
THE ANALYSIS OF THE POVERTY - INDICATORS USED

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Abstract

When we talk about poverty, we think of the lack of financial possibilities of a household or individual to meet their primary needs: food, shelter and clothing. However, the concept of poverty means more than the lack of financial possibilities. In the measurement of poverty several aspects need to be considered: welfare, the poverty line and the choice of a poverty indicator suitable for reporting at population or population level. Living standards and quality of life are derived from poverty, which analyzes not only the lack of material resources of a person or household, but also aspects related to: access to health systems, educational systems, political life or social security needed to create a social picture as complete and relevant as possible.

The main determinants of poverty are analyzed from a regional, economic, social or demographic point of view. All of these factors should of course be considered at country level and especially in the region, with differences in the poverty indicators present in a developed country compared to those present in a developing country.

The measuring poverty involves a detailed and difficult analysis, the choice of appropriate indicators and their interpretation must be carefully carried out in such a way that the results reflect as real as possible the situation of an individual, a household and not only an entire region. Traditional poverty measures use different monetary indicators, but also non-monetary ones help to better understand poverty. Poverty also has other dimensions, among the indicators that can influence poverty: structure and size of the household, age, gender and level of education of the head of the household. For example, in some countries studies have shown that female-run households are poorer than those in which the head of the family is male.

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JEL Classification: *C10, I32*

Introduction

The World Bank defines poverty as follows: „Poverty means hunger. Poverty means lack of shelter. Poverty is when a sick person is unable to go to a doctor. Poverty means lack of access to the education system. Poverty means lack of a job, fear for the future, living from one day to the next. Poverty has several faces, it changes from place to place and over time. Most often poverty is a situation where people want to get out. So, poverty is a call to action for both the poor and the rich to change the world so that as many as possible have what to eat, adequate shelter, access to education and health, protection against violence, and voice of what is happening in their communities. „

In the literature, however, no clear definition of poverty has been made; for the definition of a poor person a report is made of its resources at the welfare level accepted in the respective society.

According to the United Nations Development Program, poverty is multidimensional, the United Nations index, the Multidimensional Poverty Index (MPI) complements the monetary poverty analysis by analyzing the three non-monetary dimensions of poverty: health, education and living standards.

Literature review

Adams (2009) analyzed the determinants of international remittances in developing countries. Anghelache, Pârțachi, Anghel and Niță (2017) studied remittances from the perspective of poverty reduction. Anghelache and Anghel (2017) conducted a broad analysis of the place and role of Romania in economic and social terms in the EU after ten years of accession. Anghelache and Anghel (2016), and Anghelache et al presented statistical indicators that can be used in measuring poverty. Anghelache, Niță and Badiu (2016) presented the remittances as a source of foreign funds in the economic development of a country. Carter and Barrett (2006) referred to the traps of poverty and persistent poverty. A similar theme researched by Kray and McKenize (2014). Ghatak (2015) studied policies against poverty. Guha (2013) examined the macroeconomic effects of remittances. Ottaviano and Peri (2012) proposed rethinking the effect of immigration on wages.

Research methodology, data, results and discussion

The poverty is a complex phenomenon and a number of factors influencing the poverty of an individual or the entire household deserve to be studied to better understand this concept.

The determinants of poverty are grouped as follows:

- At regional level: Geographic isolation, difficulty in accessing services; Lack of infrastructure; Low base resources, here too we can talk about

land quality and availability; Characteristics related to climatic conditions: low rainfall, drought, floods or environmental characteristics: earthquake frequency; The distance to rural areas, the cost of transport determines the price: the lower the farmers get for the produced goods, increased for the goods they acquire; Regional governance - it is important for government poverty reduction policies to have the desired impact; Inequality.

- At community level: Developed infrastructure: Access to and access to asphalted roads, access to electricity, sewerage, running water, etc .; Land distribution; Distance to educational and medical centers; The availability of jobs in the region; The possibility of human development; The existence of a social structure, organizations designed to help the poor.

- At household level: Number of members of the household and its structure; Influence within the household: who is the head of the household and its genre; The level of education within the household; The health level of household members; The level of employment within the household; Income structure and sources of income, eg the amount of remittances received; The level of discrimination and the degree of violence within the household; Household Assets.

- At the individual level: Age; Education; Gender; Employment; Health status; Ethnicity.

• **Indicators used to measure poverty**

The main indicators used to measure poverty are:

- Demographics: Indicators on the structure of the household; Dependency ratio of household members; The gender of the person who runs the household. Studies have shown that in some countries women-led households are poorer.

- Economics: household income; Household consumption; Household employment, attention is directed to people in the household who have a job, the number of hours worked, whether they have more or no more jobs and how often their employer changes. For example, economic analyzes have shown that there is a correlation between people working in agriculture and poverty, the consumption level is lower for these households than for those where members of the household work in the sectors: construction, services or sales; Household properties that may include tangible assets such as land, agricultural land, agricultural equipment, livestock, buildings; as well as financial assets such as investments or savings.

- Social: Nutritional status, where weight, age-related height is analyzed; Degree of illness; Mortality and morbidity rate; Rate of emergence of certain diseases or infections; Access to services and health centers;

Educational level, availability and access to educational services. Studies have shown that when the level of education is higher, the higher the consumption of the household and the chances for that household to get out of poverty are higher; Literacy degree; School dropout rate; Access to shelter, structure and building materials, sanitation level, isolation degree; Length and access to transport.

- **Monetary indicators of poverty**

The main indicators used in the welfare assessment are: total income and total household consumption. To measure poverty, taking into account monetary indicators, we can use it in analyzes:

- The household income obtained from household surveys. The advantage of using income as a measure of poverty is that household income can be compared with existing official sources: average salary in the analysis area, unemployment rate, GDP per capita. In addition, several sources of income may be considered, a good example is the remittances received by household members from the migrant abroad. The record of these transfers can be verified by sending receipts, their frequency and volume helps determine the household income that can be used in analyzes.

- Household consumption, which, according to economists, is a better measure of poverty because it: shows the level at which the household manages to meet its primary needs, in other words, if the household does not have the necessary resources, it will restrict its needs. Based on household spending, access to bank credits can also be determined, when household income is low, we can not talk about investments or savings. A survey of consumption of goods is more accurate and here we discuss the situations in which household income fluctuates. For example, for a household with an income from agricultural production, this income depends on other factors such as: the harvest cycle, the level and quality of agricultural production.

Of course, if there are indicators of both consumption and income, a comparative analysis of the results obtained from their use can be made.

- **Non-monetary indicators of poverty**

In the measurement of poverty, besides the traditional monetary indicators: consumption and income, for a different perspective, some non-monetary indicators can also be considered. Particular attention should also be paid to:

- health and nutrition, access to healthcare, medication, the number of visits to a physician, the number of diseases in the household, the nutritional level of the children in the household, the weight and age in relation to age, represent powerful indicators of analysis of poverty.

- education to measure poverty from the perspective of education can be taken into account: the number of years of study completed, literacy at the individual level as well as at the level of the whole household; the availability of educational systems, the distance to the educational centers, the number of records in the education system and the dropout rate.

- shelter, this indicator of poverty generally shows the living standard of the household in relation to the type and structure of the dwelling: materials used in the construction of the dwelling, whether the dwelling is owned by the household or used in the rent system; affordable household services: access to running water, electricity and telecommunications and the environment: sanitation, access to means of transport and personal safety.

In general, the standard of living is defined by the level of wealth, comfort, material goods and needs available to a particular socio-economic class in a given geographical area. For the assessment of the standard of living, the factors are the source of income, the quality and availability of jobs, the inequality of social classes, the quality and accessibility of housing, the quality and availability of education, life expectancy, disease incidence, environmental quality, quality and access to medical services .

The best known indicator of living standards, which by definition only takes into account material aspects, is Gross Domestic Product (GDP) per capita, ie GDP divided by the population of the country of analysis. GDP includes the total output of goods and services destined for final consumption produced within a country in one year by all the economic participants of that country. Real GDP per capita represents a better measure of living standards because it eliminates the effects of inflation or increases in prices. On the other hand, the use of GDP in measuring the standard of living has three drawbacks: unpaid work is not included, for example: volunteer activities, domestic or childcare and elderly care, activities that, while supporting the country's economy, are not included in GDP. does not take into account pollution, safety and health; Per capita GDP does not take into account income inequality, it assumes that production and its rewards are equally divided among all.

In measuring the standard of living, the World Bank uses the Gross National Product per capita, a better measure in terms of taking into account the income of all citizens, regardless of whether they are in the country of residence or not. This is a very important issue, because many people choose to leave their country of origin looking for better paid jobs, sending the family some of the salary earned in the country of destination.

The United Nations uses the Human Development Index to determine living standards, which takes into account four aspects: life expectancy at birth, enrollment at school, education and Gross National Income per capita.

The Gross National Income, unlike GDP, takes into account the income of residents of a country no matter where they were made.

So, when thinking about living standards, we are thinking of things that can be easily quantified: life expectancy, inflation rate or GDP. The standard of living is used in the economy to compare different geographical areas, such as in the present analysis, the standard of living in the country of origin to the migrant's country of destination, or we can use the standard of living to determine the evolution over time in a given geographical area.

Quality of life, in turn, is more subjective, among the factors used in measuring the quality of life are: freedom of discrimination, freedom of movement, freedom from scolding and torture, equality in the protection of the law, right to stay in the country of origin, have a family, freedom of thought, freedom of religion, equal pay for equal work, the right to education, etc.

The absolute poverty is linked to subsistence, defining individual or household without access to the means necessary for the continuity of human life: water, food, clothing and shelter. Absolute poverty shows the situation where the incomes of the individual or household are positioned below the minimum income level established in a company.

The relative poverty is defined from the point of view of the social context, human needs and aspirations and analyzes the situation of an individual in relation to the community it is part of. Relative poverty refers to the welfare of the entire population, deprivation being the lack of a minimum income that ensures the individual's existence in the society he is part of, for example depriving poor people of the benefits of a modern economy. Relative poverty shows the situation where the incomes of the individual or household are lower compared to other individuals or groups of people. Through relative poverty, social differences and inequalities can be identified between members of the same community.

The subjective poverty presents the situation where the incomes of the individual or household are below the level of income necessary or estimated to be necessary to cover the basic needs of the individual or household.

There are differences of opinion at region level regarding the choice of an absolute or relative approach. Thus, in Australia, the US, or Eastern Europe, the absolute approach is preferred, whereby authorities determine the essential needs of an individual over a period of time, it is considered that the products and services in the market are purchased at a minimum price without but the fact that the same principles of all individuals can not be applied. On the other hand, in Western Europe, the relative approach is preferred, where the individual is considered poor if his / her level of life is lower than that of the population he / she is a member of.

To measure absolute or relative poverty, a poverty line should be established that divides people into two groups: poor and non-poor. To achieve this, the poverty line, representing the level of income or expense for an individual or household, is compared to the income and expenditure of other individuals and households.

Like poverty, the poverty line can be, absolute or relative, and is set by each country given the value of the goods needed to sustain an individual. The absolute poverty line can be calculated based on the cost of the basic foods considered necessary to cover the main needs and to ensure the health and nutrition of a household. The absolute poverty line is different in developed countries than in developing countries, which makes it difficult to turn the poverty line into monetary value. Determining the absolute poverty threshold involves establishing the level at which the individual covers his / her basic needs, access to the goods and services required, with minimum expenses. In establishing the absolute poverty threshold, minimum spending on food for an individual, recommended foods by nutritionists, and estimates of costs for other necessary products and services are considered.

The consumption basket is used to estimate the minimum food consumption. The consumer basket can be determined, as mentioned above, on the basis of the principles given by nutritionists or on the basis of statistical data, taking in the grocery of the households with the lowest incomes or expenses.

As far as the estimation of the costs for other necessary products and services is concerned, it can be calculated either by taking into account the caloric intake of an individual and then determining the income that would cover the foods that bring these calories, or by initially determining a food basket ensures the calories needed by an individual and relates it to the total expenditures for the consumption of an individual, or by determining the goods and services perceived as indispensable.

The relative poverty line is calculated according to the ratio of income or consumption, average or median. In Romania, according to the National Institute of Statistics, the poverty line was set at 60% of the median of the incomes available per adult and total population. As variables used to determine the relative poverty line, you can use: per capita income, per capita consumption. There is a preference for using in spending analyzes because they actually express the consumer's ability and not the potential for such spending to be met.

Relative poverty threshold can be measured: either by considering a poor population from the beginning, the incomes / expenses of individuals or households are rising, and the percentage of persons in the total population

with incomes / expenditures below the established limit are considered poor; either by considering the average or per capita income per capita, per capita consumption. The threshold of subjective poverty, as the name implies, implies the appreciation of a minimum income by an individual, without which he could not meet his needs.

Among the most common methods of measuring poverty, which is ultimately a statistical function that combines indicators of household welfare measure with the determined poverty threshold, are:

- **The poverty incidence (RS)** is calculated as a percentage of the population who can not afford to buy the basic basket of goods; it refers especially to the part of the population with an income or expense, below the established poverty line, z . Assuming that the total population is denoted by n , the poor population with pop_s , the formula for calculating the incidence of poverty (headcount index) is the following:

$$RS = \frac{pop_s}{n} \quad (1)$$

- **Depth of poverty (PS)**. Through the depth of poverty, resources are estimated to bring the poor to the poverty line.

$$PS = \frac{1}{n} \sum_{i=1}^{pop_s} \left[\frac{z - y_i}{z} \right] \quad (2)$$

where v_i is the individual's income, and the amount is calculated only for the poor.

- **The income gap of the poor** is calculated to identify the amount needed for an individual or household to exceed the poverty threshold. Thus, the amount of additional revenue (VS) required is calculated by:

$$VS = \sum_{i=1}^{pop_s} (z - v_i) = (z - \bar{v}) pop_s \quad (3)$$

where \bar{v} represents the average income of people considered poor.

- **The income gap index** is calculated using the relationship:

$$IG_{\Delta V} = \frac{z - \bar{v}}{z} \quad (4)$$

- **The poverty severity (SS)** calculates the distance between the poor and the poverty line as well as the inequalities between the poor. Calibrate using the formula:

$$SS = \frac{1}{n} \sum_{i=1}^{pop_s} \left[\frac{z - v_i}{z} \right]^2 \quad (5)$$

formula used individually.

- **The poverty severity index (ISS)** is calculated taking into account the poverty rate (RS), the average income deficit index ($IG_{\Delta V}$) and the

Gini inequality coefficient calculated for the poor population. Thus, ISS is calculated using the formula:

$$ISS = RS[IG_{\Delta V} + k(1-IG_{\Delta V}) \times Gini], \quad k = \frac{p \circ p_s}{p \circ p_s + 1} \quad (6)$$

The *Gini* coefficient is calculated according to the formula:

$$Gini = 1 + \frac{1}{n} + \frac{2}{n^2 v} (v_1 + 2v_2 + 3v_3 + \dots + nv_n) \quad (7)$$

where: $v_i, i = \overline{1, n}$, represents the incomes of individuals in descending order.

The *Gini* coefficient measures the degree of misalignment in the distribution of an individual's or household's income versus the perfect egalitarian distribution

- **The impoverishment rate** is an indicator that helps determine the state of a household when its income changes. When the income of a household decreases, the degree of impoverishment will increase. The indicator is calculated according to the formula:

$$R_s = \frac{2^k}{10}, \quad k = 2(5 - \frac{v}{nv}) \quad (8)$$

where R_s is the impoverishment rate, v is the income of the individual or household, and nv is the income level of a standard household.

The poverty indicators presented so far are one-dimensional, but for a comprehensive analysis of poverty one can also consider the multidimensional synthetic indicators of poverty, which take into account several factors that affect poverty, namely life standard, life expectancy at birth, level of education, etc.

One of the methods that analyzes multi-dimensional poverty is the *Totally Fuzzy and Relative* method. This method considers

- a sample of households, denoted by g , analyzed over a period of time,
 - a vector of risk indicators that analyzes the state of each household, the vector is denoted (X_1, X_2, \dots, X_m) and contains m variables,

- a function that determines the belonging of a household to the crowd of the poor, denoted by S . The value of the function can be calculated using the relation:

$$f(g_i) = \frac{\sum_{j=1}^m h(g_{ij})w_j}{\sum_{j=1}^m w_j}, \quad i = \overline{1, n} \quad (9)$$

where: $h(g_{ij})$ is a function of frequencies that combines the characteristics of each analyzed household, i . w_j weights given to each household.

The function $f(g_i)$ is a continuous function with values in 0 and 1. Equality with 0 shows that the condition of gopodaria i is of wealth, and equality with 1 shows that the state of gopodia i is of total poverty. Thus, the values close to 1 show a higher degree of belonging to the population of poverty, and a value closer to 0, will indicate a lower affiliation of the analyzed households to the population of the poor.

The risk indicators that affect the state of the household are divided into:

- effect indicators, which take into account: household consumption, property and living conditions, expressing the state of poverty or well-being of a household; and

- Indicators that may take into account: age, gender, head of household education, employment in household members, etc.

Conclusion

The concept of quality of life has developed in the 60s from the desire to increase the economic well-being of developed countries by distributing the material resources properly or by correcting the economic and social mechanism. Once the poverty measurement method is chosen, whether it is monetary or non-monetary, the poverty line, which draws the line between the poor and the non-poor, must be established. The poverty line can be relative or absolute, as poverty can be relative or absolute.

Poverty analysis and measurement implies, in addition to understanding inequalities between households and the understanding of vulnerabilities, the risk of becoming poor in the future. A precise measure of vulnerability is hard to calculate, because it is not possible to know exactly if a person will become poor and at what point in time this will happen. What can be achieved, however, is a forecast based on changes in household income or household consumption, and thus identifying households at risk of falling below the poverty line.

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