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CRIME AND THE STANDARD OF LIVING IN POLAND

Abstract: The purpose of the paper is to conduct a statistical analysis that will examine the problem of crime against the standard of living. The paper attempts to determine the relationship between the level of crime in Poland, and the standard of life. A ranking of provinces, determining the level of crime and quality of life, was created. In order to sort the objects the method of multidimensional comparative analysis was used. By using this method, the hierarchy of provinces was created. The research enabled indicating groups of objects that are similar in the examined phenomena.

Key words: crime, standard of living, statistical analysis

INTRODUCTION

The period of transitions in the political system in Poland is associated with social transformations. The observed transformations also have their negative dimension. Problems such as inequality and social stratification, emergence of new business elites and wealth, on the one hand, and poverty, on the other, are reflected in increased disturbance and development of social pathologies. The intensification of criminal phenomena had its apogee in the years 2002-2003, followed by a gradual decrease in the number of registered crimes. This trend was accompanied by an increase in social trust in the Police, as well as increase in effectiveness of its work (manifesting itself for instance in increased crime detection).

Crime, in its essence, is a social phenomenon, and research on spatial aspects of crime has its "roots" in sociological papers (Jałowiecki 1980; Wódz 1989). Along with the emergence of more efficient tools of elaboration and analysis of statistical data, interest in research on the problems of crime in Poland clearly grew. Published papers relate both to the analysis of crime alone, in the light of police statistics (Mydel, Kozimor 1989; Maik 1995; Gronowski 2003; Mordwa 2006, 2011) and social perception of the phenomenon and its consequences (Marcińczak, Siejkowska 2003, 2004; Bogacka 2009).

Crimes are a very important factor influencing standard of living of the inhabitants of Poland. The problem of crime gets more and more serious and draws attention not only of citizens but also scientists who analyse the relation between the number of committed crimes and quality of life indexes.

The purpose of this paper is to conduct a statistical analysis that will examine the problem of crime against standard of living. In order to achieve the established aim of the research, the level of crime in Poland over the years 2008-2013 was presented and the quality of life in sixteen provinces was described.

STATE OF SECURITY IN POLAND IN THE YEARS 2008-2013

The most frequently committed crimes in Poland are: fights, beating up, health impairment, homicide, extortion, rapes, thefts, thefts with burglary, theft of a car and damage to objects. They account for more than 60% of all crimes registered in Poland and are from the social point of view the most burdensome.

The above crimes are classified as common crime due to the inconvenience for an ordinary citizen who predominantly has no contact with an organized criminal group. Therefore, the above listed crimes have a strong impact on the standard of living.

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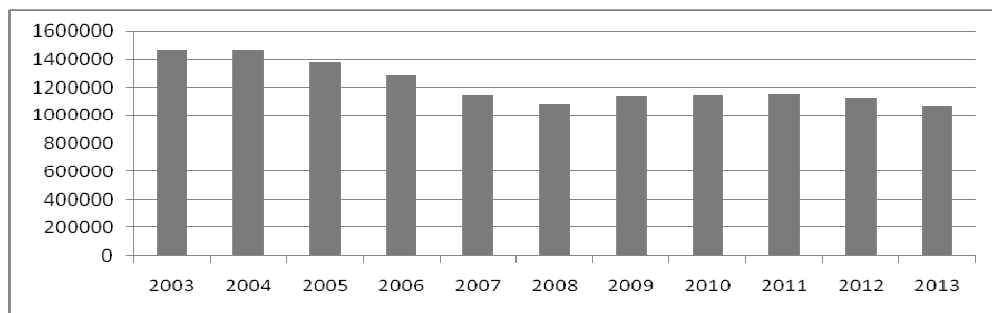
Fig. 1. The number of criminal offences in Poland (2003-2013)

Source: study based on Report on the state of security in Poland (2013)

It can be easily noted that in Poland for a dozen of years the recorded crimes have shown a downward trend (figure 1). In 2013, the police confirmed 1 063 703 crimes in our country. In comparison with the previous year (1 119 803 crimes in 2008), it means a decrease by 5%. In the years 2009-2011, we can see a slight increase in crimes, after a prior big drop recorded in the years from 2004 to 2008. It is also worth noting that in 2013 the smallest number of crimes committed in Poland over the past decade was recorded. In comparison with 2003, when almost 1.5 million crimes were committed, it is a number smaller by about a third (27.5%). In the scale of the whole country, however, almost half of acts criminal are reported (Siemaszko 2009).

General downward trend noticeable in theoverall number of crimes confirmed by the police has a close connection with their detection. Over the last decade, we have been dealing with clear growth in the detection of committed crimes (chart 2).
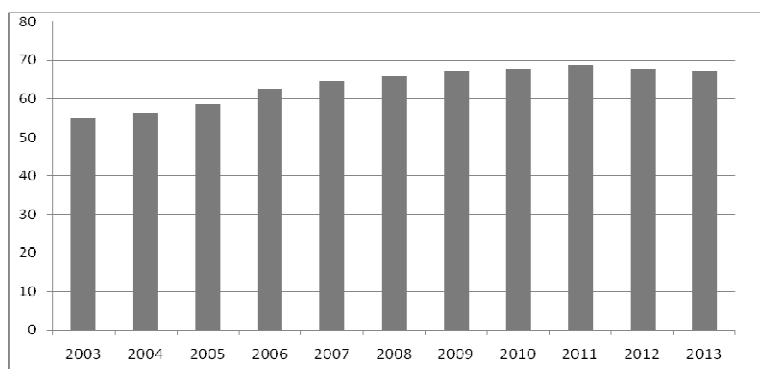

Fig. 2. Crime detection in the years 2003-2013 (%)

Source: study based on Report on the state of security in Poland (2013)

The index of crime detection in 2013 was 67.1% and was comparable with the year before when it recorded 67.8%. The best result in the last ten years was the result of 2011, when the index of detection was 68.7%. In 2003, detection was only 55.2%, therefore the index of detection increased over ten years by 11.9 percentage points.

In 2013, the police could not determine 438 662 suspects of crime. It means that the number of the determined suspects decreased by 12.3% as compared to the previous year, when this number

was 500 539. In the years 2008-2012, the number of people suspected of crimes was stable and was running on a similar level (chart 3).
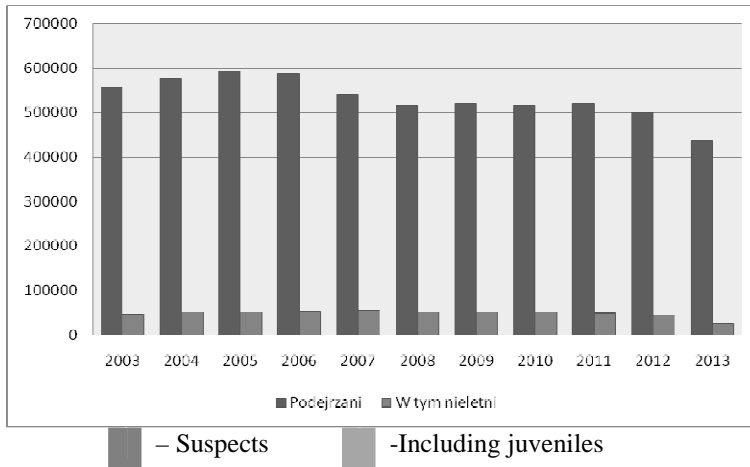

– Suspects   -Including juveniles

Fig. 3. The number of suspects established by the police in the years 2003-2013

Source: study based on Report on the state of security in Poland (2013)

In 2013, among 438 662 suspects only 25 248 were juveniles, which is a very good result. In comparison with 2012, decrease was recorded by 42.4%, when 43 847 were juveniles). In 2013, juveniles accounted for only 5.8% of suspects, and in 2012 this percentage was 8.8%.

Average hazard of crimes per one hundred thousand inhabitants in 2013 was 2761 and was one of the lowest over recent years. The index changes along with total confirmed crimes and over the last years it was as follows:

In 2010, the index for Poland was 3015. The highest values of crime vulnerability index in total per 100 thousand inhabitants were recorded in western provinces: Pomorskie, Zachodniopomorskie, Lubuskie, Dolnośląskie and Śląskie, and they exceeded the value of 3000. The highest index was recorded in Pomorskie Province (4227) and it was the only region where the value of the index exceeded 4000: on the other hand, it was the smallest in Podkarpackie Province, where it was 1754. In other provinces, the index was within the range of 2000-3000.

- In 2011, the index increased slightly as compared to the previous year and it was 3036, namely it increased by 21. The highest values were recorded in western provinces, like in 2010. The value of 3000 was exceeded, however, by another province – Opolskie, where the index was 3048.The lowest index was recorded in Podkarpackie Province (1844). The highest index was recorded in Lubuskie Province, and it was 4062.
- In 2012, the crime vulnerability index per 100 thousand inhabitants was 2906, thus it recorded regress as compared to the previous years and fell down below 3000. In 2012, only four Provinces exceeded 3000. No region recorded the index of 4000. This time, the highest value was recorded by Dolnośląskie Province: 3949. The lowest index was obtained by Podkarpackie Province (1792).
- In 2013, the index for the whole country was 2761. It is definitely the lowest crime vulnerability index in Poland in the analysed period. In comparison with the previous year (2011), it fell down by as much as 145. The lowest index was invariably recorded in Podkarpackie Province (1676). No province exceeded 4000, however, the highest index was recorded in Dolnośląskie Province and it was 3809.
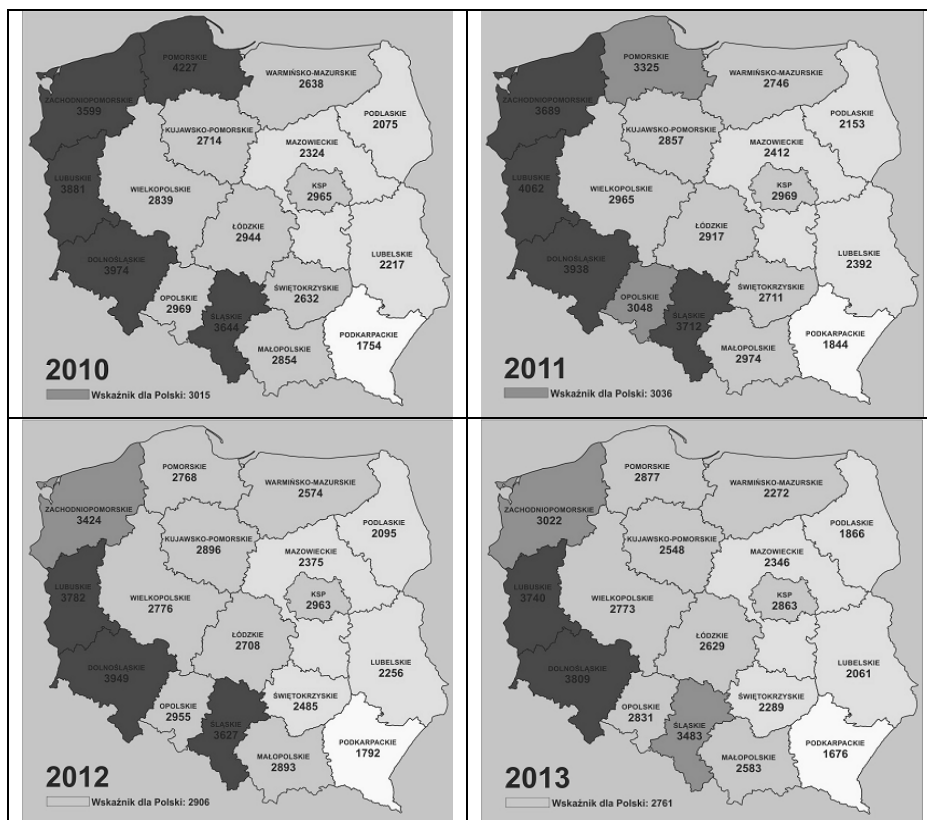
Picture 1. Crime vulnerability index in the years 2010 – 2013 (Index for Poland)

Source: Report on the state of security in Poland (2013)

STANDARD OF LIVING IN POLAND

In statistical, sociological and economic literature, the term of standard of living happens to be diverse and not entirely unified. The term of "conditions of living" is often used and it is defined most often as relations in which society, an individual or a household are living currently. The standard of family's living is determined, among others, by the possibility of satisfying its individual needs (*Jakość życia i spójność społeczna 2011*). Research on standard of living make use of mathematics, statistics, economy, sociology, psychology and philosophy (*Owsiński, Tarchalski 2008*). Living conditions are predominantly determined by several basic elements:

- Level of economic welfare.
- Degree of equipping - municipal and residential infrastructure.
- Degree of equipping with social infrastructure.
- Natural conditions of the environment where the human lives.

Within these groups, to describe living conditions it becomes necessary to conduct further disaggregation of components which are connected with specified human needs (*Zróżnicowanie regionalne poziomu życia ludności w świetle wybranych wskaźników z badań Statystki Publicznej 2014*).

In recent years, gradual growth has been recorded in the significance ofsubjective indexes in research on quality of living, conducted by both public statistic and international organizations, and research centres (*Mieszkańcy Polski o swojej jakości życia 2014*).

The category of quality of life and problems related to its statistical measurement in the recent years have become the object of significant interest of not only science domains, but also general public and state authorities (*Jakość życia, kapitał społeczny, ubóstwo i wykluczenie społeczne w Polsce 2013*).

To determine standard of living, socio-economic indexes were used: they were grouped in the following categories describing the phenomenon:

1. Employment, working conditions, unemployment.
- Employment index (number of the employed per 1000 people at working age) - [S].
- Registered unemployment rate (share of the unemployed who are registered in the overall number of professionally active people) – [D].
- Long-term unemployment rate (share of the unemployed who are looking for job above twelve months in the overall number of professionally active people) – [D].
- Number of the unemployed against vacancies (number of unemployed people per one vacancy) – [D].
- Accident rate (people injured in accidents at work per 1000 working people) – [D].
- Employees in hazard conditions (number of people employed in hazard conditions per 1000 employees) – [D].

2. Income of population, housing conditions, material resources.
- Average available income, namely average monthly income per one person in a household, calculated in PLN – [S].
- Index of house maintenance costs. It consists of the cost of maintaining apartment and energy carriers per one person in households in % of total expenses – [D].
- Density of apartments. This variable is divided into two categories:
o Average floor area of an apartment per one person in square meters – [S].
o Average number of people per one room – [D].
- Material resources, this variable shows percentage share of households with: passenger car [S]; personal computer with access to the Internet [S]; dishwasher [S].

3. Social exclusion and poverty.
- Use of social benefits: it shows the number of people who receive such benefits (e.g. social aid) per 10 thousand inhabitants – [D].
- Index of hazard with relative poverty, namely percentage of the society living in a household with income lower than the poverty level – [D].
- Index of material deprivation: it shows percentage of people with at least three from nine symptoms of poverty – [D].
- Index of the lack of material deprivation. This index shows percentage of people in society who are not affected by poverty – [S].

4. Economic development.
- Gross Domestic Product per capita in PLN – [S].
- Value of fixed assets in PLN, per capita, calculated gross – [S].
- Index of degree of region's attractiveness:
o Inflows and outflows of local community (migration balance) per one thousand inhabitants – [S].
o Newly registered entities in the REGON register per 10 thousand people – [S].
- Value of expenses on research-development activities per capita in PLN – [S].

5. Economic infrastructure.

- Railway transport: it presents operated railway lines in kilometres per 100 km2 – [S].
- Infrastructure of public roads: the index shows the number of kilometres of roads with hard pavement per 100 km2 – [S].
- Business entities, namely entities registered in REGON per 10 thousand people of local community – [S].

Constant weight, equal to 1, is assigned to all indexes. It enables giving them equal meanings. With the use of taxonomic methods, variables were brought to mutual comparability. Group indexes were calculated for each region, thanks to which a synthetic index was calculated: it is arithmetic average of group indexes.<[21] Obtained thus values of the synthetic index enable ordering and assigning objects to four groups:

- M_I – with the highest standard of living.
- M_{II} – with the average standard of living.
- M_{III} – with the low standard of living.
- M_{IV} – with the lowest level of living.

RESEARCH FINDINGS

The crime vulnerability index per 100 thousand inhabitants was serving as a de-stimulant, whereas the index of standard of living were stimulants. It should also be mentioned that in the case of indexes concerning quality of life, we have been dealing with de-stimulants and stimulants, however, to calculate indexes all variables were converted to stimulants.

Table 1. Ranks of provinces by particular indexes

Province	Crime vulnerability index per 100 000 inhabitants	Index of standard of living					
-	-	I	II	III	IV	V	VI
Dolnośląskie	16	8	5	6	5	5	7
Kujawsko-Pomorskie	7	14	12	10	9	9	12
Lubelskie	3	10	13	14	15	15	14
Lubuskie	15	11	9	12	8	13	11
Łódzkie	9	5	1	11	7	4	8
Małopolskie	8	3	7	9	4	2	3
Mazowieckie	6	1	1	1	1	3	1
Opolskie	11	7	2	5	16	1	9
Podkarpackie	1	12	15	16	2	12	13
Podlaskie	2	9	8	3	11	14	6
Pomorskie	12	6	3	7	2	6	4
Śląskie	14	2	4	2	10	1	2
Świętokrzyskie	5	13	16	15	13	7	16
Warmińsko-Mazurskie	4	16	1	13	14	16	15
Wielkopolskie	10	4	6	4	5	8	5
Zachodniopomorskie	13	15	10	8	6	10	10

I – Employment, unemployment and working conditions,
II – Income of population, material resources,
III – Poverty and social exclusion,
IV – Economic development,
V – Economic infrastructure,
VI – Synthetic index of standard of living.

Source: Prepared by the author based on GUS data

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[21] http://stat.gov.pl/cps/rde/xbcr/lodz/ASSETS_referat_zroznicowanie_regionalne_poziomu_zycia.pdf (dostęp na dzień 12.03.2015)

The assessment of diversity of the analysed phenomena by means of a multi-dimensional statistical analysis indicates that the Provinces: Mazowieckie, Śląskie, Wielkopolskie, Pomorskie and Małopolskie are characterized by the highest value of synthetic index of the standard of living in Poland, whereas it is the lowest in the Provinces: Zachodniopomorskie, Kujawsko-Pomorskie, Warmińsko-Mazurskie, Lubelskie, Lubuskie, Świetokrzyskie, Podkarpackie and Opolskie.

Owing to the position held by particular provinces, ranks were assigned to each object, separately for the indexes regarding crimes, particular socio-economic indexes and the synthetic index describing the standard of living (tab. 2)
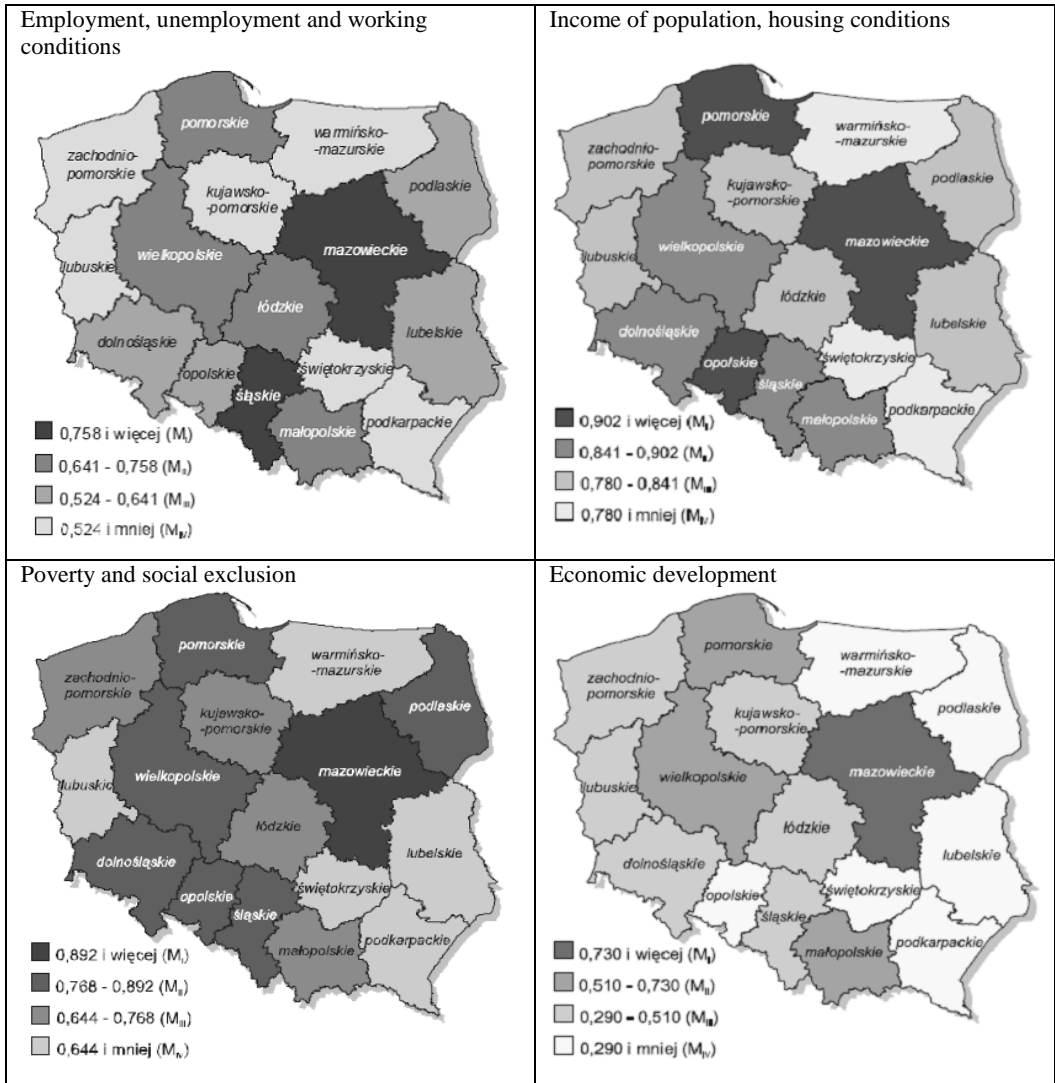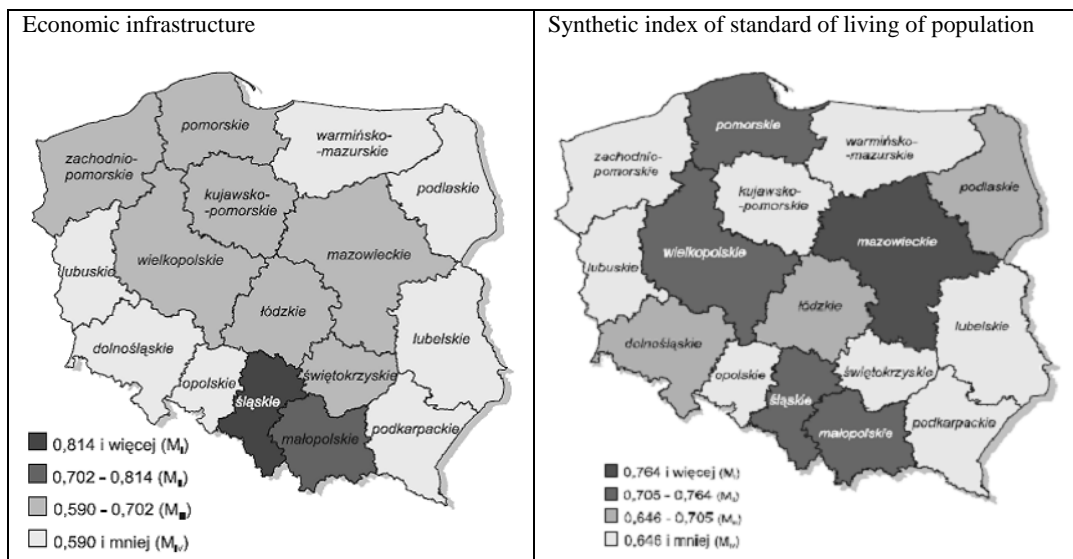
Picture 2. Gradation of provinces in terms of standard of living taking into account the category of socio-economic indexes

Source:http://stat.gov.pl/ cps/rde/xbcr/lodz/ ASSETS_referat_zroznicowanie regionalne _poziomu_zycia.pdf (date of access: 05.02.2015)

When analyzing the relation between development and the analyzed phenomena, the Spearman's rank correlation coefficient was used.

Table 2. Spearman's rank correlation between the crime rate and living standard indexes

	$r_{crime\ index\ I}$	$r_{crime\ index\ II}$	$r_{crime\ index\ III}$	$r_{crime\ index\ IV}$	$r_{crime\ index\ V}$	$r_{crime\ index\ VI}$
Value of rank correlation coefficient	-0.262	-0.547	-0.385	-0.420	-0.442	-0.390

Source: own calculations

When examining dependencies between particular indexes of standard of living and the crime index, the strongest association occurred between the crime index and the index describing the material situation ($r_{crime\ index\ II} =-0.547$). Worse income situation, low condition of material resources result in increased crime index. The weakest, but also unfavorable relation can be noted between the crime index and the index related to employment ($r_{crime\ index\ I} =-0.262$).

The Spearman's coefficient for the synthetic standard of living as well as the crime index ($r_{crime\ index\ VI} =-0.390$) confirms negative relation between the index of crime and the level of living. Worsening standard of living affects increase in crime.

CONCLUSIONS

The conducted research proved downward trend of the number of crimes committed between 2003 and2013. Crimes over this period fell by approximately a third (27.5%).

General downward trend noticeable in the number of crimes confirmed by the police has a close connection with their detection. In the recent decade, we have been dealing with clear growth in detection of committed crimes. In 2003 it accounted for 55.2% and this ratio increased over ten years by 11.9 percentage points.

In the examined period, the number of suspects drops as well. As a result of drop in crime, safety of Poles increases, which results in increased standard of living.

The analysis of the standard of living in Polish provinces showed large diversity between regions, mainly in two categories. In the case of the index regarding economic development, the range was as much as 0.903. High diversity was recorded also for the index of business infrastructure (0.455).

The Spearman's rank correlation coefficient showed a negative relation between all indexes of standard of living and the crime index. Decrease in employment, deterioration in material conditions, economic development and business infrastructure may result in growing crime level.

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