_{35} – the level of private security in society,
 - X_{45} – the level of prosecution,
 - X_{55} – level of law procedure/ ratio of the number of convicted to prosecuted/;
 - X_{65} – technical level of the security forces,
 - X_{n5} – other safety, prosecutor and court factors.

Factors of education can be expressed by:

- $$Y_t = f (X_{16}, X_{26}, X_{36}, X_{46}, X_{56}, X_{66}, \dots, X_{n6}),$$
- where:
- X_{16} – level of education of the population,
 - X_{26} – educational function of schools,
 - X_{36} – level of teaching staff in schools,
 - X_{46} – how minors and juveniles spend leisure time,
 - X_{56} – level of research and development,
 - X_{66} – technical equipment of schools,
 - X_{n6} – other educational factors.

Demographic factors can be expressed by:

- $$Y_t = f (X_{17}, X_{27}, X_{37}, X_{47}, X_{57}, X_{67}, \dots, X_{n7}),$$
- where:
- X_{17} – population structure,
 - X_{27} – allocation of population in towns and villages,

- X_{37} – number of ethnic groups and nationalities in the society,
- X_{47} – number of immigrants,
- X_{57} – population migration,
- X_{67} – mortality ratio (rate of deaths and births),
- X_{77} – life span,
- X_{87} – mortality coefficient / infant mortality ratio /,
- X_{97} – coefficient of aging (ratio of 65 and older in population),
- X_{n7} – other demographic factors.

Geographical factors can be expressed by:

$$Y_t = f (X_{18}, X_{28}, X_{38}, X_{48}, X_{58}, X_{68}, \dots, X_{n8}),$$

- where:
- X_{18} – trend of crime compared to surrounding countries in the region,
 - X_{28} – influence of organized crime,
 - X_{38} – cooperation of Interpol and Europol with security forces in the country,
 - X_{48} – impact of terrorism on society,
 - X_{58} – interaction with international institutions and organizations,
 - X_{68} – impact of globalization and unequal development of society,
 - X_{n8} – other geographical factors.

The factors can then be used to identify dependence between criminal factors and relate this to the incidence of actual crime. Using statistical data may aid in more accurate forecasting of crime.

In the first correlation, defining dependencies is the basis for criminal research. To develop dependencies, either long-term research or a set of statistical indicators must be available.

Regarding the second correlation we cannot be satisfied only with the crime statistics reported by the Police and Justice administration. There is also latent criminality between the reported and real criminality, which must be identified. It can be several times higher than the reported criminality. The best way to find it out is to undertake sociological research among citizens focused on the victims of criminal acts and other deviant behavior in the society.

It is advisable, if possible, to use mathematical models when defining the dependency between criminological factors and crime. In the following section we will demonstrate the results from our research, in which mathematical models and qualitative methods of expert estimation were used. The use of mathematical models will be demonstrated on specific social criminological factors – the correlation between unemployment and theft. Qualitative methods will be demonstrated using crime prevention factors.

Dependence of unemployment and theft

The analysis of multidimensional time series aids in the development of models for extrapolation of the the dependent variable influenced by the

independent variable. Multivariate time series analysis is becoming increasingly topical for developing statistical crime indicators, because it can help to disclose correlations between social conditions. It must be pointed out that unemployment is an important factor in co-integration analysis.

Co-integration analysis of selected indicators of criminality and unemployment

Prior to co-integration analysis, we identified the availability of statistical information on relevant factors. We focused on the correlation of "unemployment" and the crime indicators that would which logically be considered dependent on it.

In econometrics there is distinction between short and long term relations within multi-dimensional modeling of economic time series. The first type of relation between the time series takes only a relatively short period of time and disappears with evolving time. The second type of relationship has a long duration. If the deviation between time series is short and returns to the original state, we say that the time series are in equilibrium.

Quarter year data since 2003 were used (24 observations) in our analysis.

Process of co-integration analysis

For our approach a basic assumption is valid: one of two time series has an exogenous (unemployment) character and the other has an endogenous character (criminality indicator). In order to clarify this, it is useful to test co-integration in multidimensional models. These are based on VAR models. It is also possible to construct EC models. Co-integration tests are mostly based on these particular models. The process of co-integration analysis is as follows:

- 1) using tests of unit root (ADF) we prove non-stacionarity of time series (?)
- 2) We perform static or dynamic regression analysis of the two time series.
- 3) If the model is appropriate, we perform a co-integration test (residual test). If the residuals are static, then both time series are co-integrated. If so, from a long term perspective they are in balance.



Fig. 5

Graph of development of unemployment and restaurant burglary in the SR

As far as co-integration between the time series “unemployment” and “criminality indicators” we can identify crime indicators.

Results of co-integration analysis

Regarding the co-integration analysis between “unemployment” and the crime indicator “restaurant burglary” as visible on the graph, the test showed that both time series are non-stationary. So the basic condition for the co-integration test is fulfilled.

Next, we modeled the influence of unemployment on “restaurant burglary” (ADL).

The co-integration test showed that the time series “unemployment” was co-integrated with the crime indicator “restaurant burglary.” This means that both couples of co-integrated time series are in balance.

After that we proceeded to the development of scenarios of “restaurant burglary”. First, the expected unemployment development was extrapolated to the period 2009-2011. Extrapolation was done with the AUTOBOX (automated expert system) program using Box and Jenkins methodology – ARIMA models.

The result is shown in Fig. 6 below.

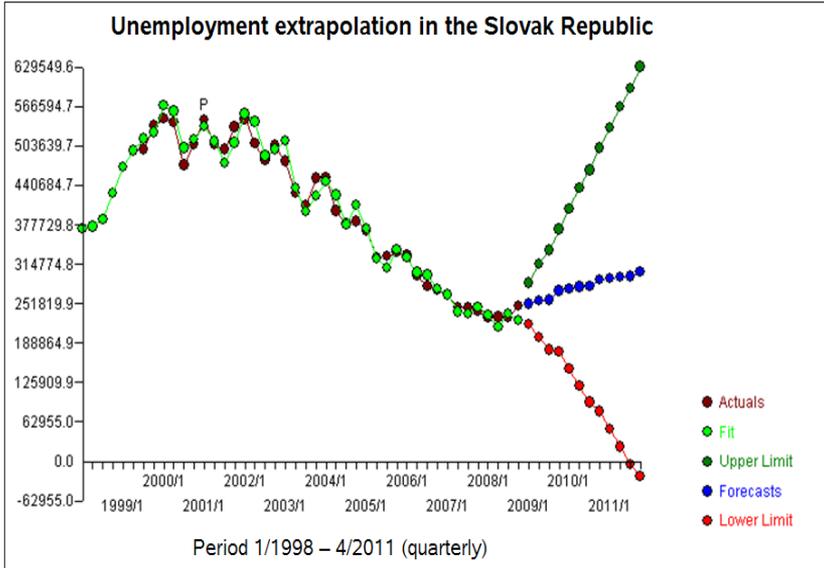


Fig. 6
Graph of unemployment extrapolation in the Slovak Republic

Next, we created a scenario of the influence of unemployment on restaurant burglary.

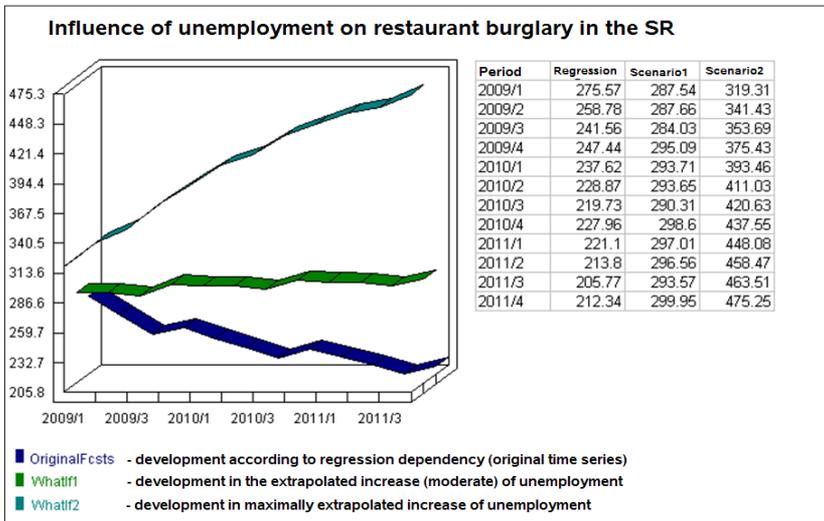


Fig. 7
Scenarios of the influence of unemployment on restaurant burglary

Results obtained from mathematical models and computer programs can be used to develop prognoses for other types of criminality which are in causal relationship with unemployment. This is demonstrated in Fig. 8, 9 and 10.

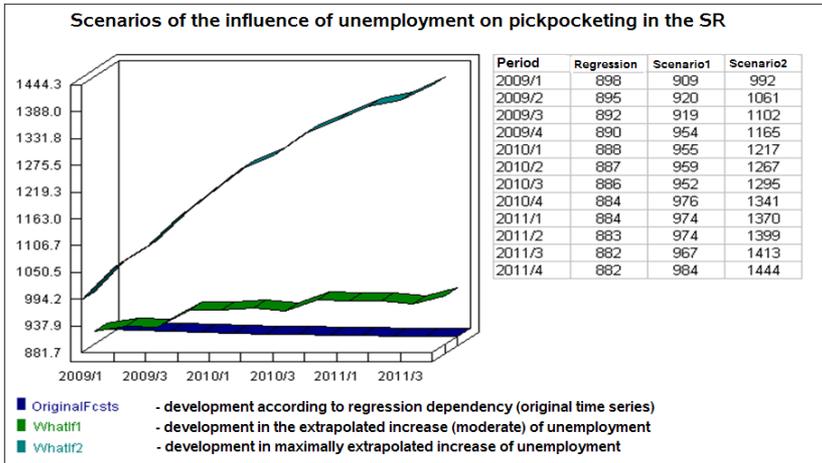


Fig. 8

Scenarios of the influence of unemployment on pickpocketing in the SR

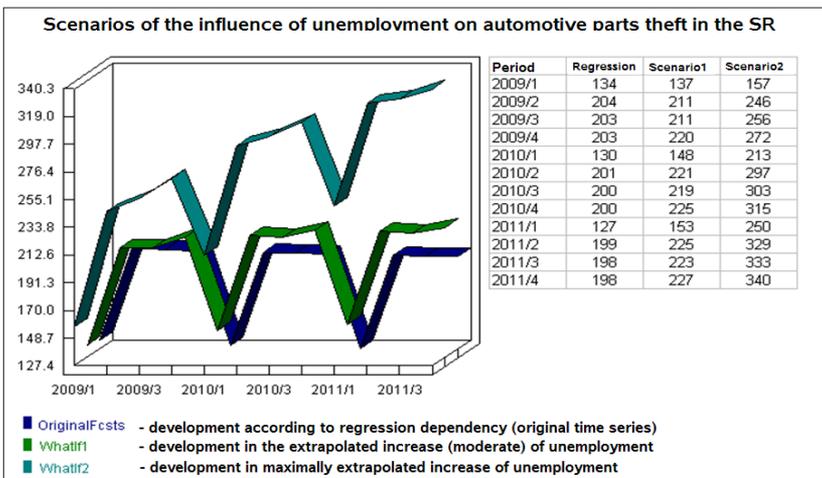


Fig. 9

Scenarios of the influence of unemployment on automotive parts theft in the SR

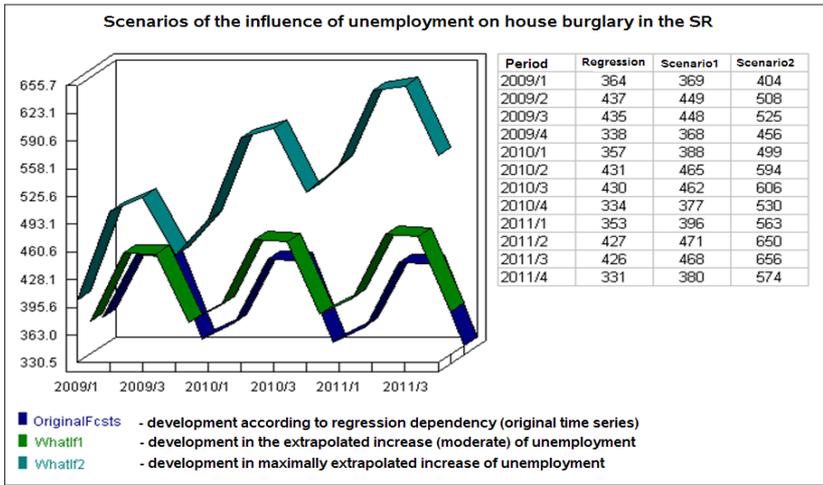


Fig. 10

Scenarios of the influence of unemployment on house burglary in the SR

Partial conclusion

In this part of the article we demonstrated scientific investigation using co-integration analysis of the relation between “unemployment” and “restaurant burglary.” Next we used co-integration analysis for crime prognosis.

Influence of crime prevention on the prognosis of crime

How does crime prevention influence actual crime and the prognosis of crime? The answer to this question is difficult. Generally, when controlling crime, prevention is more effective than repression and consequences resulting from the crime. Based on this claim we can conclude that the focus of all interested parties should be to reduce crime through prevention.

Until now, prognoses have not included the influence of crime prevention on actual crime. We propose the following recommendations to control crime based on our research. We answer the question “What will have to be done in order to weaken or strengthen the criminal tendencies that are described by explorative prognoses answering the question “What can happen?””

Prognosis resulted from the assumption that future development crime in the Slovak Republic is not a foregone conclusion. Prognoses will be updated regularly and with every activity and contain a wide variety of recommendations from the field of crime prevention [1, 2]. However, crime prevention is not yet fully functional. It is a dynamic field that is still developing.

Factor of crime prevention can be expressed as follows:

$$Y_t = f(X_{19}, X_{29}, X_{39}, X_{49}, X_{59}, X_{69}, \dots, X_{n9}),$$

where: X_{19} – institutions and organizations ensuring the prevention,
 X_{29} – legislation ensuring prevention,
 X_{39} – finances for ensuring prevention,
 X_{49} – social prevention,
 X_{59} – situational prevention,
 X_{69} – victimization prevention,
 X_{n9} – other factors influencing crime prevention.

When defining crime prevention, it is necessary to define the current state and future development of variables X_{n9} respectively. By doing this along with other steps of prognosis it is possible to identify the prognosis of crime prevention and its influence on the prognosis in overall crime in the SR.

Relevant information should be gathered for each of the factors. Gathering this information takes the most time and effort. Generally external and internal information resources can be considered including legislation, standards, reports, assessments, the academic literature, etc. Considerable data for the variable X_{n9} will not be available and that is when expert evaluation comes into consideration.

It is important to evaluate the institutional and organizational background of crime prevention at the three levels of government in the SR.

The national level manages mostly legislative, conceptual, economic, coordination and executive tasks. At this level the Council of the government of the SR for crime prevention has the consulting, initiation and coordination function within departments in selected ministries.

Government at the regional level performs conceptual, program, coordination, economic and executive tasks. The coordination organs are regional and district committees for the prevention of antisocial activities, which are consulting, initiative and coordination bodies of management of regional and district offices. Executive offices on the regional level represent the coordinators of prevention, which are part of the corresponding statutory body.

The local level has the same duties as the regional level, but it is customized to the conditions of particular towns and villages. On this level, the coordination bodies are represented by municipal committees for prevention of antisocial activities, which are consulting, initiative and coordination bodies of mayors. On the local level, besides the committees, the coordinators of prevention represent the executive departments.

The institutional and organizational background has not changed lately and we do not expect any essential changes compared to the current state. It will be mostly the quality improvement of existing organizational structures.

The more important changes happened on the regional and local level. The changes corresponded with the changes in the state administration, local municipal administration and with shifting of competences. Regional offices were

cancelled and the local offices of municipal and state administration are still not clearly defined. Offices of local administration do not have properly implemented crime prevention due to institutional and organizational resources. This reduces their ability to partner with higher levels for crime prevention.

When improving activities and rebuilding organizational structures on the regional and local level, we can expect that effectiveness of crime prevention will increase in 2010 and results will be more remarkable through the years 2011 – 2012.

An important issue in predicting crime prevention is to adequately assess legislative and financial resources for crime prevention. This was done when SR. Act no. 583/2008 (the prevention of crime and other antisocial activities, valid since 31.12.2008) was approved. The Strategy of criminality prevention in the SR for the years 2007 – 2010 was also accepted. The Act and Strategy theoretically corresponds to the actual needs. However, institutional and organizational structures on regional and local level have not been adequately developed to date. As result, the conditions for enforcing the goals of the accepted documents are not good, which could positively influence crime. We assume that the documents will have a more positive effect on crime prevention after 2010. Additional financial resources for crime prevention are grants, presents, etc.

Since 2003 the national government has released some funding for crime prevention each year but it has not been adequate. Projects may be funded for up to 80% of projected expenses but the remaining 20% must be provided from other sources which is often impossible. [17] The institutions mentioned above solve preventive programs in specific fields outlined below.

Social prevention – is the general prevention of all social pathological phenomena. Social prevention is a part of social policy and is essential for creating appropriate social conditions in economic, social, cultural, educational, employment, leisure activities, social inclusion, spiritual development, humanization, overall social life quality improvement, social classes as well as socialization and the social integration of each individual.

From the crime prevention point of view, social prevention is focused also on the change of negative social, cultural and economical conditions and other environmental conditions as well, which can become criminological factors.

The goal of the social prevention is to create such conditions so that people do not become criminals or do not keep on committing crimes.

Social prevention can be realized according to criteria of criminal problem development as:

- primary prevention represents educational, consultant and free time activities focused on the general public and individuals who have not had contact with crime yet,
- secondary prevention is oriented on risk groups of people or individuals, who may have a tendency to commit crime or to become victims of crime as well as on the decrease of situational criminal factors,

- tertiary prevention is in relation to delinquents and recidivism prevention and to the victims, providing social, medical, psychological and juridical help with the goal of psychological stabilization and social integration.

Social prevention is determined mostly by the SR government program and its realization in praxis. It is a whole set of measures, which solve the acceptance of new legislative standards, their realization in particular management levels into programs, projects, plans etc., acceptance of various organization measures in the field of personal, financial and material support of accepted documents and control of realization of social prevention and its operational management. Social prevention impacts mostly family, school, specific care for seniors and juniors, health condition, housing, unemployment, migration, asylum immigrants etc.

We assumed from the program statement that it would have a positive impact on social prevention. But this impact was interrupted by the recent world economic and financial crisis. A lot will depend on further development of the crisis and measures by the Slovak government and their implementation into the social sector. It is probable that a positive impact on the decrease of crime cannot be expected within the coming years.

Situational prevention, in contrast to social prevention, is specifically oriented to crime, protection of public security, life, health and property of citizens. Situational prevention, thanks to its basic forms, makes it difficult for the potential criminal to commit a crime and increases the probability of revealing the criminal at the same time.

Its basic forms include:

- Mechanical barriers (MB) – their goal is to make it difficult or practically impossible for the criminal to break into a protected target. Their characteristic feature is break-down resistance. They are divided into the following groups: exterior MB, construction components of buildings, fillings of openings and deposit objects.
- Electronic security systems – systems providing protection of property and people against illegitimate interventions, including systems and equipment enabling observation of movement and actions of criminals in the target area and its surroundings. Into this group belong: alarm systems, camera systems, electric fire signalization and entrance control systems.
- Physical protection- are direct actions performed by a person present in the target. It is actual guarding of an object, area, subjects and other protected assets by people (members of military forces, guardians, gate-keepers, patrols, forest / hunting / water rangers etc.). From the target protection point of view the following forms of physical protection can be defined: guard duty, security watch, security protection escort (personal, valuables or transports), security investigation, ticket control service, security drive (intervention).
- Organizational and regime measures – they are focused on preparation and development of work flows which create a framework for an effective implementation of a target protection system.

Situational prevention is based on the fact that particular crime types appear at a particular time, under particular circumstances, in particular places and they are committed by a particular type of criminals.

Situational prevention will depend on the location and role of security in the society and its perception by citizens. Security belongs to prior needs of each individual and substantial influences life quality of the citizens and society. Security should be accepted by state and private bodies as well as every single individual. [4]

The second area on which situational prevention depends is knowledge and interpretation of security situations in the target location. Based on this knowledge it is necessary to develop safety objectives, safety policies, security projects and bring them to reality.

The third area includes the condition and work quality of military forces, security forces and departments and other services from the field of security assurance. It is the job of the state and private sector, which is dynamically developed nowadays.

The fourth area is connected to the development and implementation of the progressive technology into the situational prevention, which partially substitutes for the human factor.

Based on the increase in crime we can assume that the field of situational prevention is not adequate. Many local projects and safety activities have had a positive impact on reducing crime but in a particular location, but from national point of view the effect is not so clear. We expect only slow growth of situational prevention quality and its impact on crime control in the coming years.

Prevention of victimization is a type of specifically oriented criminality prevention and its goal is to prevent a human from becoming a crime victim. It includes learning and applying preventive measures, but preventive behavior including appropriate reactions in threatening situations and help to victims of crime is also necessary.

Victimization prevention can be realized generally, by all people by informing them about criminal threats, by the exercise of preventive behavior, through technical prevention of crime, especially related to property, violence and others. It can be focused to specific social groups or individuals and can be carried out by means of group or individual consultancy, threat situation reaction practice etc.

Such preparation is necessary because some groups of victims provoke the criminals to the attack, either by their passive attitude, careless and adventurous behavior (e.g. way of life: alcoholics, drug addicts, prostitutes), or actively by their provoking or challenging territorial behavior. However, it is not the rule that the victim actively participates in the criminal act. People can become victims by accident or due to some social feature such as membership in some specific social group, nationality, race, age group, religion but also by doing some kind of risky job such as being a police officer or cashier.

Aid to victims of criminal acts is closely connected to victimization prevention and is provided by government and non-government subjects in specific

ways depending on the type of harm. Compensation to victims of property crimes is totally excluded by the government. From the legislative point of view, attention is paid mostly to accused or sentenced criminals, and less to the victims.

We believe that the field of victimization prevention is underestimated both by potentially threatened groups and citizens. Proper attention is nowadays paid to victims of criminal acts and mostly to prevention of violence committed on women. Only sporadic attention is paid to other groups of citizens threatened by criminality. Generally, the attitude of the citizen is: “nothing happened to me until now so why should something happen to me in the future?” Citizens only realize their vulnerability when they become a victim and it is too late.

We do not presume that the field of victimization prevention will significantly change and will contribute to the decrease of criminality. Its level will stagnate in the following years.

When implementing crime prevention we have to make a choice between different methods. The choice of methods closely correlates to other factors, such as availability and reliability of information, necessity and objectivity of information, relations of subjects providing information, possibility of exact interpretation of information etc.

From the estimation based methods, these seem to be most usable and appropriate: review of objectives, analogy, correlation analysis and expert estimations (especially scenario planning) and the Delf method. In the estimation based methods it is possible to use wide and deep theoretical knowledge as well as long-term practical experiences of individuals dealing with these issues.

The usage of causal expert methods based on the extrapolation is not appropriate, because up to now, there are no time series showing the prognosis of crime. In the coming years it is probable that by using the mathematical model $Y_t = f(X_{nk})$, for discrete random variables and assigning weighing numbers to the respective parameters, exact methods can be used for crime prognosis.

Résumé

International scientific conferences (with the topics: “Recent issues of criminalistic prognosis” under the auspices of the Police Academy in Bratislava and “Criminality prevention on the local and regional level”, under the auspices of the Faculty of Special Engineering of the University of Žilina), which took places at the end of the year 2009 in the SR, broadly assessed the problem. At the end, concrete resolutions for further scientific research were accepted. The bases for creating more exact and objective prognoses were set. These will then become a stable base for implementing the security policy of the SR and the municipal bodies on the regional and local level.

Bibliography

- [1] BUBELÍNI, J. *Criminality prevention*. Bratislava: Department of Home Affairs of the SR, secretariat of Government council for criminality prevention, 2001.
- [2] GAŠPIERIK, L. *Prognosis of criminality prevention*. Bratislava: Academy of police forces proceedings, 2006, page 103 – 117.
- [3] GAŠPIERIK, L., MULLEROVÁ, J. Kriminological aspects of juvenile delinquency and criminality of juvenile delinquents in the Slovak Republic. Presented on 12th international conference in Germany „Starke Jugend – starke Zukunft“. In *International Perspectives of Crime Prevention*. Wiesbaden, 2007. ISBN 978-3-936999-47-1.
- [4] GAŠPIERIK, L. *Kriminology, selected lectures of criminology for students of safety management*. Žilina: ŠEVT a.s., 2003.
- [5] GAŠPIERIK, L. *Criminality prevention, selected lectures of criminology for students of safety management*. Žilina: ŠEVT a.s., 2005.
- [6] HALCIN, J. *Actual information of criminality prevention*. II. - V. volume of the Department of Home Affairs of the SR. Bratislava: Secretariat of Government council for criminality prevention, 2001 – 2002.
- [7] HOLCR, K., CHALKA, R. *Prognosis and criminality control in Slovakia*. Bratislava: Academy of police forces, 1995, 2002.
- [8] KOSTÍK, C., GAŠPIERIK, L. et al. *Prognosis of criminality development and its control in European region*. International resource & development grand. Bratislava: Academy of police forces, 2006.
- [9] *Eleventh congress of UN on criminality prevention and criminal justice*. Prague: Institute for criminology and social prevention, 2006.
- [10] LUBELCOVÁ, G. Forming of scope for sociological criminality interpretation. *Sociology*, 1996, no. 4.
- [11] LUBELCOVÁ, G. Criminality through optics of present sociological discursion. In *Sociology and sociological change*. Bratislava: UK, 2002.
- [12] ONDREJKOVIČ, P. Juvenile criminality and possibilities of its prevention by regionally oriented projects. *Youth and society*, 2000, no. 3.
- [13] ONDREJKOVIČ, P., LUBELCOVÁ, G. et al. *Social pathology*. Bratislava: VEDA publisher of Slovak academy of sciences, 2001. ISBN 80-224-0685-6.
- [14] *Strategy of Criminality prevention in the Slovak Republic*. Bratislava: Department of Home Affairs of the SR, secretariat of Government council for criminality prevention, 1999.
- [15] *Strategy of Criminality prevention in the Slovak Republic*. Actualization for years 2003 – 2006. Bratislava: Department of Home Affairs of the SR, secretariat of Government council for criminality prevention, 2003.
- [16] *Strategy of Criminality prevention in the Slovak Republic for years 2007 – 2010*. Bratislava: Department of Home Affairs of the SR, secretariat of Government council for criminality prevention, 2007.
- [17] BOC, K., GAŠPIERIK, L. Setting of priorities for criminality prevention to year 2003 with the view on the year 2006. In *Scientific conference*

- Criminality prevention and military forces of the SR – model 2010*. Trenčín: Proceedings of military police, 2002.
- [18] MACH, V., MITRÍK, M. *Mechanical safety tools*. Košice, 2008. ISBN 978-80-89282-23-4.
- [19] BARČÍKOVÁ, A. Importance of criminality prevention in local and regional level. In *Proceedings of scientific works and lectures, international scientific conference Safety and Safety science 2009*. Liptovský Mikuláš: Academy of military forces of gen. M. R. Štefánik, 2009. ISBN 978-80-8040-372-0.
- [20] Law no. 583/2008 on criminality prevention and other antisocial acts.
- [21] Law no. 300/2005 Penal Code.
- [22] Law no. 141/1961 Code of criminal procedure.
- [23] ARLT, J. *Modern methods of economic time series modeling*. 1st ed. Prague: Grada Publishing, 1999. 312 p. ISBN 80-7169-539-4.
- [24] ARLT, J., ARLTOVÁ, M. *Financial time series*. 1st ed. Prague: Grada Publishing, 2003. 220 p. ISBN 80-247-0330-0.
- [25] CIPRA, T. *Analysis of time series with application in economy*. Prague: SNTL, 1986. 248 p.
- [26] HINDLS, R., HRONOVÁ, S., NOVÁK, I. *Data analysis in management decision making*. 1st ed. Prague: Grada Publishing, 1999. 360 p. ISBN 80-7169-255-7.
- [27] HUŠEK, R. *Econometrical analysis*. 1st ed. Prague: Ekopress, 1999. 303 p. ISBN 80-86119-19-X.
- [28] Manual to AUTOBOX. <http://www.autobox.com/pdfs/autoboxcuserguide.pdf>.
- [29] SEGER, J., HINDLS, R. *Statistical methods in market economy*. 1st ed. Prague: Grada Victoria Publishing, 1995. 435 p. ISBN 80-7187-058-7.
- [30] WISNIEWSKI, M. *Methods of management decision making*. 1st ed. Prague: Grada Publishing, 1996. 512 p. ISBN 80-7169-089-9.
- [31] SC&C. *Introduction to time series analysis in SPSS*. Prague: SC&C, 1999. 38 p.
- [32] SPSS Trends 17.0, SPSS 2008 – user manual.