TWO-RAYS APPROACH IN THE INTEGRATION OF VICTIMOLOGICAL AND RECORDED DATA ON CRIMINALITY

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Abstract. *Accurate and valid data on criminality are the foundations of any efficient crime policy and crime prevention. However, modern criminal justice and crime prevention has to deal with multiple, often conflicting sources of data.*

Our paper considers the prospects of integration of the most important data on criminality:

victimological and recorded data. The way of their integration – a two-rays approach (RAS) – has been proposed. A new integrated criminality research tool, able to combine victimological and recorded data has been developed. This tool was used in the nation-wide representative study of criminality in Lithuania.

The outcomes of this study and the integrated ("two-ray") investigation of criminality are discussed.

Keywords: *crime data, level and structure of criminality, victimisation survey, recorded crime data, integrated approach to crime data.*

Introduction

The problem and its relevance. Data on crime levels and their structure are the basis of a successful criminal policy and crime prevention. These data are important for assessing the crime situation and exploring the dynamics of crime. This knowledge provides the ground to select the most proper crime control strategy and crime prevention policy. Crime data are also important for providing timely warning about upcoming dangerous changes in the crime situation, mobilising efforts, resources and crime prevention activities to stop such changes[1].

Crime data are highly important in assessing the effectiveness of national crime control and every single part of it: the law, the criminal justice system and crime prevention. The use of crime data in evaluating the situation and the state of the entire society, in particular its moral climate and personal security of its people, is especially important[2].

Thus, the crime data are a good barometer of the given society, of its law, criminal justice, moral and security. Crime data are the most proper ground for the number of the most salient decisions in the society in the areas of economy, education, foreign policy and many others.

Thus, these data are crucial for the society. This means that they have to be valid and reliable or important decisions that are based on them will be wrong. Unfortunately, modern criminal justice and crime prevention face considerable challenges in ensuring the validity and reliability of crime data. The point is that these data arise from very different and often hardly comparable sources. The most important of them are two: recorded crime statistics and victimological surveys. The former ones are the by-product

1 Kurapka, V. E.; Kegel, Z.; Pečkaitis, J. S.; Malevski, H.; Justickis, V. *Security and Economic Development Interaction within the European Union: an Integrational Model*. Third Year within the European Union: Topical Problems in Management of Economics and Law. Riga: Latvian Academy of Science, 2007, p. 163−179.

2 Justickis, V.; Kurapka, V. Use of Official Data of State Institutions in the Scientific Research of the Population Security. *Jurisprudence: research papers*. 2010, 3(121): 283–294.

of activities of the criminal justice institutions and reflect those activities, are influenced and distorted by them.

The nature of victimological data is quite different – they are collected by asking common people about crimes committed against them. In addition to those two sources, there are a few additional ones. For example, peoples' survey about crimes committed by them.

The relation between all of those sources and their comparative reliability is rather obscure. Therefore, when dealing with data stemming from different sources, they are often found to be conflicting and it is very difficult to decide each time as to which source is more reliable. The very nature of incompatibility of these data is mostly unclear. Most often in this situation it is not easy to answer the most basic questions: are these data different because some of them are wrong, or do they merely represent different facets of the event and are therefore rather complementary?

The general consequence arising from all of these uncertainties – it is not clear, how to use these data from different sources, how to compare and integrate them, how to obtain reliable and complete information about the crime situation? All this causes further problems.

The most important among them is the lack of a firm basis for the most important legal, economic, political decisions in our country. This brings mistrust with regard to crime data and criminology, causes politicians and legislators to take the most important decisions without considering the crime data, relying only on their own intuition, current practice and resonant cases. Lack of reliable data and any other firm ground for their decisions makes politicians highly liable to different influence, and compliant to different pressure, vulnerable to demagogy.

Therefore, the validity and reliance of the crime data is a key problem of modern society. Its solution is indispensable for efficient crime prevention and crime control and improve other important areas of our society.

The state of art. The two main sources of data on crime (recorded and victimological ones) have received sharp criticism. Unreliability of the official (recorded crime) statistics, its distortions by criminal justice institutions, as well as by the data collection and registration procedures are widely admitted. In addition, there are many reservations about the reliability of victimologic surveys, which are shown to be subjected to errors of memory, attitudes, mental states of people informing on their victim experience.[3]

Various solutions to this problem can be found in current publications[4].

Some researchers simply refuse to apply one of the data sources and choose another one, seemingly more reliable. In most cases victimological data are preferred. The disadvantage of such a solution is that it neglects important opportunities to improve,

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3   Karmen, A. *Crime Victims: An Introduction to Victimology.* Wadsworth Publishing, 2003.
4   Schneider, H. J. Victimological developments in the world during the past three decades (I): A Study of comparative victimology. *International journal of offender therapy and comparative criminology.* 2001, 45: 449−468; Moriarty, L. J.; Jerin, R. A. *Current Issues in Victimology Research.* Second Edition. Durham, NC: Carolina Academic Press, 2007.

supplement and verify victimological data by supplementary use of recorded crime statistic.

Other investigators try to combine recorded and victimological data eclectically. By examining each individual case, they try to decide (most often intuitively)on the types of data to be preferred in a given case, on the conflicting data sources to be trusted at given time, and on the conclusion that could be drawn from these particular conflicting data. The disadvantage of such a solution is that it is adopted without any general ground or starting point for deciding how to combine different data sources. Every such decision is taken using different considerations and incomparable grounds.

The aim of this paper is to provide a solution to this problem:

- to suggest the way of solving this problem and
- to verify this suggestion by designing and implementing methods that provide the basis for integration of recorded and victimological data.

Novelty. In order to assess the novelty of the proposed solution we carried out an extensive information search in criminological, sociological and legal databases[5] in order to detect publications dealing with the problem of integration of recorded and victimological data. The key words "integration", "crime data", "recorded crime", "victimological survey" have been used for the purposes of this search. The search brought 457 publications containing these concepts. However, none of all those publications discussed any general way of integration of victimological and recorded data.

The presentation on data integration was given during the 11th Annual Conference of the European Society of Criminology "Rethinking Crime and Punishment in Europe". After the presentation of the report, the survey of the attending foreign criminologists was carried out. Among other questions, they were asked about other investigations aiming to integrate victimological and recorded data. In addition, this time no data on any other similar studies were detected. The importance of the data integration problem was appreciated and the novelty of the proposed approach was recognised by all respondents.

1. Integrated Crime Survey Tool. Its Design, Development and Methodological Framework

Let us discuss the most important problems encountered in the development of a tool able to integrate recorded and victimological data and the proposed solutions.

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5   EBSCO, Ebrary, ICPSR, JSTOR, Oxford Journals Online, Project MUSE, Sage Journals Online, ScienceDirect, Wiley-Online Library, eLABa, Bepress Legal Repositor, Central and Eastern European Online Library, DOAJ the Directory of Open Access Journals, Europeana, Eurostat, HighWire Press, Open J-Gate portal, Scientific Journals International, Theses Canada Portal and others.

1.1. First Problem. Selection of Criminal Offences to be Included in the Victimological Survey

The Lithuanian Criminal code includes many hundreds of definitions of different criminal offences. Many of them include further criminal actions, which differ in content and severity (e.g. simple and qualified *corpus delicti*).

Many of the offences defined in the Criminal Code are never committed (the so called "silent offences") or are very rare. Some of the criminal offences included in the Criminal Code do not entail direct victims. So do crimes against the environment or against the State. Some offences entail a victim, but the latter is not able to testify upon it (murder).

All of this brought the necessity to identify the offences that could be included in our victimological questionnaire.

This selection of offences to be included in the victimological questionnaire has been carried out on the basis of three criteria:

(1) *The prevalence of criminal activities*. All rare or "silent" (never occurring) offences were excluded.

(2) *The seriousness of the offence*. All negligible offences were excluded. Among the rest, more serious offences, preference was given to the more prevailing ones.

(3) *The applicability of an offence for a victimological survey*. Only questions suitable for the victimological survey have been included. For example, in case of crimes against the environment, the victim is the society as a whole. In case of murder, victims are no longer alive. In case of some offences (such as the ones against management practices) victims are some specific social groups and the society as a whole. All of those offences need different tools for their study.

The selection performed by using all three criteria brought the final list of offences.

The following criminal offences were used in the victimological survey (according to the Criminal Code of the Republic of Lithuania[6] (CC)): Q1. Robbery (Art. 180 CC); Q2. Theft (Art. 178 CC); Q3. Extortion of property (Art. 181 CC); Q4. Swindling (Art. 182 CC); Q5. Destruction of or damage to property (Art. 187 and 188 CC); Q6. Sexual assault (Art. 149, 150 and 151 CC); Q7. Sexual harassment (Art. 152 CC); Q8. Causing physical pain or health impairment (Art. 135, 138 and 140 CC); Q9. Threatening to murder or terrorising (Art. 145 CC); Q10. violation of public order (Art. 284(1) CC); Q11. Offering, giving or selling drugs (Art. 260 CC); Q12. Unlawful influence on electronic data (Art. 196 and 197 CC); Q13. Claim a bribe (Art. 225); Q14. Other criminal offences (respondents could tell to have suffered from other types of crimes).

To investigate each of the selected criminal offences the following were designed:
- the question generated from the transcoding of activity definition;

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6   Criminal Code of the Republic of Lithuania. Law on the Approval and Entry into Force of the Criminal Code. Criminal Code. 26 September 2000, No VIII-1968 (as last amended on 11 February 2010, No. XI-677).

- the block of following, clarifying questions (individual victimisation / co-victimisation / reporting about criminal offences / property damage);
- the explanatory cards for respondents about each criminal offence.

1.2. Second Problem. Conversion ("Transcoding") of the *corpus delicti* Defined in the Lithuanian Criminal Code into Victimological Survey Questions

The definitions of recorded crimes, as provided in the Criminal Code, reflect the opinion of the legislator, ideas of modern criminal law, and are formulated in their terms. Thus, the concepts of the Criminal Code can be fully understood only by a full-fledged professional lawyer.

Contrary to this, the questions asked during the victimological survey are based on quite different common language concepts.

This brings at least three consequences:

- *The content and shape of crime concepts is different in both cases*. For example, when a lawyer and a non-lawyer mention a "larceny" they mean quite different actions. What in the common language is addressed as "larceny" may not be recognised as larceny by a professional lawyer.
- *We are not able to describe the difference between them*. Both everyday and professional concepts of the same offence are not comparable. It is so for highly diffuse and variable meaning of the everyday concepts.
- *We cannot compare or integrate them*. It is impossible to compare things if one is unable to tell the difference between them. Only comparison can indicate the basis for further integration.

In order to integrate both of them we had to ensure the ability of victimological questions to reflect the true content of crime concepts defined in the Criminal Code.

At the same time, these questions should be simple and clear enough to be well understood even by the respondents of the lowest educational and/or mental level[7].

During our study the special methodology for translation ("transcoding") of the Criminal Code concepts into those of common sense has been developed. This translation consisted of ten stages:

(1) Analysis of the definition of a criminal act in the Criminal Code;
(2) Examination of the concepts used in that definition from the point of view of their comprehensibility for a layman;
(3) Detection of the concepts that cannot be adequately understood by a layman;
(4) Detection of common language conceptions with meanings that are the closest to the ones used in criminal law. In the absence of such a common language concept, common language definition consisting of several common language words has been constructed. The same was done with the rest of the concepts used in the analysed crime definition provided in the Criminal Code;
(5) After all the necessary concepts were examined and transcoded into common language, all of them were used to formulate a victimological test question.

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7   Burgess, A.; Regehr, Ch.; Roberts, A. *Victimology: Theories and Applications*. Jones & Bartlett Publishers, 2009.

(6) The consistency between the crime concept defined in the Criminal Code and the victimological test question was examined. This was done by assessing them in two respects that were the most important:

    a) *The exact match between the crime concept in the Criminal Code and the related test question.* This match was examined by a highly qualified expert of criminal law (judge of the Lithuanian Supreme Court, doctor of social sciences (law), professor)[8].

    b) *Comprehensibility of every test question for prospective respondents.* This examination aimed at assessing whether the test question will be fully understood by a respondent – a layman. This examination was carried out by a sociologist having extensive experience in formulation and surveying of sociological questions[9].

(7) The test question has been improved and reformulated according to the conclusions of both examinations. The final resultant questions were included in the question[10].

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8   The authors are glad to avail of this opportunity and express their deep gratitude to the member of the Lithuanian Supreme Court, professor dr. Oleg Fedosiuk.

9   We express our gratitude to Mr. Romas Mačiūnas from the sociological agency "Baltic studies" for his kind support in examining the comprehensibility of the questionnaire questions.

10   Note. The following formulations of questions were used in the research:

Q1. Was your property robbed by using physical violence (threatening to use it immediately), or was there an attempt to do so during 2011?

Q2. Was your property of a value over 130 LTL stolen or was there an attempt to steal it from you personally during 2011?

Q3. Was your property extorted during the 2011 year?

Q4. Did anyone acquire your property by deceit or avoid property obligations towards you, or attempt to do so during 2011?

Q5. Did anyone destroy / damage intentionally or by negligence your property of a value over 130 LTL during 2011?

Q6. Did anyone satisfy their sexual passion by physical contact with you against your will by using physical violence or threatening to use it immediately, or otherwise denying the possibility of resistance as well as taking advantage of your helpless condition, dependence, or made you do that during 2011?

Q7. Did anyone harass you, seeking sexual contact or satisfaction in doing so, by vulgar or comparable action (e.g. grabbing, touching, etc.) during 2011? Also indicate cases where similar suggestions or hints were made).

Q8. Have you been beaten or has physical pain or health impairment been caused to you by using other types of violence during 2011?

Q9. Did anyone terrorise you, threaten to kill you or severely damage your health and you had a reasonable ground to believe that this threat would be carried out during 2011?

Q10. Did you personally experience that someone disturbed public peace and order in a public place by defiant conduct, obscene words, threats, bullying, vandalism, or showing disrespect to the surrounding people or the environment during 2011? Please list only those cases where the above actions were directed against you by means of psychological or physical violence (physical force).

Q11. Did anyone suggest you, gave you or sold you drugs or psychotropic substances for non-medical purposes during 2011?

Q12. Did anyone unlawfully destroy, damage, remove or change your e-data, or restrict the use of such data, or unlawfully disturb or terminate the operation of your information system during 2011?

Q13. Did any public officer or an equivalent person demand a bribe from you, or provoke you to give a bribe for performance or non-performance of their obligations during 2011?

Q14. Did you experience any other criminal offence, except for the acts discussed in questions Q1 to Q13? If yes, please describe that criminal offence and the number of times that it occurred during 2011?

1.3. Methodology of the Victimological Survey

The research was conducted throughout the entire territory of the Republic of Lithuania, 2.006 residents aged between 15 and 74 were interviewed. The age limits of the respondents were determined in accordance with the market research and public opinion practice of the European Union countries (ESOMAR).

The aim of the research was to interview more than 2000 Lithuanian residents (aged between 15 and 74) in order to find out: whether in 2011 the respondents were affected by different criminal offences (individual victimisation); how many times they experienced such type of victimisation in 2011 in Lithuania; the number of other people who experienced victimisation with them (suffered from the same criminal offence as the respondent (co-victimisation)); the number of those criminal offences reported by them to the law enforcement authorities and the property damage they suffered.

The scope of 2000 respondents allowed obtaining the results with no more than +/- 2.2% bias and reliability of 0.95. The respondents for this survey were selected with the help of multilevel stratified random selection.

There are several social groups of persons not enrolled in the selection for the survey. Those are people from imprisonment institutions, medical institutions and hospitals, as well as people with no place of residence (the survey was carried out at the residents' living place).

The survey was carried out in all districts of Lithuania, in 96 locations (28 cities and 68 village locations). There were 189 selection points within the survey. The survey was conducted from 24 February to 31 March 2012.

The research was conducted by using the standard OMNIBUS methodology, with two separate surveys. During each omnibus survey different respondents were interviewed. In order to avoid possible (although unlikely) repeated interview of the same respondents, a sort of "protector" was applied in the second OMNIBUS survey. An additional question was asked to specify whether the respondent participated in the victimological survey during the last 2 months. In case of a positive answer (participated) to the question raised, that person did not participate in the survey.

2988 households (dwellings) were visited for the purposes of the survey and 2006 respondents agreed to answer the questionnaire.

The survey (interviewing) was conducted by the Lithuanian and British public opinion and market research company "Baltijos tyrimai".

The questionnaire was drafted according to ESOMAR and the Gallup Organization standards (maintaining neutrality, relevance, validity). The survey was conducted by conducting personal interviews, when an interviewer questioned each respondent individually at their home. Such form of survey allowed receiving the most complete answers to all questions of the questionnaire, without omitting any of them and ensuring that each respondent had the same conditions for answering the questionnaire. In addition, by means of a personal interviewing methodology, it was ensured that the respondents would be asked questions in accordance with the established sequence.

In addition, while using this method, it is possible to demonstrate to the respondent a variety of supporting materials (list of titles, statements, etc.), which is impossible in case of telephone interviews.

1.4. The Two-Ray Integration Model

Another methodological problem is the integration of two types of data: the data on criminal offences, obtained by means of a questionnaire with converted questions (from the Criminal Code), and the data on criminal offences obtained from the recorded crime statistics of the same offences. The integration of two type data (two-rays) was effected by using a model for data integration, developed by one of the authors of this article[11]. We briefly explain the essence of the model below.

The two-rays (2R) show a different picture of crime[12]. Each has its own errors, advantages and disadvantages[13]. We know that none of the rays shows the true picture of crime. Both rays are used to analyse crime in developed countries. However, it is not clear how to integrate these two beams, how to use each of them for assessing crime so that they are not separate and the two rays are somehow used together. A simple juxtaposition of these two types of the data (2R) of crime gives little benefit. Moreover, their values are often different at times. It is not clear which of those rays should be more based on the assessment of crime and how much more.

Until now no well-reasoned way of integration of the two rays has been found. Maybe it is impossible to find?

The solution is an agreement: we will use the 2R integration model, thereby calculate the value of crime by using the data of recorded crime and of the victimisation survey. Of course, this crime value, calculated this way, will not be an actual crime value, but we will have a tool – the 2R model, which combines information from both sources and which can be used in assessing crime. One of the most important features of any model is to distinguish between the selected key aspects of assessment in a modelled object, reflecting the most important properties and the other aspects as irrelevant. Those key aspects must be properly identified and a relationship must be determined between them. It would be an advantage if the model were relatively simple.

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11 Kiškis, A. Registruoto nusikalstamumo statistikos ir viktimologinių tyrimų duomenų kompleksinio panau-dojimo problemos [The Models of Integration of Recorded Crime Statistics and Crime Victim Survey Data]. *Societal Studies*. 2012, 4(2): 697−717.

12 Kiškis, A. Nusikalstamumas Lietuvoje: ko neparodo oficialioji statistika? [Crime in Lithuania: What is Behind the Official Statistics?]. *Jurisprudencija*. 2008, 11(113): 114−123.

13 Aebi, M.; Robert, P.; Hough, M.; Killias, M.; Dijk, J. *Comparing Crime Data in Europe: Official Crime Statistics and Survey Based Data*. Brussels: VUB University Press, 2009; Kiškis, A., *supra* note 11.
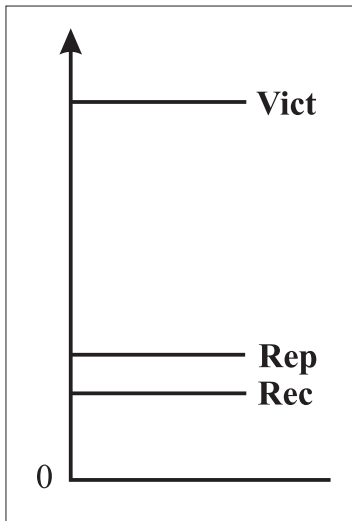
Figure 1. Basic values of crime obtained from the two rays.

What numbers about crime in a given territory do we have from both rays? There are three basic values of crime:

1) Rec - number of recorded criminal offences per 100 thousand inhabitants;

2) Vict - number of offences suffered by the respondents, calculated to 100 thousand inhabitants (the result from victimisation survey);

3) Rep - number of offences reported by respondents to the police[14], calculated to 100 thousand inhabitants (the result from victimisation survey).

Vict (number of criminal offences) may be considered[15] as the upper limit (ceiling) of the actual crime rate, because people answering the questions evaluate the events according to their understanding, they are not qualified lawyers; legally significant circumstances are not investigated. After the investigation, some events would not be classified as criminal offences. The actual number of offences is likely to be less than Vict.

Number of recorded crimes Rec can be considered[16] as the lower limit (threshold) of the actual number of crimes, because it was obtained by qualified lawyers after investigating the legally significant circumstances. In addition to Rec, there are unreported offences, a part of them may be confirmed.

The *estimate* of actual crime rate is somewhere between Vict and Rec. Where is the estimate crime rate? In order to determine this we do not have any other numbers of criminal offences, except for values of two-ray (Rec and Vict) and Rep, obtained from the victimisation survey, that is, the three values referred above. The number of criminal offences reported to the police is the third number, which we can use when drawing the estimate crime line between these two rays.

We offer the 2R integration model for *assessing* the rate of criminal offences by entering a crime indicator[17] RAS (**R**ecorded **A**nd **S**urveyed), which means *the rate of criminal offences per 100 thousand inhabitants*, obtained from the integration by a

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14   The police is not the only one to record criminal offences in Lithuania. Criminal offences are also recorded by other investigating authorities. Further in the text the word "police" shall be used instead of the word "investigating authorities".

15   Assuming that the respondents are able to understand and evaluate the legally significant circumstances of events in accordance with the questions of the victimisation survey and their explanations. Assuming that the respondents remember all the events, they do not conceal them and accurately assign them to the investigation period and territory, and others. Of course, this is not always true.

16   Assuming that the police is able to accurately assess the legally significant circumstances, obtain precise information and etc. Of course, this is not always true.

17   For more information about the RAS indicator, its reasoning and comparison with other available options see: Kiškis, A., *supra* note 11.

certain method (model) of the recorded criminal offence rate Rec and the rate of criminal offences obtained from the victimisation survey Vict.

RAS = Rec + (Vict – Rec) x (Rep / Vict)

Here Rec is the recorded level of criminal offences per 100 thousand inhabitants; Vict - the number of criminal offences suffered by the respondents, calculated for 100 thousand inhabitants; Rep is the number of criminal offences reported by the respondents to the police, calculated for 100 thousand inhabitants. (Rep/Vict) is the weight coefficient ($0 \leq$ Rep/Vict ≤ 1), which is obtained from the victimisation survey and means the reporting level to the police.

In other words, we obtain the crime indicator RAS by adding to the rate of recorded criminal offences the rate of non-recorded offences (Vict and Rec difference), multiplied by the reporting level coefficient. This coefficient Rep/Vict reflects the evaluations of respondents who suffered from such criminal offences, level of their importance to them, dangerous, harmful, the extent to which they tended to report to the police and etc. The conducted studies revealed that *the seriousness of an offence, however measured, is the most important factor influencing the decisions of the victims to report crime*[18].

2. Indicators of Criminal Offences in Lithuania in 2011

The numbers and other indicators about criminal offences suffered by the respondents in Lithuania during 2011 are given in Table 1 according to the data of the victimisation survey (conducted in 2012) of 2006 respondents from the Lithuanian population aged between 15 and 74.

Table 1. Number of criminal offences and affected respondents in Lithuania during 2011 according to the data of the victimisation survey conducted in 2012

Type of criminal offence	Number of offences	Number of respondents	Number of reported offences	Reported offences, %
Theft	231	205	133	58%
Claim a bribe	226	152	6	3%
Violation of public order (crimes only)	172	83	41	24%
Offering, giving or selling drugs	170	63	12	7%
Destruction of or damage to property	124	114	63	51%
Causing physical pain or health impairment	102	78	48	47%
Threatening to murder or terrorising	70	34	18	26%
Sexual harassment	60	38	8	13%
Swindling	49	41	26	53%

18   Tarling, R.; Morris, K. Reporting Crime to the Police. *British Journal of Criminology.* 2010, 50(3): 487.

Robbery	37	34	25	68%
Unlawful influence on electronic data	32	23	6	19%
Extortion of property	15	8	4	27%
Sexual assault	1	1	1	100%
Total:	**1289**	**874**	**391**	**30%**

According to the data of the victimisation survey, 571 respondents (or 29%) of the 2006 respondents surveyed said that they suffered from one or more criminal offences. Most of the respondents suffered from theft, bribery claim, violation of public order (crimes), at least from sexual assault (only one case), extortion of property and unlawful influence of electronic data. One case of sexual assault from the 2006 respondents must be assessed with caution. The interviews for the purposes of the survey took place at the respondents' living place, the victims could have been ashamed to confess that they suffered from sexual assault, the rapist could be nearby during the interview.

In total the 2006 respondents suffered from 1289 criminal offences (Table 1). Most of the offences reported to the police were robbery[19] (68%), theft (58%) and swindling (53%), the least - claim a bribe (3%), offering, giving or selling drugs (7%) and sexual harassment (13%). The respondents said that they reported 391 criminal offences (30%) to the police from the total of 1289 criminal offences suffered.

The indicators of criminal offences were derived from the recorded crime statistics and the victimisation survey data presented in Table 2. We explain the calculation of these indicators, by using the example of theft. Based on the population's representative victimisation survey conducted in Lithuania in 2012 with 2006 respondents aged between 15 and 74, in 2011, 205 respondents (10%) in Lithuania suffered from 231 thefts and reported 133 theft cases to the police (58%) (Table 1). The Vict number of thefts[20] is equal to 11515, it is the number of thefts by which the respondents were affected, calculated per 100 thousand respondents. The Rep number of thefts[21] is equal to 6630, it is the number of thefts stated by the respondents as reported by them to the police, calculated per 100 thousand respondents. 36971 thefts were recorded[22] (criminal offences) in Lithuania during 2011. The rate of the recorded thefts (criminal offences)

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19   There are 100% of reported acts of sexual assault, but it was incurred and reported only once.

20   The number of thefts suffered by respondents (231) divided by the number of respondents (2006) (sample size) and multiplying by one hundred thousandth. In this way we calculate the number of Vict here and in other cases.

21   133 thefts reported by the respondents to the police divided by 2006, the number of respondents (sample size) and multiplying by one hundred thousand. Thereby, here and in other cases we calculate the number of Rep.

22   *Duomenys apie nusikalstamas veikas, padarytas Lietuvos Respublikoje pagal BK straipsnius (Forma 1-G). Informatikos ir ryšių departamento prie VRM statistinė ataskaita* [interactive]. Vilnius: Nusikalstamumo prevencijos Lietuvoje centras [accessed on 2012-05-17]. <http://www.nplc.lt:8000/asis/>.

per 100 thousand inhabitants Rec[23] is equal to 1139. The RAS indicator[24], calculated on the basis of the recorded thefts rate per 100 thousand inhabitants and on the basis of the appropriate theft rate measured with the help of the victimisation survey is equal to 7114.

Table 2. Indicators of criminal offences in Lithuania in 2011

Criminal offences	Vict (rate)	Rep (rate)	Rec (rate)	RAS (rate)	Number of recorded offences*	Vict / Rec ratio	RAS / Rec ratio
Theft	11515	6630	1139	7114	36971	10	6
Claim a bribe	11266	299	2,1	301	68	5376	144
Violation of public order (only crimes)	8574	2044	107	2125	3467	80	20
Offering, giving or selling drugs	8475	598	28	624	906	303	22
Destruction of or damage to property	6181	3141	156	3217	5049	40	21
Causing physical pain or health impairment	5085	2393	127	2460	4107	40	19
Threatening to murder or terrorising	3490	897	28	918	912	124	33
Sexual harassment	2991	399	0,3	399	11	8822	1177
Swindling	2443	1296	169	1375	5479	14	8
Robbery	1844	1246	77	1271	2502	24	16
Unlawful influence on electronic data	1595	299	0,2	299	7	7394	1387
Extortion of property	748	199	5,3	203	172	141	38
Sexual assault	50	50	12	50	399	4	4
Total:	**64257**	**19492**	**1851**	**20357**	**60050**	**35**	**11**

*   *Duomenys apie nusikalstamas veikas, supra* note 22.

Figure 2 and Table 2 show that the recorded theft rate (Rec = 1139) is 10 times lower than the theft rate, calculated on the basis of the victimisation survey (Vict = 11515). The victimisation survey shows that the theft rate Vict is even 4.7 times higher than the total rate[25] of criminal offences recorded in Lithuania during 2011, which is

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23 The number of recorded thefts (36971) divided by the number of population (3 244 601) in Lithuania as of January 2011 and multiplied by 100 thousand. Thereby, here and in other cases we calculate the number of Rec. Lietuvos gyventojų skaičiaus 2011 metų pradžioje informacijos šaltinis: *Gyventojų skaičius metų pradžioje* [interactive]. Vilnius: Lietuvos statistikos departamentas [accessed on 2012-05-17]. <http://db1. stat.gov.lt/statbank/selectvarval/saveselections.asp?MainTable=M3010206&PLanguage=0&TableStyle=& Buttons=&PXSId=3212&IQY=&TC=&ST=ST&rvar0=&rvar1=&rvar2=&rvar3=&rvar4=&rvar5=&rvar6 =&rvar7=&rvar8=&rvar9=&rvar10=&rvar11=&rvar12=&rvar13=&rvar14=>.

24 Calculated on the basis of the formula RAS = Rec + (Vict – Rec) x (Rep / Vict).

25 *Duomenys apie nusikalstamumą Lietuvos Respublikoje (Forma 1Ž). Informatikos ir ryšių departamento prie VRM statistinė ataskaita* [interactive]. Vilnius: Informatikos ir ryšių departamentas prie VRM [accessed

equal to 2471. Theft rate Vict does not reflect the true level of such criminal offences. The actual theft rate may be higher or lower. However, it is strongly recommended to assess the level of crime and its changes. Which number to rely on: Vict or Rec? The RAS indicator integrates these two values over the rate of reported criminal offences (Rep). If the respondents failed to report the theft suffered by them to the police, we could assume that such offences were negligible, not dangerous to them, because the main factor in determining whether the police would be notified about an offence is the seriousness of the offence. Because the respondents said that they reported to the police only 58% of the criminal offences from which they suffered, an indicator RAS is much lower than Vict. The indicator RAS shows and assesses not only the extent of the recorded thefts, but also the extent of the suffered thefts, which the respondents assess seriously (survey), the number of cases that they have taken action (reporting to the police).
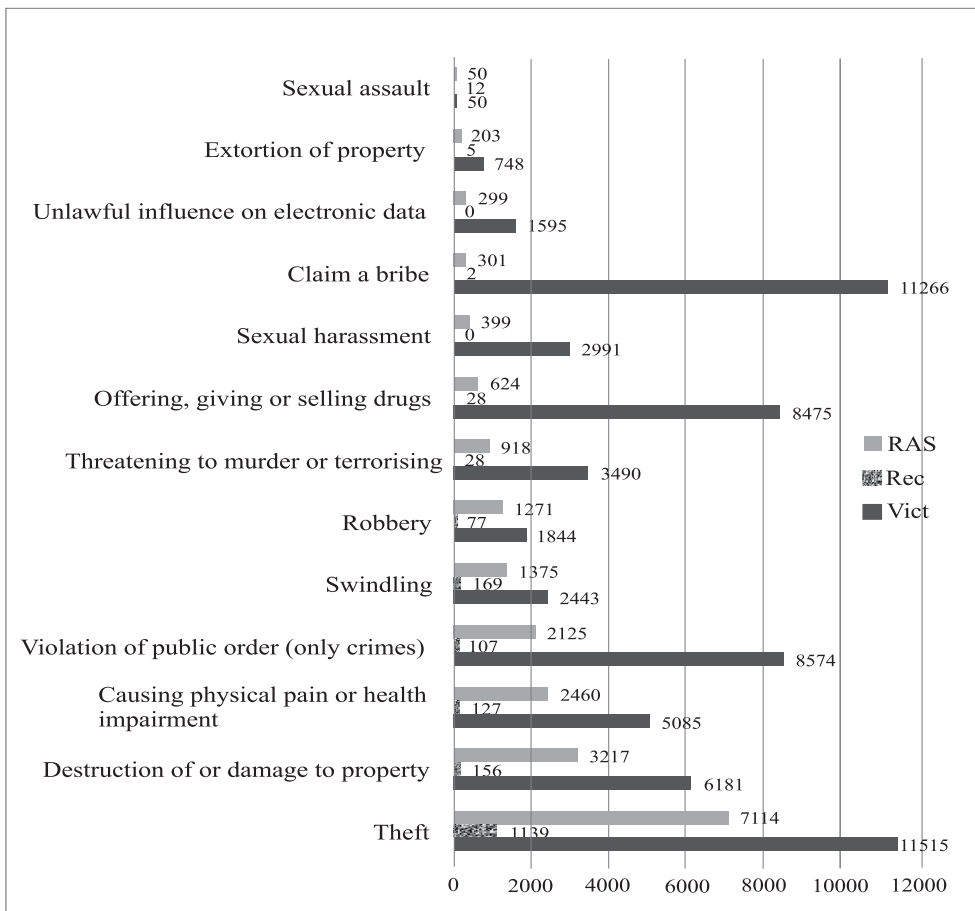

Figure 2. Rates of criminal offences per 100 thousand inhabitants in Lithuania in 2011
(sorted by indicator RAS)

on 2012-05-17]. <http://www.vrm.lt/fileadmin/Image_Archive/IRD/Statistika/txt_file.phtml?fv=201112/ f-1z-201112.data.txt&ff=<!--|1Z|2|-->&tt=Duomenys apie nusikalstamumą Lietuvos Respublikoje (Forma_1Ž)>.

Figure 2 shows that claiming a bribe is an offence of one of the highest levels, calculated on the basis of the population survey data. However, in this case, the respondents tend not to report it to the police, they reported only 3% of such offences. Therefore, in this case, the RAS indicator is 37 times lower than the Vict. The polls in 2011 show that 57% of the Lithuanian population would give a bribe[26]. This means that the population considers bribery as not serious. It is doubtful whether it would be logical to evaluate the level of offences – claiming a bribe – on the basis of such offences suffered by the respondents (Vict). Indeed, the evaluation of the respondents, namely that somebody claimed a bribe from them, is inaccurate. Maybe it only seemed to the respondent? The legally significant circumstances of the event are not investigated. On the other hand, it is also illogical to rely on the level of recorded offences (Rec) of this type in assessing bribery in Lithuania. In 2011 only 68 cases of bribery were recorded in Lithuania. This is not the real extent of bribery in Lithuania. Population surveys show that during the past 12 months (2010/2011): 22% of inhabitants gave a bribe, 17% of them were company representatives and 19% – public officials. During the last 5 years (2007-2011) the par of persons who have given a bribe was 41%, 34% and 39% respectively[27]. The RAS indicator shows the more adequate number (estimate), and a more realistic situation than Rec and Vict. The RAS indicator is more suitable for assessing the actual level of bribery in Lithuania.

The situation is different in case of robbery. The respondents said that they reported to the police 68% of cases when they suffered from robbery. In this case the robbery rate indicator RAS shows the value, closer to Vict value, Vict is only 1.5 times higher than RAS, as Vict is 24 times higher than Rec. In case of robbery, the RAS indicator is also better suited for assessing the level of robbery than Rec or Vict indicators. It is doubtful whether we can assess robbery cases as significant, if the victims failed to report about them to the police? It is doubtful whether we can include such cases in the assessment of robbery rate in Lithuania.

Table 2 shows that the total rate of the investigated types of criminal offences Vict (64257) is 35 times higher than the rate of registered offences Rec (1851) of this type. It may be noted that the investigated types of criminal offences in recorded criminal offences represents 75% of all the criminal offences (common criminality) recorded in Lithuania in 2011[28]. Therefore, the total RAS indicator of the investigated types of criminal offences, which is equal to 20357, allows us largely assessing (about 75%) the crime rate in Lithuania in 2011. The RAS indicator of all investigated types of criminal

26 *The Lithuanian Map of Corruption in 2011. Vilmorus. The research was commissioned by the Special Investigation Service of the Republic of Lithuania in 2011* [interactive]. Vilnius: Special Investigation Service of Republic of Lithuania [accessed on 2012-05-26]. <http://www.stt.lt/documents/soc_tyrimai/ Korupcijos_zemelapis.pdf>.

27 *Ibid.*

28 The total rate of the recorded criminal offences in 2011 in Lithuania, the types of offences were investigated by using a victimisation survey (Rec is equal to 1851), divided by the rate of the total recorded (all possible) types of criminal offences in 2011 in Lithuania (2471).

offences is 8 times greater than the rate of all the recorded criminal offences (not only investigated types) in 2011 in Lithuania (2471).

Conclusions

1. The study demonstrated the possibility to integrate the two main sources of information on crime data.

2. The two-ray approach integrating victimological and reported crime data provides ground for a more accurate assessment of the level of crime, its structure and changes.

3. The new crime study tool – integrated victimological questionnaire is free of the disadvantages of the crime data provided only by criminal justice institutions (official recorded statistics) and only those collected by using victimisation surveys. Its prevalence is that, contrary to the latter, the new tool operates with concepts, as close as possible to those provided in the Criminal Code. Unlike the official data on criminality (recorded crimes), the new tool is able to reflect the significant part of latent criminality. The unique, promising and highly important opportunity to assess latent criminality in terms of the Criminal Code is provided.

4. The mathematicocriminological method of integration of the two most important sources of criminal data (two-ray model – RAS) is justified. The study shows that its use provides additional opportunities for more accurate and multi-sided analysis of crime data.

5. We recommend that the proposed methodology is used for regular assessment of crime in Lithuania.

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DVIEJŲ SPINDULIŲ MODELIS REGISTRUOTO NUSIKALSTAMUMO STATISTIKOS IR VIKTIMOLOGINIŲ TYRIMŲ DUOMENŲ INTEGRAVIMUI

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Santrauka. *Tikslūs ir patikimi duomenys apie nusikalstamumą yra veiksmingos baudžiamosios politikos ir nusikaltimų prevencijos pagrindas.*

Tačiau dabartinė baudžiamoji justicija ir nusikaltimų prevencija susiduria su didelėmis problemomis užtikrinant tokių duomenų gavimą. Informaciją apie nusikalstamumą tenka semtis iš kelių, neretai vienas kitam prieštaraujančių šaltinių. Tai kelia nepasitikėjimą nusikalstamumo duomenimis, jų pagrindu daromomis išvadoms apie nusikalstamumą. Todėl priimant svarbiausius sprendimus nusikalstamumo kontrolės sferoje vyrauja politiniai, intuityvūs, subjektyvia patirtimi grindžiami sprendimai.

Straipsnyje nagrinėjamos dviejų svarbiausių duomenų apie nusikalstamumą šaltinių (oficialios statistikos duomenų ir viktimologinių tyrimų rezultatų) integracijos perspektyvos,

siekiant gauti tikslesnį ir patikimesnį nusikalstamumo vaizdą. Tam tikslui pasiūlytos dvi viena kitą papildančios oficialios statistikos duomenų ir viktimologinių tyrimų rezultatų integracijos metodikos. Tai nusikalstamų veikų, apibrėžtų Baudžiamajame kodekse, perkodavimo į viktimologinės apklausos klausimus metodika („veikų perkodavimo metodas" – VPM) ir oficialios statistikos duomenų integravimo su viktimologinės apklausos rezultatais metodas („dviejų spindulių modelis" – RAS).

Taikant šiuos metodus buvo parengtas viktimologinis klausimynas, kurio pagrindu buvo atliktas nusikalstamumo Lietuvoje tyrimas – reprezentatyvios 2006 m. Lietuvos gyventojų atrankos apklausa.

Tyrimo duomenys leido gauti išsamesnį nusikalstamumo Lietuvoje vaizdą, iš esmės patikslinant duomenis apie svarbiausių nusikalstamų veikų paplitimą.

Reikšminiai žodžiai: *nusikalstamumo duomenys, nusikalstamumo lygis, struktūra ir dinamika, viktimologinio tyrimo rezultatai, registruoto nusikalstamumo statistika, duomenų apie nusikalstamumą integravimo modelis.*

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