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Study in standard of living—methodology of structure of selected indicators

K e y w o r d s: standard of living, Geneva method, HDI indicator, threshold meter, distance

S u m m a r y: Social statistics has been interested for many years in such categories as: *standard of living* and *quality of life*. These two categories should be regarded separately, even though in common language they are often synonymous. For this reason, the initial part of this paper provides clarification for these terms along with comments related to terminology and methods used in the research. The paper is dedicated to only one of these categories, standard of living, yet discussion of both terms was necessary.

Research on standard of living has been concentrated since 1950s on building a synthetic, objective indicator which would enable not only description of a phenomenon, but also comparison of the degree of meeting material and cultural needs in the international scale.

The paper presents two research procedures: the Geneva method (distance) and the method of building the Human Development Index, HDI.

In case of the Geneva method, the main methodological premises have been presented along with mathematical formulae which allow building the aggregated, synthetic indicator of the degree of meeting material and cultural needs. Both advantages and shortcomings of this method have been discussed.

The traces of the distance method may also be noticed in the building method of the said HDI indicator. The premises and mathematical formulae adopted in this method to enable building this indicator have been presented. The HDI index has also been calculated on the basis of the 2010 data. As this index is used in international comparisons, the research results from 2010 and the rank of Poland among 169 countries of the world have also been given.

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1. Introduction

In the analysis of such categories as, e.g., standard of living, quality of life, living conditions, social development of well-being, the researchers have been facing a number of difficulties. These are the difficulties of both substantial (what is there to be studied?) and methodological (how to study?) nature. This fact was already noticed by Andrzej Luszniewicz (1, p. 11). At the same time, in 1950s interest was increasing related to standard of living and construction of a synthetic index which would allow quantification of standard of living and comparison of the degree of meeting material and cultural needs on the international scale. This type of research in Poland dated back to mid-1960s (1, p. 12). The statistical procedure proposed by the United Nations Research Institute for Social Development (UNRISD), called *the Geneva* or *distance method*, published between 1960s and 1970s, contributed to development of this research. This method was also used at this time in research in Poland. The original version of this method had to be modified and adapted due to the system in force in Poland and the centralised economy.

The last twenty years in Poland is a period of deep changes in the system and in the economy. 2004 brought about another breakthrough change: Poland joined the European Union. These changes revived interest in the issues of standard of living and quality of life under the changed reality. Both during the system transformation period and at present, after joining the European Union, numerous studies were conducted (e.g. by the Centre for Public Opinion Research, CBOS, or GUS) and research projects were under way (e.g. financed by the Committee for Scientific Research). The reports from these studies show social and territories differentiation in living conditions in Poland and comparisons with other countries are made.

Under the auspices of EUROSTAT, studies are systematically conducted in the field of social statistics, with attention paid to standard of living and social development of member countries, in particular these which joined the European Union in recent years. The objective of this research is to create databases, design social indexes and such their interpretation which would allow obtaining results comparable for all member countries.

The European Union Statistics on Income and Living Conditions, EU-SILC, should be mentioned here. EU-SILC (2) is an instrument used for collecting current, cross-section and comparable data related to income, level of poverty, social exclusion and living conditions in Europe countries, in particular in the EU member countries. These studies were initiated in 2003 in several EU countries, covered 15 countries from 2004, and more 10 countries from 2005 which joined the EU along with Poland on 1 May 2004.

The ranking of countries for their level of development became highly significant in recent years. Preparation and publication of the results of the research dedicated to practically all countries of the world which agreed to make data available, is the work

of the UN branch for Development (UNDP). Every year starting from 1990 it has been publishing the *Human Development Report* which employs HDI, the Human Development Index.

This paper discusses the main methodological premises related to the Geneva method and determination of the HDI index.

2. Standard of living and quality of life—comments on terminology

Barbara Pawełek (3, pp. 12–23) has comprehensively reviewed literature[1] for the definitions proposed by the authors of the categories listed in the introduction and analysed the terminology used by them. The review of selected definitions presented by the author proves both their variety and different approach of individual researchers to measurements and descriptions of the given phenomenon.

It is significant that attention is paid in the discussions concerning living standard not only to material (economic) aspects but also to emotional, spiritual and moral condition and the feeling of safety (one's own, of the family, of property, of work), respect, esteem and problems related to health care or educational possibilities.

For this reason, research related to standard of living (so, in a sense, social welfare) should cover these two aspects in parallel: economic expenditures and social aspects (1, p. 16).

The opinion of the Finnish sociologist, Erik Allardt, are also interesting. He made a similar classification, assuming that social welfare consist of three areas of human needs: *to have*, *to love* and *to be*. At the same time, E. Allardt made difference between the terms: *standard of living* and *quality of life.*

He assumed that *standard of living* is related to material needs and is determined by the first factor of human needs (*to have*), whereas *quality of life* means needs other than material which as such are characterised by the two other areas of human needs (*to love* and *to be*).

Analysing views of various authors, the most problematic was unanimous defining of the terms of *quality of life* and *standard of life*, and most authors make a clear distinction between these categories.

The definitions by Teresa Słaby (4, p. 8) are used in many studies on social statistics concerning the categories discussed here:

- *Standard of life*—is the degree of meeting material needs, the basic in the hierarchy of human needs.
- *Quality of life*—"includes all these elements of human life which are related to the fact of human existence, being somebody recognised and feeling various emotional conditions resulting from, e.g., the fact of having a family, colleagues, friends."

[1] These are numerous titles in economy, social statistics, sociology and psychology.

Two types of statistical features may be found in statistical research: quantity (measurable) and quality (non-measurable) features. The first category includes these features (or properties of the elements of the studied community) which may be specified with numbers. The features used in the study of *standard of living* are in the quantity measure.

The other group includes the features whose specific variants are in quality categories, and they may be specified verbally. Statistical features related to studying *quality of life* are quality features.

Therefore, numerical methods may be used for studying standard of living (or economic wealth), objective indicators, models, and forecasts may be developed.

In case of research on quality of life, that is quality features, using these mathematical operations and statistical methods is limited and determined by the type of measure scale (5, pp. 23–34). Only polls, interviews or questionnaires may be used in acquiring statistical data, and these are all cost- and time-consuming methods. Moreover, it has to be remembered that results of this type of research are marked with a large dose of subjective, emotional feelings of the studied persons.

Attention has to be paid to the aspect of the research related to social results of economic changes (6, p. 107): determining two types of the studied statistical communities. These are:

– the household community;[2]
– the community of residents (the population).

These communities are most often studied with partial studies on the basis of random studies. The choice studied subject is closely related to the subject matter of the research.

Households are usually the studied community in the research on standard of living or social conditions. In this case, the economic aspect is important: acquiring and spending cash to meet material and cultural needs.

The population is taken as the studied community in case of research in quality of life. Then, individual persons are covered with statistical observation and the degree of meeting the given need or satisfaction with various aspects of life are determined with subjective assessment.

Due to the further discussion, the following is assumed:

1. The definition will be used in determination of *standard of living* as stated by A. Luszniewicz (1, p. 13)[3]: "standard of life of the population (Y) in the given unit of time (t) and in the given unit of space ($d = 1, 2, 3 \ldots$) shall mean the degree of meeting material and cultural needs of households ($X_{1td}, X_{2td} \ldots X_{ktd},$) executed (in the mean-

[2] *Household* may be understood (following A. Luszniewicz, 1, p. 18) as "a team of people residing together and being in material relations (co-dependency), i.e. with a common household budget."

[3] It is a proposal of defining the standard of life formulated by the UN experts and adapted to the Polish conditions (in 1970s).

ing of securing it) by streams of fee-paid goods and services and gratuitous funds of social consumption and natural use."

2. *Quality of life* shall mean the definition quoted above, as formulated by T. Słaby.

3. The Geneva (distance) method as statistical method of quantification of standard of living–the basic methodological assumptions

The above quoted definition of standard of living is the one of the studies on the degree of meeting material and cultural needs in households[4] with the Geneva method, which assumes the form in the stochastic approach (1, p. 13):

$$Y_{td} = F\{[X_{itd}], \xi_{td}\} \qquad t = const, \qquad d = const, \qquad i = 1, 2 \ldots k \qquad (1)$$

Where:

Y_{td}—the aggregated variable characterising standard of life for the defined period of time (t) and the specified unit of space (d),

ξ_{td}—the random item of the model,

$[X_{itd}]$—the vector of the specified variables of household standard of living (the measures); the expected values of the degree of meeting needs is their function.

Some attention should be paid to the terms adopted conventionally by A. Luszniewicz (1, pp. 11–12): *measures* and *factors*.

Measures of standard of living or, broader, *social indexes* shall mean in his approach (1, pp. 77–78) the variables used for studying the degree of meeting material and cultural needs of households, regarded as numerical assessments of social results of economic growth. Exogenic variables are named *factors*.

Teresa Słaby elaborates slightly more on *indexes* and *measures* (6, p. 108). She states that many researchers regard these terms as identical, while others emphasise certain differences: *measure* may be understood as a specific empirical numerical assessment, and when this assessment is used also to interpret changes in social phenomena, the term *index* is used.

He named 7 groups of material and cultural needs in his research:

$X = [X_i] \qquad i = 1, 2, 3 \ldots 7$, where:

X_1—food

X_2—shelter (housing, clothes, shoes)

X_3—health care

[4] A. Luszniewicz (1982, p. 18) defines household as a team of persons residing together and sharing the household budget.

X_4—education

X_5—recreation (free time and its use)

X_6—social protection

X_7—material security.

All the other variables which are not included within the selected groups of needs are regarded as factors, that is exogenic variables which explain variations in standard of living. A set of representative measures whose number is theoretically unlimited, but in practice is limited with the base of the available information, is specified in each group of material and cultural needs. These measures may be agreed by non-random selection.

The selected groups of needs may be specified in a slightly different way. Andrzej Luszniewicz (1, p. 20) quotes the classification used by Jan Drewnowski, who listed three aggregates of groups of needs:

(A) consumer needs, including: food, clothes, housing, health and education;

(B) protection needs—including: recreation and protection;

(C) environmental needs—to which he included: social environment and physical environment.

9 groups of needs were used in the study under direction of Aleksander Zeliaś (5, pp. 103–105):

1. Health care and welfare;
2. Employment market, work conditions and safety;
3. Salary and income;
4. Housing conditions;
5. Education;
6. Recreation, culture and free time;
7. Communication;
8. Public safety;
9. Degradation and protection of the natural environment.

Several variables were defined in each of the groups of needs, which was determined with the accessibility of data from statistical annuals.

Introducing *threshold measures*, called critical, is a significant feature of the distance (Geneva) method:

a) *The minimum threshold measure* ($x_{0.ij}$)—which theoretically corresponds with the worst of the known conditions of meeting needs in which survival is possible;

b) *The optimum threshold measure* ($x_{100.ij}$)—which corresponds with highly satisfactory meeting of material and cultural needs.

After determining threshold measures, the sequence of inequalities is true:
$x_{0.ij} \leq x_{ij} \leq x_{100.ij}$ for each pair of *ij*, where *i* means the number of the group of needs, and *j* is the number of the representative measure in the given group of needs.

Threshold measures limit the range of variability of partial representative measures. Determination of the value of threshold measures is not easy, especially the value of the *optimum threshold measure* of meeting material and cultural needs. Luszniewicz (1, pp. 27–28) quotes several methods which enable determination of threshold measures:

- Statistical methods—the minimum and optimum threshold values are identified with the lower and upper limits of confidence intervals and, e.g., with the values of extreme decyls (the fifth and the ninety-fifth) for representative measures in the form of continuous random variables.
- Planning methods—the forecasts of development in the scope of selected material or cultural needs (selected statistical, econometric, optimisation or balance techniques may be used here) may be the basis for determination of the threshold measures, especially the optimum ones.
- Comparative methods—determination of some threshold measures may be based on theoretical standards (e.g. in the scope of food) or on the basis of practice of other countries or regions (at the relatively highest or lowest level of economic, social development).

After determination of the values of threshold measures, the distance formula of the index of meeting the *j* need in the *i* group of needs may be given:

$$x_{ij} = \left[\left(\frac{x_{e.ij}}{x_{0.ij}} - 1\right) : \left(\frac{x_{100.ij}}{x_{0.ij}} - 1\right)\right] \cdot \left(1 - k_{ij}\right) \cdot 100\% \qquad (2)$$

$x_{e.ij}$—means the empirical numerical value which a specific representative measure in the given group of material and cultural needs assumes,

k_{ij}—is the Lorenz concentration index and assumes the values from the range $\langle 0,1 \rangle$.

The above formula of the partial index used for numerical representation of the degree of meeting the *j* needs in the *i* group consists of two multiplicatively connected elements: (Δ_{ij}, e_{ij}):

- The first of them measures the average percentage distance from the achieved level of meeting of the given need to the level determined by the optimum threshold measure:

$$\Delta_{ij} = \left[\left(\frac{x_{e.ij}}{x_{0.ij}} - 1\right) : \left(\frac{x_{100.ij}}{x_{0.ij}} - 1\right)\right] \cdot 100\% \qquad (3)$$

- The second element, $e_{ij} = 1 - k_{ij}$, expresses the result of empirical distribution of the given representative measure.

The basic formula of the index of meeting a specific need x_{ij} may be saved with the matrix:

$$[x_{ij}]=[\Delta_{ij}e_{ij}]=\begin{bmatrix} \Delta_{11}e_{11} & \Delta_{12}e_{12} & \ldots & \Delta_{1m_1}e_{1m_1} \\ \Delta_{21}e_{21} & \Delta_{22}e_{22} & \ldots & \Delta_{2m_2}e_{2m_2} \\ \ldots & \ldots & \ldots & \ldots \\ \Delta_{k1}e_{k1} & \Delta_{k2}e_{k2} & \ldots & \Delta_{km_k}e_{km_k} \end{bmatrix} \quad (4)$$

Where: $i = 1, 2 \ldots k$ (the groups of needs), $j = 1, 2 \ldots m_i$ (the representative measures).

Entering empirical statistical information into the formula (2), thus into the formula (4), a set of the matrix $[x_{ij}]_d$ for the selected territory units (d = 1, 2 …) is received.

Here the immense problem arises related to the concept of the distance method (1, pp. 36–37): aggregation of partial indexes of meeting the *i* needs in the *j* groups of needs into the form of the group indexes X_i and into the form of a collective, synthetic index standard of living (Y). To do this, in the procedure of aggregation of partial and group indexes of meeting needs ($x_{ij} \rightarrow X_i$ and $X_i \rightarrow Y$), weights should be used which should reflect the share of the representative measures and the selected groups of needs in developing the standard of living (households). It is an extremely difficult process, but for the lack of knowledge of unanimous social preferences.

Distance weights (w_{ij}), and distance weights w_i at a further level of aggregation may be designed for the aggregation process. The function of the distance between the empirical and the optimum levels of meeting the *j* need in the *i* group of needs is used in their development.

These weights may be determined with the formulae:

– $$w_{ij} = \frac{100}{x_{e.ij}} \qquad (j = 1, 2 \ldots m_i) \quad (5)$$

– $$w_i = \frac{100}{x_{e.i}} \qquad (i = 1, 2 \ldots k) \quad (6)$$

The inequalities are met: $\sum_{j=1}^{m_i} w_{ij} \geq m_i$ and $\sum_{i=1}^{k} w_i \geq k$,

where m_i stands for the number of representative measures in the *i* group of needs.

The formula (6) is used for determination of the weights at a further level of aggregation.

Please note that the lower the degree of meeting the given need or group of needs, the higher the level of the distance weight. The lower the sum of distance weights at a given level of aggregation, the shorter the distances of empirical measures against the optimum threshold measures.

Based on the system of distance weights obtained from the formulae (5) and (6), two types of aggregated indexes of meeting needs may be obtained:

1. The indexes of meeting groups of needs: $$X_i = \frac{\sum_{j=1}^{m_i} x_{ij} w_{ij}}{\sum_{j=1}^{m_i} w_{ij}} = \frac{m_i}{\sum_{j=1}^{m_i} \frac{1}{x_{ij}}} \qquad (7)$$

where i = 1, 2 … k means the number of selected groups of material and cultural needs;

2. The average indexes for:

- The basic groups of material needs (i = 1, 2, 3):

$$\overline{X}_{i=1,2,3} = \frac{\sum_{i=1}^{3} X_i w_i}{\sum_{i=1}^{3} w_i} = \frac{3}{\sum_{i=1}^{3} \frac{1}{X_i}} \qquad (8)$$

- The basic groups of non-material needs (i = 4, 5, 6):

$$\overline{X}_{i=4,5,6} = \frac{\sum_{i=4}^{6} X_i w_i}{\sum_{i=4}^{6} w_i} = \frac{3}{\sum_{i=4}^{6} \frac{1}{X_i}} \qquad (9)$$

Please note that the above indexes may be determined with the formulae (7)–(9), interchangeably applying the arithmetic weighted means or the non-weighted harmonic means.

The determined distance weights (1, pp. 40–41) may be used to build the vector of group indexes of the degree of meeting material and cultural needs, except for material management (X_7); this is the vector: $X_i = [X_1, X_2 \ldots X_6]$.

The second level of the distance weights and the formulae (8) and (9) are used to determine the indexes of a further level of aggregation: $\overline{X}_{i=1,2,3}$ and $\overline{X}_{i=3,4,5}$.

To build a general synthetic index of the standard of living, aggregation for the above indexes with the index $\overline{X}_{i=7}$ should be done.

Further on, the system of distance weights may be used to build the vector:

$$w_h = \begin{bmatrix} w_1 = \frac{100}{\overline{X}_{i=1,2,3}} \\ w_2 = \frac{100}{\overline{X}_{i=4,5,6}} \\ w_3 = \frac{100}{\overline{X}_{i=7}} \end{bmatrix} \qquad (10)$$

Then, the synthetic index of standard of living has the form of:

$$Y^{(d)} = \frac{\sum_{h=1}^{3} X_h \cdot w_h}{\sum_{h=1}^{3} w_h} = \frac{3}{\sum_{h=1}^{3} \frac{1}{X_h}}, \tag{11}$$

where:

$Y^{(d)}$—the estimator of the expected value of the synthetic index of standard of living E(Y) in the given unit of time and space obtained with the method of distance weights (d) used on three levels of aggregation,

$h = 1$—material needs: food, covers and health protection ($i = 1, 2, 3$),

$h = 2$—cultural needs: education, recreation and social protection ($i = 4, 5, 6$),

$h = 3$—the needs in the scope of material management ($i = 7$),

where: $\sum_{h=1}^{3} w_h \geq 3$.

Please note that using the distance method set forth in this paper despite its obvious advantages was related to many problems.

The most important of them are:

- limited possibilities of international comparisons, especially at the time when this method was in development (communist and capitalist countries); this method proves best in the studies on the countries of similar social and economic conditions or in the scale of one country;
- the difficulties in determining universal indexes;
- the questionable selection of a set of variables to be observed (measures, factors, representatives);
- the high costs of creating the database and problems with unification of the data in case of international studies;
- aggregation of partial results and development of the synthetic index may lead to simplification of the image of the studied phenomenon.

Despite these problems, this method was the first attempt at a systematic approach of measuring the standard of living (households).

Even today, the concept of distance measuring constitutes an important method of building statistical measures of social results of economic growth, and its elements are (after some modification) used in international studies.

4. Human Development Index, HDI

Human Development Index, HDI, was developed by the Pakistani economist, Mahbub ul Haq. Along with Amartya Sen[5] (7), an Indian economist, he published the first *Human Development Report* in 1990.

Since then, on the initiative of the UN agency for Development (UNDP[6]), the said report is released every year, which now makes 20 editions. It is a detailed, very broad document (8, pp. 217–220) including, among others, the ranking of countries by social development level. The HDI index is used in this ranking: a synthetic measure describing the level of social and economic development in individual countries, built on the three basic dimensions of social development: health (longevity), access to knowledge and standard of life (the material aspect). HDI is the geometric average of standardised average indexes achieved in all these fields:

$$HDI = \sqrt[3]{I_I \cdot I_I \cdot I_{III}}\ , \tag{12}$$

where:

I_I —the index related to longevity

I_{II}—the index related to education

I_{III} —the index related to national income *per capita*.

The 2010 report describes 169 countries which were broken down, depending on the HDI value, into four categories (8, pp. 151–152). Poland, for the first time, was among the countries with the highest development level, ranked 41.

The report includes detailed information related to four groups of data, necessary to determine HDI, and the basic sources of their obtaining (or obtaining their estimated values). These are:

- expected longevity (in years): UNDESA;[7]
- the average period of school education (in years): Robert J. Barro and Jong-Wha Lee (9);
- expected duration of education (in years): UNESCO Institute of Statistics;
- gross national income *per capita* (in USD): the World Bank.

4.1. Creating indexes for individual dimensions of social development level

The first step in defining the indexes for all the listed areas is—just like in the distance method—to determine the maximum and the minimum threshold values. The maximum values are determined on the basis of the current observation for the studied countries in the years 1980–2010.

[5] Amartya Sen comes from India and is an economist, 1998 Nobel Prize winner in economy. He was awarded the Prize for his contribution in the economy of well-being.

[6] United Nations Development Programme.

[7] UNDESA – United Nations Departament of Economic and Social Affairs

The minimum values necessary for survival or simply zero may be adopted as the minimum values. For example, the minimum value for the expected life has been assumed as 20 years, 0 years for both variables related to the duration of education, and $163 for the gross national income (per person).

The minimum expected longevity was assumed on the basis of long-term historical studies conducted by Maddison (2010) and Riley (2005) (10).

$163 was assumed as the minimum income value necessary for survival. This is the lowest documented value reported in Zimbabwe in 2008. The gross national income per resident was then recorded at below 45 cents ($0.45) per day.

Table 1 gives the threshold values for the listed areas.

Table 1

Threshold (maximum and minimum) values used in HDI determination in the *Human Development Report* in 2010

Dimension of social development	Recorded maximum	Minimum
Expected longevity (in years)	83.2 (Japan, 2010)	20
The average period of school education (in years)	13.2 (USA, 2000)	0
Expected duration of education (in years)	20.6 (Australia, 2002)	0
Total index for education	0.951 (New Zealand, 2010)	0
Gross national income *per capita* (in USD)	108,211 (United Arab Emirates, 1980)	163 (Zimbabwe, 2008)

Source: Own research on the basis of (8, p. 225).

The general formula for creating indexes for individual areas has the form of:

$$I = \frac{x_{akt} - x_{\min}}{x_{\max} - x_{\min}}, \tag{13}$$

where:

x_{akt} —the current value

$x_{\max}$ —the maximum threshold value

$x_{\min}$ —the minimum threshold value.

It is interesting to note that the formula (13) expressed in percents is identical with the formula (3) which measures in the distance method the average percentage distance from the obtained level of meeting the given need to the level determined by the optimum threshold measure.

In case of determination of the index related to education (I_{II}), the formula is used (13) to determine both partial indexes (average duration of education and expected duration of education), and then the total index related to education with the use of geometric mean. The total index related to education is assumed as the maximum threshold value.

Natural logarithms from the current, maximum and minimum values are used in determination of the index for the national income *per capita*.

4.2. Calculation of HDI for Poland

Table 2 presents the current values of analogous measures for Poland which, along with the information in Table 1, will allow to determine the Human Development Index (8, pp. 216–217).

Table 2

Current numbers related to Poland, necessary to determine HDI for the year 2010

Dimension of social development	Recorded current value
Expected longevity (in years)	76
The average period of school education (in years)	10
Expected duration of education (in years)	15.2
Gross national income *per capita* (in USD)	17,803
HDI index	**0.795**

Source: author's own study on the basis of (8).

The calculation of the index uses the formulae (12) and (13) along with the respective notes.

$$I_I = \frac{76-20}{83{,}2-20} = 0{,}886$$—the index related to longevity

$$I_{IIa} = \frac{10-0}{13{,}2-0} = 0{,}758$$—the index related to the average duration of education

$$I_{IIb} = \frac{15{,}2-0}{20{,}6-0} = 0{,}738$$—the index related to the expected duration of education

$$I_{II} = \frac{\sqrt{0{,}758 \cdot 0{,}738}-0}{0{,}951-0} = 0{,}786$$—the index related to education

$I_{III} = \frac{\ln 17803 - \ln 163}{\ln 108211 - \ln 163} = 0{,}722$ —the index related to the gross national income *per capita*,

finally: $\mathrm{HDI} = \sqrt[3]{0{,}886 \cdot 0{,}786 \cdot 0{,}722} = 0{,}795$.

Human Development Index is developed on the basis of only three criteria. The list of factors which affect standard of life is considerably longer, yet it is built on the basis of reliable, comparable data collected over many years. Thus it may be assumed that its cognitive values are at a high substantial level and give a clear image of the situation.

5. Final remarks

Modern studies in social statistics provide immensely interesting information and conclusions concerning many areas of social life, and allow comparing various aspects of social life on the international scale.

Building general, objective indexes allows development of the ranking of countries according to various criteria and (which is most important) allows observations of changes, and tracking social and economic development of countries.

The objective of this paper was to present the methodology of studies on building indexes which describe standard of life. It is a very broad area which has only been outlines here. Two methods have been presented:

- *the Geneva method* (distance) which was a huge breakthrough in social studies at the time of its creation (1950s and 1960s). Now it is slightly forgotten and neglected, even though its main methodological premises (with some modifications) are still being used these days;
- the method of building the Human Development Index is a method used contemporarily in international comparisons. It is interesting to note that it forms a certain generalisation of the distance method.

In common language (including statements of politicians, some economists or press materials), such social statistics research categories as *standard of life* and *quality of life* are often regarded as identical and are used interchangeably. Therefore, attention has been paid to the differences in terminology of these categories and to the rules which differentiate them.

Analogous discussion of the methodology of creating subjective indexes used in research on quality of life would be an interesting continuation of the issue outlined here.

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Badanie poziomu życia – metodologia konstrukcji wybranych wskaźników

S t r e s z c z e n i e: Już od wielu lat w obrębie zainteresowań statystyki społecznej znajdują się między innymi takie kategorie jak p o z i o m ż y c i a i j a k o ś ć ż y c i a. Należy je traktować oddzielnie, chociaż w języku potocznym często są one utożsamiane. Z tego też względu we wstępnej części niniejszego opracowania dokonano systematyzacji tych pojęć, zaprezentowano uwagi dotyczące terminologii oraz stosowanych w ich badaniu metod. Pomimo iż tematem artykułu jest tylko jedna z tych kategorii: poziom życia, omówienie obu pojęć wydaje się niezbędne.

Badania dotyczące poziomu życia koncentrowały się, od lat pięćdziesiątych XX wieku, wokół budowy syntetycznego, obiektywnego wskaźnika, który umożliwiłby nie tylko opis zjawiska, ale pozwoliłby na porównywanie stopnia zaspokojenia potrzeb materialnych i kulturalnych na skalę międzynarodową.

W pracy przedstawione zostały dwie procedury badawcze: metoda genewska (dystansowa) oraz metoda budowania Wskaźnika Rozwoju Społecznego – HDI.

W wypadku metody genewskiej przedstawiono główne założenia metodologiczne wraz z formułami matematycznymi, pozwalającymi na zbudowanie zagregowanego, syntetycznego wskaźnika stopnia zaspokojenia potrzeb materialnych i kulturalnych. Zwrócono uwagę zarówno na walory tej metody, jak i na jej wady.

Ślady metody dystansowej można również dostrzec w metodzie konstrukcji wspomnianego wskaźnika HDI. Zaprezentowane zostały przyjęte w tej metodzie założenia oraz matematyczne formuły umożliwiające zbudowanie wskaźnika. Przeprowadzona została również kalkulacja wskaźnika HDI dla Polski na podstawie danych z 2010 roku. Ponieważ wskaźnik ten jest wykorzystywany w porównaniach międzynarodowych, przedstawione zostały wyniki badań z 2010 roku oraz miejsce Polski w rankingu dotyczącym 169 państw świata.

S ł o w a k l u c z o w e: poziom życia, metoda genewska, wskaźnik HDI, miernik progowy, dystans