

The diversity and intensity of poverty in Poland

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Abstract

The aim of the paper was to investigate the phenomenon of poverty in Poland from the subregional perspective. As the source of data on households, the Social Diagnosis data for 2015 was used. The data sample consisted of 10 thousand of households with full information on their levels of equivalent income and expenses. The research focused on the structure of poverty among households differentiated by number of members and the geographical affiliation. The analysis was carried out in two stages. Firstly, households have been characterized in terms of three poverty categories: the statutory poverty, the extreme poverty and rarely estimated the social minimum rate. In this part, the purpose of the research was to determine the levels for indicated categories of poverty for subregions and then comparing them within the voivodships. An important part of the work allowed demonstrating intra-regional differentiation of poverty types. In the second stage of the research, an attempt to assess the intensity of poverty levels was made. Within this framework, the indicators of the intensity of the considered categories of poverty were estimated, based on the category of household income gap. The obtained results enabled us to examine the households' poverty depth due to their geographical location and the certain type of household.

Keywords: *absolute (extreme) poverty; statutory poverty; social minimum, poverty intensity*

JEL Classification: *C23, G15, I32, Q47, R19*

1. Introduction

Poverty is a relative term that can be difficult to define due to the large number of factors that affect this phenomenon. Being in poverty does not depend solely on the individual (or household) position. It is a concept affected by the social policy and the quality of social services implemented at local, regional, national, and international levels. As a result, poverty is a multifactorial and multidimensional term that not only affects the individual's situation, but also conditions the socio-economic of the society; therefore it is a problem that accompanies the development of humanity itself.

The poverty is a subject of research of various scientific disciplines, with the interest of social policy, economics and sociology. The social policy considers poverty as a problem to be solved by the state. Economics, on the other hand, focuses on ways of dealing with the limited access to or even the lack of important goods or services that are essential to living. In sociology being in poverty is related to the level of income needed to maintain a life or perform the physical labor. In this sense, this concept should be perceived as biological poverty, which in literature is also identified as absolute poverty and related strongly to the theory of basic needs and their fulfilment. However, due to the development of societies the range of the needs considered as essential is constantly expanding (Panek and Szulc, 2004).

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In order to be able to remedy and counteract poverty, it is necessary to recognize the causes of its occurrences. In literature, three groups of poverty causes are mentioned, such as: personal, subjective and structural (Każmierczak and Łuczyńska, 1996). Personal causes occur independently and include situations of disability (also mental), long-term illness and advanced age – situations in which people cannot survive on their own and are unable to provide for a minimum of subsistence or to participate in common social life. Also, the numerous numbers of children in a household is perceived as the cause; in such families, usually only one member is employed, or all adults are jobless (Kumor, 2011). Subjective causes of poverty include specific attitudes and characteristics of people, such as: laziness, lack of principles, different system of values, unwillingness to work or to educate, dishonesty and mismanagement (Kowalak, 2002). The last group of causes of poverty results from the state aid, while it often limits the motivation to work, individual's independence and can lead to moral depression (Skorowski et al., 2006).

2. Subject and Range of the Investigation

The poverty can be caused by the differences identified in welfare, ownership, income, level of intelligence, ambition, ingenuity, education and qualifications levels. There are also various factors affecting the socio-demographic situation of households, as well as the overall situation of the country and the region of residence (Skorowski et al., 2006).

The multidimensionality of poverty causes further restrictions in its analysis, for instance concerning its definition and interpretation. Poverty can be understood in absolute or relative terms. In Poland, the most common and documented are the three basic poverty categories, such as:

- statutory – it involves people whose level of expenditures is lower than the monetary limit that enables the recipients making use of social assisted benefits;
- absolute (extreme) – “*a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income, but also on access to social services*” (United Nations, 1996). This type of poverty in nature is usually long term and often inherited;
- social minimum – defined as the scope and the level of fulfilled needs; the social minimum standard should provide such conditions that at every stage of human's development enables him/her to reproduce life forces, to have and raise children and to maintain social bonds (Deniszczuk, 1977).

In literature, there is also a relative poverty distinguished that is perceived as meeting the average standard of living. If a family's income is not high enough, the household is considered to be in relative poverty. This type of poverty is defined differently in Poland than in EU; in Poland, the reference point is income lower than 50% of the average remuneration, whereas in some EU countries 60% of median. The differences in the definition and the lack of essential information on the relative poverty levels for households with the number of members from two to five have eliminated this type of poverty from further analyses.

Research on poverty focuses mostly on the situation where individual/household remains permanently in the low-income group (e.g.: associated with inheriting poverty). Commonly, the levels of poverty are estimated for higher level of data aggregation, for instance voivodship level (Krzysztofik et al., 2017). For that reason, an attempt was made to examine the phenomenon of poverty in Poland from the lower, subregional perspective – to Authors’ best knowledge such approach is rarely considered in the analysis (Szymkowiak et al., 2017), however examples mentioned were based on the indirect estimation of poverty.

In proposed paper, not only the level of poverty was estimated. The research focused also on establishing the intensity³ of poverty. Previous Authors’ experiments to establish the poverty enclaves and the depth of poverty resulted in proposed *Multiplicative Indicator of Poverty Intensity (MIPI)* for selected 25 streets of Zgierz, Poland (Jewczak et. al., 2018). *MIPI* indicator allowed us to estimate the intensity of poverty from the social assistance perspective, taking into account the number of recipients (beneficiaries) and the amounts allocated to social benefits, which in turn depended on the conditions of household income. However, it was not possible to calculate *MIPI*, due to the lack of very detailed and, at the same time, hard-to-access data for the local level.

3. Data and research methodology

As the source of information on households, the Social Diagnosis data for 2015 was used (Integrated database. www.diagnoza.com). The research of the Council for Social Monitoring (the Social Diagnosis) is a widely used, representative source of data on the situation and condition of Polish households (e.g.: Czapiński and Panek, 2015; Baranowski et al., 2016). The data sample consisted of 10 thousand of Polish households differentiated by number of members and the geographical affiliation, with full information on their levels of equivalent income and expenses. However, only households with a maximum of 5 persons were selected for the study. It was due to the lack of appropriate conversion rates for larger units. Households with more than five members accounted for less than 4% of the research sample and were mainly the multi-family units with an internal structure difficult to classify.

The analysis was carried out in two main stages. Firstly, households were characterised in terms of three categories of poverty, accordingly to the assigned levels:

- statutory poverty – the limit of law poverty in 2015 ranged from 634 PLN for one person to 2420 PLN for five people household of monthly income (Ustawa z dnia 12 marca 2004 r. o pomocy społecznej (Dz.U. 2018 poz. 1508));

³ In literature, some examples can be found that the terms such as the depth and the intensity of poverty should be clearly distinguished. However, these terms are most often used interchangeably and related only to the income category when estimating the poverty rates (e.g.: Atkinson et. al., 2002; Lar et al., 2012). For clarification, in the proposed study, the depth and the intensity of poverty should be considered interchangeably, without taking into account additional factors, i.e.: those not related to income.

- extreme poverty – the limit of extreme poverty in 2015 ranged from 545.76 PLN for one person to 2389.11 PLN for five people household of monthly income (Instytut Pracy i Spraw Socjalnych, 2016a);
- social minimum rate – the limit of extreme poverty in 2015 ranged from 1079.53 PLN for one person to 4198.12 PLN for five people household of monthly income (Instytut Pracy i Spraw Socjalnych, 2016b).

In this part, the purpose of the research work was to determine the levels of indicated categories of poverty for subregional levels and then comparing them within voivodships' boundaries, indicating intra-regional diversity. Households were evaluated accordingly to their poverty rates. Atkinson et al. (2002) indicated that poverty rate is the ratio of the number of households (or at the individual level – persons) whose income *per capita* falls below the given poverty line in relation to total number of households (in this research three types of poverty were analysed – in accordance with the above-cited classification).

In the second stage of the research, an attempt to assess the intensity of poverty was made. Within this framework, the indicators of the intensity of the considered categories of poverty were estimated and based on the household income gap. The poverty indicator (*PI*) measures its intensity and informs on the distance between the poor and the given type of poverty line (Szwarc, 2005) and is typically defined, as follows (Mussard and Alperin, 2011):

$$PI = \frac{1}{Q} \sum_{i=1}^Q \left(\frac{z - y_i}{z} \right), \quad (1)$$

where: z – is a level of poverty line, y_i – income level of an individual in the poverty zone, with the assumption that $y_i < z$.

The amount $\sum_i (z - y_i)$ is called the income gap with values ranging from 0 to 1 (0–100%) and its lower level indicates lower intensity of poverty. The depth of poverty is therefore directly related to household's income (Li, 2018). The lower the income a household achieves, the further it is below the given type of poverty line, which indicates major depth of poverty. Therefore, income growth reduces the depth of poverty (Iceland and Bauman, 2007). The households were classified as being under or above poverty line with the adjustment of an equivalence scale that weights the household according to the number of equivalent adults. If a couple is below the poverty line then both adults have the equivalent income of $\frac{2}{3}$ household income y , so the income gap amounts to $(z - \frac{2}{3}y_i)$.

The core of the research included three stages. Firstly, households were classified into three poverty subgroups: statutory, extreme and social minimum. Secondly, the average subregional poverty rates were estimated and the results were obtained in order to group the households according to both the spatial affiliation and the types of households. Thirdly, the intensity of each type of poverty was examined. In order to summarise the overall poverty level for subregions (in terms of the rates and its intensity) the Ward's agglomeration grouping method was applied, which uses the analysis of variance to estimate the distance between clusters (Ward, 1963).

4. Results of empirical analyses

The most challenging part of obtaining the essential results was the classification of households according to the appropriate poverty levels and the household type. In order to complete the research aim, it was necessary for each type of household, according to its type (e.g.: non-family, marriage type 2+0, etc.) to assign accurate levels of border income, which qualified the unit to be (or not) in a given type of poverty. The use of algorithms, described above, allowed us to determine sub-regional levels of rates for a given type of poverty.

4.1. Poverty rates and its intensity by households' structure

Analysing the structure of the households (Table 1), the worse situation of being in poverty was estimated for the largest households. One in two household with 5 members were below the social minimum poverty line, while for 4-person households this rate indicated nearly one in three. Households with more than 4 members registered the highest rates of being in extreme and statutory (that enables making use of social benefits) poverty.

Table 1. Poverty rates and its intensity by type and household number of members

Household size	Poverty rates			Poverty intensity		
	extreme	statutory	social min.	extreme	statutory	social min.
1	2.2	3.9	19.7	31.4	25.2	24.6
2	3.1	4.8	16.7	18.6	29.1	26.0
3	3.8	9.6	29.0	27.2	21.4	27.3
4	8.3	11.4	31.6	22.6	22.7	31.7
5	11.4	11.9	49.9	31.0	30.6	30.0

Research also indicated that the highest intensity of extreme poverty should be associated with individual, non-family households, which confirms indirectly the assumption about the poor situation of single-person households.

4.2. Subregional diversification of poverty rates and their intensity

In this section households were classified in two ways. Firstly, the attention was paid to the poverty rates (Fig. 1).

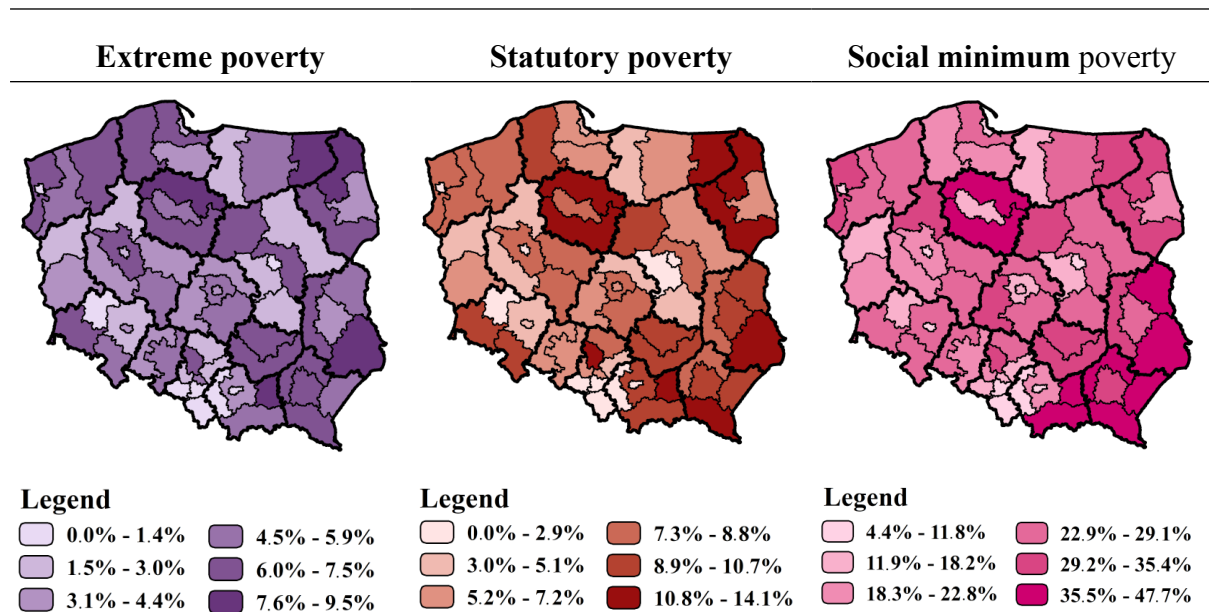


Fig. 1. Subregional poverty rates by type

However, the rates of being in a particular type of poverty might be high or low, the question arises on poverty intensity. For this purpose the poverty intensity indicator (*PI*) was calculated at subregional level (Fig. 2).

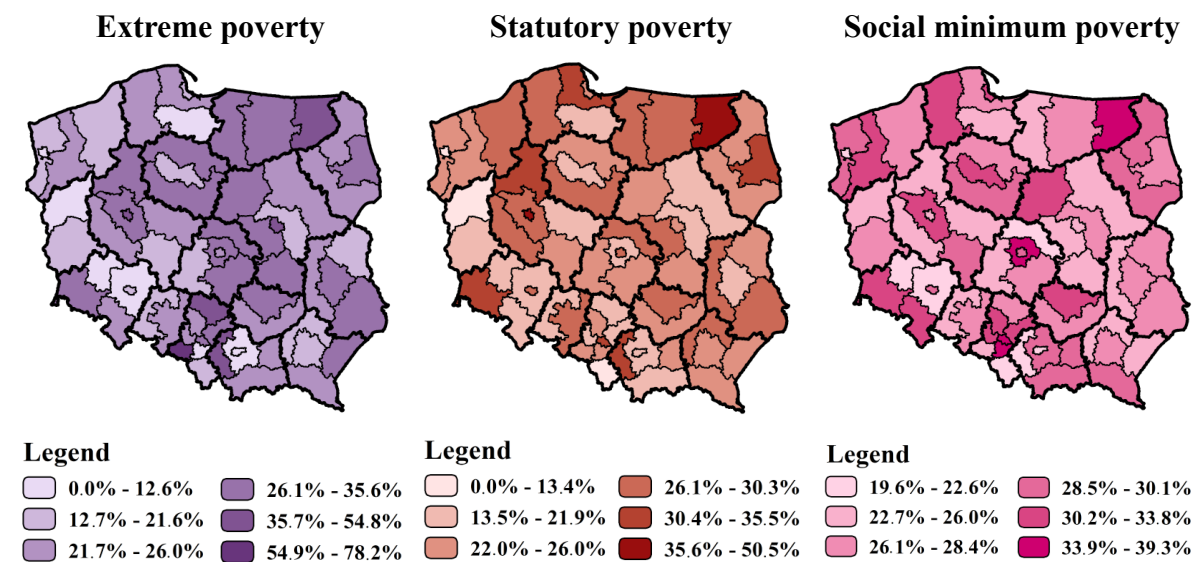


Fig. 2. Subregional poverty intensity by type

The results confirmed that despite high levels of subregional poverty, in most cases poverty turned out to be relatively low in intensity. On the other hand, those subregions that recorded in 2015 low levels of poverty rates, unfortunately, were characterised by a higher intensity of the phenomenon. For instance, for Rybnicki subregion, the extreme poverty rate was estimated on 0.74%, however the depth of this type of poverty amounted to the level of 78.16% (which was the highest for this type of poverty). Tyski subregion was characterized by one of the lowest social minimum rates (5.48%), but noted average $PI=39.32\%$ of its intensity. Such tendencies were observed for many objects, which supports the argument for thorough and two-dimensional analysis of the phenomenon of poverty: firstly, in absolute term and further supported by the intensity analysis (widely used PI indicator), which may indicate a different scale of the problem. The analyses on poverty allowed not only to estimate the subregional rates, but also to investigate the depth of the phenomenon. It results from the property that high-poverty locations are not necessarily high in the poverty intensity. This argument pointed previously Atkinson et al. (2002). Lack of any pattern or dependency between the level and the depth of poverty can be also support by low and insignificant values of non-parametric correlation coefficients, which were investigated by the Authors.

To summarise the distributions among subregions of poverty types and the intensity at the same time the cluster analysis with Ward's grouping was adopted and the results of classification was illustrated on Fig. 3.

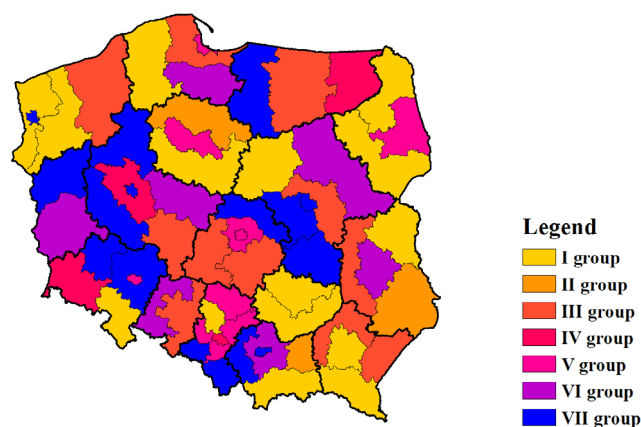


Fig. 3. Spatial similarity of poverty in Polish subregions
Note: colors indicate the belonging to a similar cluster

Taking all the information on poverty into account, it can be said that at the subregional level, the spatial diversity of poverty levels and intensity is rather high – with a bond length of about 16% of the maximum distance, 7 clusters were created, none of which was a single-item. The Ward's grouping allowed us to indicate the similarities of poverty rates and its intensity. Although there are no visible patterns (e.g.: in terms of spatial autocorrelation), the results of multivariate techniques provided information that may be beneficial from the point of view of social policy planning of services and financial support in certain locations.

Conclusions

Researchers most often focus on the economic aspects of the phenomenon of poverty, i.e.: deprivation of material living conditions (income, housing conditions and possessed goods). It is due to the easier rationalisation of poverty alleviation and the fact that problems, such as non-participating in society are also related to other factors. This research allowed us to demonstrate intra-regional differentiation of poverty types and, at the same time, to determine the households' poverty intensity due to their geographical location and the certain type of household. The results may be interpreted as important from the perspective, for instance, of the social policy or strictly in economic terms.

The data published by the Polish Central Statistical Office (*CSO*) present only the levels of poverty for provinces. However, proposed analysis indicated that the image of poverty at the higher level of data aggregation does not comply fully with the intra-look. Extremely valuable information resulting from the conducted research is also the poverty intensity (*PI*) of households differentiated in terms of the number of their members, based on the income gap. This finding supports the assumption of more detailed, local investigation on the phenomenon of poverty. It is also worth emphasising that the most common analyses on poverty, if they are carried out, concern typical households: one and four persons. Though, conducting such thorough analysis faces limitations such as lack of necessary data. Within these indications, it would be beneficial to move to the level of poviats or communes and carry out similar analyses for lowest possible levels of data aggregation.

The research confirmed the possibility of getting information on household or individual performance from different representative studies such as Social Diagnosis. The obtained results of the poverty levels are largely dependent on the quality of the collected statistical material, which has also been indicated by other Authors (e.g.: Atkinson et al., 2002).

Nonetheless, the poverty levels do not differ significantly from the results of research carried out by the *CSO*, except for the social minimum that is practically neglected or at best rarely estimated. In Authors' opinion, without observation of social minimum in view of its nature covering most aspects of life and functioning of the household, it is not possible to receive full information on poverty level, not mentioning its intensity.

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