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**Measuring poverty**

## Poverty as a social phenomenon. Methods of measurement applied by the Central Statistical Office of Poland

### Note by the Central Statistical Office of Poland

*Summary*

This document presents methods of poverty measurement and analyses by the Central Statistical Office of Poland. The approach adopted by the Central Statistical Office assumes using the results of annual and cyclic household surveys and conducting analyses with the use of traditional methods of descriptive statistics, as well as advanced solutions including econometric models. This approach enables the assessment of absolute and relative monetary poverty, diagnosis of the range and determinants of multidimensional poverty, measurement of the social perceptions related to poverty and the impact of poverty on subjective well-being.

The document is presented to the Conference of European Statisticians' seminar on "Measuring poverty" for discussion.

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# I.  Introduction

1.      Due to the social and economic consequences of poverty, having accurate information in this field is highly desirable. Knowledge about poverty is essential for developing, implementing, monitoring and evaluating social policies at national and international levels.

2.      Evidence-based policies require comprehensive analysis of different phenomena. Therefore, starting from first half of the 1990s, the Central Statistical Office (CSO) of Poland has developed and improved the measurement and analysis of poverty. This document contains a synthetic presentation of the methods of measurement and analysis of poverty, adopted by the CSO.

3.      Generally, it is possible to distinguish between two different approaches to poverty measurement, both of which are used in the analyses carried out by the CSO:

  • Classical, unidimensional approach, based on monetary indicators of wealth, such as expenditures, income or resources;

  • Multidimensional approach, which takes into account income or expenditures, and other non-monetary aspects related to the living standards.

4.      The results of representative household surveys form the basis for the analysis of poverty, such as:

  • Household Budget Survey (HBS) – annual survey, that serves as a basis for assessing a range of monetary poverty; conducted mainly for the national purposes;

  • European Statistics on Income and Living Conditions (EU-SILC) – annual survey, carried out in Poland since 2005. EU-SILC serves as a basis for assessing comparable poverty indicators between European Union member states. It is a panel survey providing i.e. data on persistent poverty;

  • Multidimensional Social Cohesion Survey – cyclic survey with the first edition in 2011 and the second one in 2015. Results of this survey are the basis for, for example, the analysis of multidimensional poverty and advanced analyses of correlations between poverty and other aspects of quality of life.

5.      The document mainly focuses on the methods of measurement and analyses applied at the national level. In this document, indicators and methods used according to the international recommendations (including measurement of poverty based on the EU-SILC) have been omitted.

6.      The presented approach, which goes beyond the standards adopted in official statistics, may provide input to the discussions aimed at elaborating both national and international standards of comprehensive measurement of  poverty.

## A.  Monetary poverty estimated based on the household budget surveys

7.      Since the first half of the 1990s till now, the CSO of Poland has regularly published data on economic poverty, assessed with using different poverty thresholds (absolute and relative, objective and subjective). From a methodological point of view, there is no reason to adopt undoubtedly only one of the thresholds, because each poverty line has certain advantages and disadvantages. Analyses conducted based on different methodological approaches give an opportunity to monitor poverty more thoroughly than with a use of one approach only.

8.      In the analysis of objective poverty, the level of expenditures constitutes a synthetic measure of the household's economic well-being. A household and, thus, all its members have been regarded as poor if the expenditure level (including a value of products received free of charge as well as the value of natural consumption) was below the adopted poverty threshold.

9.      CSO takes the following poverty thresholds into consideration in estimating objective poverty:

- *Relative poverty threshold* - set up at 50% of the mean expenditures of all households;

- So-called *'legal' poverty' threshold* - the amount which, according to the Law on Social Assistance, provides eligibility for a monetary benefit from social assistance;

- *Extreme poverty threshold* – estimated on a basis of *the subsistence minimum* calculated by the Institute of Labor and Social Studies[1].

10.      Assessments of the objective poverty are supplied by the information on the range of subjective poverty. In its analyses, the CSO employs the so-called Leyden Poverty Line (LPL) method[2]. Disregarding a description of statistical and mathematical procedures applied, this method makes it possible to simplify reality, and state that subjective poverty lines for a given type of households more or less correspond to the level of income declared by the respondents as merely sufficient.

11.      Currently, CSO has been conducting work on a new approach to subjective poverty measurement. This approach is to a large extent close to the LPL method. However it will take into consideration answers to two questions which are commonly used in household surveys (including EU-SILC), namely level of household income and assessment of possibilities of making 'ends meet' by the household (which is supposed to be a measure of utility). It is expected that applying the variables commonly used at the international level will give an opportunity to compare the subjective poverty between countries.

## B.      Multidimensional analysis of poverty using the social cohesion survey[3]

12.      The cyclic Social Cohesion Survey plays an essential role in the conduct of complex analyses of poverty in Poland. The inventive, unique character of this survey depends mainly on the possibility of integrating (at the surveyed units' level) both objective and subjective data referring to the most important aspects of the quality of life. This allows assessing both the range and the determinants of various forms of poverty, as well as to analyse the social perception related to poverty.

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[1] The minimum subsistence takes into the account only these needs, that cannot be postponed and must be satisfied immediately. Consumption lower than this level causes a biological emaciation. The starting point adopted for determination of the extreme poverty threshold is subsistence minimum estimated by the Institute of Labor and Social Studies (IPiSS) for the 1-person employees' household. Then, this value is multiplied by a number of 'equivalised persons'.

[2] See among others: Goethart Th. Halberstadt U., Kapteyn A., Van Praag B.M.S (1977), 'The Poverty Line: Concept and Measurement', The Journal of Human Resources, Vol .12, Podgórski J. (1997), "Subiektywne linie ubóstwa', Polska bieda II, IPSS, Warszawa.

[3] More information regarding methodological aspects of the Social Cohesion Survey is available in the publication 'Quality of life in Poland in 2015. Results of the Social Cohesion Survey.', GUS, Warsaw 2017 (http://stat.gov.pl/obszary-tematyczne/warunki-zycia/dochody-wydatki-i-warunki-zycia-ludnosci/jakosc-zycia-w-polsce-w-2015-roku-wyniki-badania-spojnosci-spolecznej,4,2.html )

Additionally, the Social Cohesion Survey provides data that gives the possibility of advanced analyses of correlations between poverty and other aspects of quality of life, including subjective well-being, lifestyle and social isolation.

## 1.    The measurement of multidimensional poverty

13.    In the context of multidimensional measurement of poverty, three complementary dimensions were taken into account: income poverty, living conditions poverty, and poverty in terms of lack of budget balance. Particular poverty dimensions are defined as follows:

- Income poverty – households are considered poor if their monthly monetary disposable income (within 12 months preceding a survey) was lower than a value considered as a poverty threshold. Defining both, income poverty as well as its threshold, equivalised income was taken into account. It allowed comparing households with different demographic characteristics. Poverty threshold has been assumed at 60 per cent of median equivalised income assessed on a national level.

- Living conditions poverty – households are considered poor, if they were affected by at least 10 of 30 symptoms of poor living standards. The symptoms are related to the following aspects: dwelling quality, equipment in durable goods, deprivation of different needs (material, as well as non-material ones linked, among others, to the usage of culture, social relations and leisure time).

- Poverty in terms of the lack of budget balance – households are considered poor in terms of this type of poverty, if at least four of seven symptoms of poverty affect them. The symptoms refer to households subjective opinions about their material status, as well as facts confirming budgetary difficulties of the households (including arrears).

14.    Expanding the analysis to non-income aspects provides a more complete picture of poverty. The analysis allows revealing groups of households that face a number of difficulties with balancing their budget or live in poor conditions although their current income considerably exceeds the income poverty threshold. Moreover, such approach enables the assessment of co-occurrence of different dimensions of poverty in the households - overlapping of all three poverty forms is treated as multidimensional poverty.

15.    Except the assessment of the range of different poverty dimensions and social diversities in this context, CSO conducts analyses aimed at finding out determinants of poverty with the use of logistic regression models (see table 2 in the annex).

16.    The presented conception of multidimensional measurement of poverty could be applied at international level. Exercises aimed at calculation of indicator of multidimensional poverty with the use of variables from of the EU-SILC survey were conducted[4]. In this context, despite applying less number of symptoms of living conditions poverty and poverty in terms of the lack of budget balance, general conclusions regarding multidimensional poverty were similar to the results of the Social Cohesion Survey.

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[4] Results of one of these exercises were presented at Seminar on poverty measurement organized by UNECE in 2015. Please refer to:
https://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.15/2015/WP_29_Poland.pdf

### 2. Social perception of poverty[5]

17. Social Cohesion Survey enables analyses of the social perception of poverty in Poland. The analysis of social perception of such aspects shows to what extent identification of these phenomena based on the objective measures is in line with the social perception. Furthermore, indicators of the perception (such as perceived range of poverty, presence of poverty in the place of residence, opinions on inequalities in Poland, most preferred methods of reducing poverty) show the social moods which can have the influence on people's activities in the fields of economy and politics. For instance, the level of tolerance of income inequalities is often treated as the indicator of acceptance for the social order. It seems, then, that systematic collection of data regarding social perception of so significant aspects of socio-economic reality can be very useful in the context of social dialogue, as well as creating, verifying and monitoring social policies aimed at improving the quality of life and social cohesion.

## II. Conclusions and recommendations

18. The concept of poverty is very difficult to define. Adoption of both the appropriate definition of poverty and measurement methods has a large importance for the analysis of this phenomenon. However, each method has certain advantages and disadvantages. The number of poor persons, as well as their socio-demographic characteristics, depends largely on the adopted approach and the methods of measurement. Due to this fact, while measuring poverty, it is essential to ensure that the results of surveys give possibly the most reliable and widest diagnosis of this social problem. Furthermore, it is important to take into consideration a multidimensional character of this phenomenon. However, all the methods used to measure poverty must be adequate to geographical circumstances, socio-economic situation and culture of a given country.

19. Accordingly, it is worth discussing which measures and approaches would be the most appropriate from the point of view of international comparisons. Polish experience in this matter shows that the optimal solution is to use different approaches, complementary to each other (i.e. monetary poverty and multidimensional poverty, objective and subjective poverty, etc.). However it is crucial to distinguish symptoms (i.e. different forms of material and non-material deprivation) and determinants (i.e. unemployment, disability, low educational attainment level) of poverty when measuring multidimensional poverty. On the other hand, it is important to conduct analyses focused on correlations between poverty and other aspects of quality of life, such as human and social capital, subjective well-being, lifestyles, etc. Such approaches should be considered at international level.

20. Moreover, based on Polish experience, it is recognized as important to include in surveys the questions regarding social perception of poverty and income inequalities. Such information may be of great value for the assessments of social moods, which could be very useful for policies aimed at reducing poverty.

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[5] Selected results regarding social perception of poverty and income inequalities were presented at Seminar on poverty measurement organized by UNECE in 2016. Please refer to:
www.unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.15/2016/Sem/WP14_Poland_ENG.pdf

# Annex

Table 1
**Selected indicators of poverty calculated by CSO of Poland**

| | Indicator | Source | Value (year) | Definition |
|---|---|---|---|---|
| **Monetary (unidimensional) poverty** | Extreme poverty rate | Household Budget Survey | 6.5% (2015) | % of persons in households with the level of equivalised expenditures below the subsistence minimum. |
| | Relative poverty rate | Household Budget Survey | 15.5% (2015) | % of persons in households with the level of equivalised expenditures below the threshold of 50% of mean monthly expenditures. |
| | 'Legal' poverty rate | Household Budget Survey | 12.2% (2015) | % of persons in households with the level of expenditures below the amount which, according to the Law on Social Assistance, provides eligibility for a monetary benefit from social assistance. |
| | At-risk-of-poverty rate after social transfers | EU-SILC | 17.0% (2014) | % of persons in households with an equivalised disposable income (after social transfers) below the threshold of 60% of the national median equivalised disposable income. |
| | Subjective poverty rate (based on LPL method) | Household Budget Survey | 11.9% (2015) | % of persons in households with income below the threshold assessed with the use of Leyden Poverty Line (LPL) method. Disregarding a description of statistical and mathematical procedures applied in this method, it is possible to make a simplification and say that subjective poverty lines for a given type of households are more or less corresponding to the level of income declared by the respondents as merely sufficient. |
| **Multidimensional poverty** | Multidimensional poverty rate | Social Cohesion Survey | 3.4% (2015) | % of households where the co-occurrence of three types of poverty, namely: income poverty, living conditions poverty and poverty in terms of the lack of budget balance were observed. |
| | • Income poverty rate | | 14.4% | % of households with the level of equivalised income below the threshold of 60% of median equivalised households' income in Poland. |
| | • Living conditions poverty rate | | 8.5% | % of households where 10 of 30 symptoms of poor living conditions linked to such aspects as dwelling conditions, durables, material and non-material deprivation has been observed. |
| | • Rate of poverty in terms of lack of budget balance | | 11.1% | % of households where at least 4 of 7 symptoms taken into account has been observed. It is an aggregated indicator combining both subjective poverty, and the facts indicating budget difficulties experienced by the household (payment arrears and loans taken to cover the most basic needs). |

Table 2
**Determinants of poverty - assessment of the contributory significance of various factors**

| Factor | DF | Explained phenomena (models) | | | |
|---|---|---|---|---|---|
| | | Income poverty (Model I) | Living conditions poverty (Model II) | Poverty in terms of the lack of budget balance (Model III) | Multidimensional poverty (Model IV) |
| | | Wald's statistics | | | |
| Household's size | 7 | 197,9 *** | 72,3 *** | 121,6 *** | 54,0 *** |
| Age of the household's head | 6 | 130,5 *** | 22,8 *** | 85,5 *** | 73,2 *** |
| Educational level of the household's head | 4 | 155,6 *** | 81,3 *** | 13,5 ** | 56,7 *** |
| Occupation of the household's head | 9 | 198,0 *** | 45,8 *** | 50,6 *** | 70,3 *** |
| A disabled person in the household | 1 | 8,6 ** | 46,5 *** | 53,8 *** | 23,8 *** |
| An unemployed person in the household | 1 | 383,3 *** | 62,1 *** | 55,6 *** | 102,0 *** |
| Type of locality | 4 | 29,1 *** | 23,0 *** | 91,2 *** | 5,0 n.s. |
| Voivodship | 15 | 73,9 *** | 66,4 *** | 131,3 *** | 39,1 *** |
| Principal source of household's income | 6 | 422,5 ** | | | 193,3 *** |
| Equivalised income (quintile) | 4 | | 769,0 *** | 1108,6 *** | |

Statistical significance of various parameters and values included in the model: *** significant at the level of 0.1%; ** significant at the level of 1%; * significant at the level of 5%; n.s. – not significant (lower than 5%)

*Source: CSO of Poland, based on the Social Cohesion Survey 2015.*

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