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**The relationship between poverty and subjective well-being
on the basis of the EU-SILC 2013**

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Abstract

This paper is an empirical input to the discussions on the relationships between material situation, objective living conditions and the subjective well-being, which have been conducted since the Easterlin's article². Main aim of the paper is to present the correlations which appear between poverty and subjective well-being in Poland. Both, poverty as well as subjective well-being have been treated as the multidimensional phenomena and they have been described by their different aspects. Due to substantial character, in this paper there are presented only the most important, basic results of the analyses and the synthetic description of the methodological solutions which have been applied.

Basis for the analyses presented in this article are the results of the Polish edition of the European-Union Statistics on Income and Living Conditions 2013 (EU-SILC 2013) which were conducted in all European Union member states. In 2013, in all the countries which implemented the EU-SILC, the basic survey (i.e. primary target variables) was for the first time accompanied by a set of questions (i.e. a module) on the subjective well-being. In Poland, the EU-SILC 2013 covered approximately 13 000 households. The module on the subjective wellbeing covered the sample of approx. 22 000 individuals aged 16 or more³.

I. Multidimensional Poverty

Poverty as a phenomenon which is strongly related to the material aspects of life (material situation of persons and households) mainly refers to the characteristics surveyed at the level of households. Thus, poverty is mainly analysed at the level of household, however it has also the individual dimension. If the analyses refer to persons (i.e. in case of subjective

¹ Anna Bieńkuńska, Tomasz Piasecki, Karol Sobestjański.

² R. A. Easterlin, *Does economic growth improve the human lot? Some empirical Evidence*, in: P.A. David, M.W. Reder (eds.) *Nations and households in economic growth*, 1974.

³ *Incomes and living conditions in Poland (report from the EU-SILC survey of 2013)*, CSO of Poland, Warsaw 2014

well-being), considered as poor are these persons who are the members of households considered as poor.

As opposed to the classic, one-dimensional approach in which a range of poverty is determined on a basis of income or household expenditures only, presented analyses include three complementary approaches to the identification of poverty, namely: income poverty, living conditions poverty and poverty assessed in the context of dealing with household budget (poverty in terms of the lack of budget balance). In case of income poverty, the poverty threshold was assumed at the level of 60% of the median equivalent disposable income⁴. In case of living conditions poverty households and their members were considered as poor, if there were observed 6 of 12 symptoms of poor living conditions⁵. Then, the households (and all their members) were considered as poor from the point of view of "inability to manage the budget" if there were observed at least 3 of 4 symptoms taken into account (details - see Box 1).⁶ Furthermore, overlapping of three above-mentioned poverty forms is treated as the multidimensional poverty.⁷

Table 1. Indicators of multidimensional poverty based on eu-silc 2013.

Poverty form	Part of the population affected by poverty		
	% of households	% of persons in households	% of persons aged 16+ (on a basis of direct interviews - module)
Non-occurrence of any poverty form	69.5	69.6	70.5
Income poverty	16.4	17.3	16.3
Living conditions poverty	14.0	13.7	13.8
Poverty in terms of the lack of budget balance	17.1	15.8	15.2
Multidimensional poverty - accumulation of three poverty forms	4.2	4.0	3.8

II. Subjective Well-Being

In the analyses regarding subjective well-being, there were taken into account three different indicators: the indicator of overall life satisfaction, the indicator of emotional well-being and the indicator of a sense of meaning in life.

The indicator of overall life satisfaction was calculated on the basis of responses to the question: *Overall, how much are you satisfied with your life?* The answers were given on a scale of 0 to 10, where 0 means "completely dissatisfied" and 10 means "very satisfied". Those that chose the value of 7 or higher on the scale were considered as the satisfied ones. The aggregate indicator of emotional well-being shows the percentage of persons, who were considered as ones in a good emotional state, i.e. in the 4 weeks preceding the survey they experienced at least 3 out of 5 positive symptoms and did not experience any negative symptoms (Box 2). Furthermore, the analyses take into consideration the indicator of a

⁴ Assessed with a use of the OECD modified equivalence scale.

⁵ Cronbach's alpha correlation coefficient for the components of the aggregate indicator of bad living conditions amounted to 0.768.

⁶ Cronbach's alpha correlation coefficient for the components of the aggregate indicator of the lack of budget balance amounted to 0.595.

⁷ Multidimensional approach to the poverty measurement considering the overlapping of three different poverty forms had been previously applied i.e.. in the analyses based on the Social Cohesion Survey 2011. Wide report from this survey is available online at: <http://stat.gov.pl/en/topics/living-conditions/living-conditions/quality-of-life-social-capital-poverty-and-social-exclusion-in-poland.4.1.html>.

sense of meaning in life. This indicator was calculated on the basis of the responses to the question: *To what extent what you do in life is valuable?* The answers were given on a scale of 0 to 10, where 0 means "worthless" and 10 means "very valuable". Persons that chose the value of 7 or higher on the scale were considered as having a sense of meaning in life.

Moreover, there was also constructed the aggregate indicator of good subjective well-being (also called as the aggregate indicator of a subjective quality of life). The aggregate indicator of a good subjective quality of life is defined as the percentage of persons who met 3 criteria at the same time, i.e.: they were satisfied with their lives in general, they were in a good emotional state and they considered their lives meaningful.

All indicators are presented as a percentage of persons in households aged 16 or more who declared the occurrence of a particular symptom or combination of symptoms.

Table 2. Indicators of the subjective well-being in Poland in 2013

Satisfaction with life	Sense of the meaning in life	Emotional well-being	Aggregate indicator of the subjective well-being
<i>% of persons aged 16 or more</i>			
70.6	73.3	68.4	47.7

Source: Own calculations based on the EU-SILC 2013

III. Determinants of the life satisfaction

The in-depth analysis of relations between subjective well-being and the factors which could potentially influence on this phenomenon, has been conducted with a use of the logistic regression model. This model explains the satisfaction with life as the most important aspect of the subjective well-being. It shows the partial influence of the particular factors on the phenomenon being explained.

Table 3. Influence of different aspects of subjective well-being on life satisfaction

Factor		Wald statistic (χ^2)	Degrees of freedom*	Test p-value
Aspects of subjective wellbeing	Sense of the meaning in life	890.6	1	<.0001
	Good emotional well-being	672.4	1	<.0001
Exogenous factors	Trust in others	283.8	1	<.0001
	Being in a relationship	271.8	1	<.0001

Logistic regression model considering aspects of the subjective well-being and the exogenous factors. There has been presented the assessments for the selected (the most important) factors only.

* Degrees of freedom = Number of factor levels – 1

Source: Own calculations on a basis of EU-SILC 2013

If different elements of the subjective well-being (i.e. emotional well-being as well as the sense of the meaning in life) were considered along with other factors as the explanatory variables, a model shows that there are the strong relations between various aspects of the subjective well-being. Two above-mentioned factors turn out to explain the satisfaction with life to the largest extent. Moreover, among other factors (which has not been treated as the measures of the subjective well-being, but its significant determinants), the strongest impact indicate: trust in others and being in the relationship with other person. Assessments of the significance of these two factors has been presented in Table 3 in order to compare

them with the significance of the correlations between satisfaction with life and other aspects of subjective well-being.

Because all of the three employed measures of the subjective well-being are treated as the elements of the multidimensional explanation of one phenomenon, from the point of view of our analysis they are endogenous variables. However, strong correlations between endogenous variables may interfere the assessments of the influence of the external, exogenous factors. Therefore, in order to assess the significance of particular exogenous factors in context of their influence on the phenomenon (i.e. to specify the most important external determinants of the phenomenon), there has been employed a model explaining the satisfaction with life with the use of exogenous factors only.

Table 4. Influence of exogenous factors on life satisfaction

Factor		Wald statistic (χ^2)	Degrees of freedom*	Test p-value
Material poverty in terms of:	Income	19.6	1	<.0001
	Living conditions	204.0	1	<.0001
	Lack of budget balance	76.0	1	<.0001
Other exogenous factors	Sex	3.38	1	0.0659
	Age	165.2	6	<.0001
	Being in a relationship	341.8	1	<.0001
	Educational level	60.9	6	<.0001
	Disability	9.02	2	0.011
	Unemployment	100.4	1	<.0001
	General health	333.3	4	<.0001
	Person to discuss with	104.2	1	<.0001
	Person to ask for help	51.1	1	<.0001
	Trust in others	527.1	1	<.0001
	Trust in the political system	126.3	1	<.0001

Logistic regression model considering the exogenous factors only. The effects linked to the spatial diversity, which was included in the model, has been omitted in a table.

Effects significant at the 0.05 level in bold.

* Degrees of freedom = Number of factor levels – 1

Conducted analyses lead to the conclusion that the most important determinants of the subjective well-being measured by life satisfaction are: trust in others, being in a relationship, health status and the material situation.

The factors which have a significant influence on the life satisfaction include all of the three aspects of the material situation, which has been considered in the model as the indicator of occurrence (or non-occurrence) of a given poverty type. The most significant negative impact on the subjective well-being (measured by life satisfaction) had the occurrence of living conditions poverty, while the least one (but still statistically significant) has been observed in case of the occurrence of income poverty. This observation validate the theoretical considerations and the results of other analyses, which indicate that among all material situation aspects, current income has relatively weak direct impact on the actual subjective well-being.

IV. Relationship between poverty and subjective well-being

The analysis conducted on the basis of the EU-SILC survey indicates, that among the poor, it is possible to find people who are satisfied with their lives, ones characterized by a good emotional condition, as well as those evaluating their life as valuable. At the same time it seems obvious that in comparison to those not experiencing poverty, the values of the indicators of subjective well-being are significantly lower (Table 5).

Table 5. Indicators of the subjective well-being among the poor and the non-poor in Poland based on eu-silc 2013.

Subjective well-being aspects (indicators)	In the whole population	Different aspects of material situation					
		Income situation		Living conditions		Budget standing	
		in the group of poor persons	beyond the group of poor persons	in the group of poor persons	beyond the group of poor persons	in the group of poor persons	beyond the group of poor persons
<i>% of persons aged 16 or more in a given group declaring: (subjective well-being indicators values)</i>							
Satisfaction with life	70.6	56.8	73.3	42.8	75.0	49.8	74.3
Sense of the meaning in life	73.3	64.0	75.1	53.4	76.4	60.6	75.5
Emotional well-being	68.4	59.4	70.2	46.2	72.0	50.9	71.6
Aggregate indicator of the subjective well-being	47.7	35.4	50.1	22.1	51.8	28.2	51.2

Source: Own calculations based on the EU-SILC 2013, Central Statistical Office of Poland

These differences are particularly apparent when we compare the values of the subjective well-being indicators which regards to the population affected by more than one poverty form (Table 6). For example, the percentage of persons satisfied with their lives among people not experiencing any of the three analysed forms of poverty achieved over 77%, while among the population of persons experiencing two forms of poverty - approx. 51%. Furthermore, the percentage of satisfied persons among those being at risk of multidimensional poverty (the co-occurrence of 3 considered forms of objective poverty) amounted to approx. 34%. The impact of accumulation of various poverty forms turned out to be very apparent in case of the aggregate indicator of good subjective quality of life. Among people not experiencing any form of poverty, this indicator achieved 54%, while in the case of the accumulation of two poverty forms it was approx. 29% of persons, and three poverty forms - less than 18%.

Table 6. Indicators of subjective well-being in Poland, depending on the number of the experienced forms of poverty based on eu-silc 2013.

Subjective well-being indicators	In the whole population	Number of poverty types experienced			
		0	1	2	3
		% of persons aged 16 or more in a given group declaring: (subjective well-being indicator value)			
Satisfaction with life	70.6	77.4	60.4	50.5	34.1
Sense of the meaning in life	73.3	77.7	66.8	60.3	47.7
Emotional well-being	68.4	73.7	60.8	51.8	41.1
Aggregate indicator of the subjective well-being	47.7	54.3	36.7	28.5	17.7

Source: Own calculations on the basis of the EU-SILC 2013, Central Statistical Office of Poland

Negative influence of poverty on the subjective well-being has been also confirmed by the correlation coefficients. The indicators of the subjective well-being taken into the account are stronger correlated with the accumulation of various poverty forms than with the particular poverty forms (correlation coefficient for life satisfaction achieved -0.252, in case of the indicator of emotional well-being: -0.207, for the indicator of the sense of purpose in life: -0.176, and for the aggregate indicator of the subjective quality of life: -0.223.). However, these correlations are very close to the correlations observed between particular symptoms of the subjective well-being and the indicator of living conditions poverty. In fact, among three poverty forms which were taken into account, occurrence of living conditions poverty has the strongest impact on the level of the subjective well-being, while the weakest correlations were observed in case of income poverty. At the same time, the bad material situation (regardless of the form of poverty) affected life satisfaction to the largest extent, while the sense of meaning in life - to the least extent.

Table 7. Correlation between the indicators of poverty and the subjective well-being indicators based on eu-silc 2013 (pearson coefficient).

Poverty indicator	Subjective well-being indicators			
	Satisfaction with life	Sense of the meaning in life	Emotional well-being	Aggregate indicator of the subjective well-being
Income poverty	-0.130	-0.092	-0.094	-0.113
Living conditions poverty	-0.240	-0.178	-0.203	-0.210
Poverty in terms of the lack of budget balance	-0.198	-0.128	-0.169	-0.180
Accumulation of different types of poverty	-0.252	-0.176	-0.207	-0.223

Source: Own calculations on the basis of the EU-SILC 2013, Central Statistical Office of Poland

V. CONCLUSIONS

Results of the conducted analyses indicate that material situation and, in particular, poverty are significant (however not the most important) determinants of the subjective well-being. Among different poverty forms which were taken into consideration (i.e. income poverty, living conditions poverty and poverty in terms of the lack of budget balance), the strongest negative impact on the considered aspects of the subjective well-being has been noticed in case of living conditions poverty and the weakest influence – in case of income poverty. This conclusion provides a need for broadening poverty analyses to non-income aspects. Poverty assessed on a basis of current income does not always cover poverty assessed on a basis of living conditions or possibility to keep households finance afloat. Reliable information on the multidimensional poverty may play very important role in creating and monitoring of policies aimed at reduction of poverty and improvement of both, objective and subjective quality of life.

ANNEX

Box 1.

COMPONENTS OF THE INDICATOR OF BAD LIVING CONDITIONS BASED ON THE EU-SILC

Components of the indicator of poor living conditions (intermediate variables)	% of households representing a given symptom
1. Poor technical condition of the dwelling (leaking roof, damp walls or floors or foundation, rot in windows frames or floor)	9.8
2. No ability to keep home adequately warm	13.1
3. No bath or shower in dwelling or no indoor flushing toilet for sole use of household	5.1
4. Dwelling located in a noisy neighbourhood or in a region with pollution, grime or other environmental problems	22.5
5. Household cannot afford to replace worn-out furniture	35.9
6. Household cannot afford to pay for one week annual holiday away from home	58.9
7. Household cannot afford a meal with meat chicken, fish (or vegetarian equivalent) every second day	14.9
8. Unmet need for medical or dental examination or treatment for financial reason	21.9
9. At least one member of the household cannot afford to have two pairs of properly fitting shoes or to replace worn-out clothes	20.8
10. At least one member of the household cannot afford to get together with friends/family for a drink/meal at least once a month	18.0
11. At least one member of the household cannot afford to regularly participate in a leisure activity (sport, cinema, concert, etc.)	31.6
12. Household cannot afford to have access to Internet, available to each household member for personal use	8.2

Source: *The EU-SILC 2013, Central Statistical Office of Poland.*

COMPONENTS OF THE INDICATOR OF THE LACK OF BUDGET BALANCE BASED ON THE EU-SILC

Components of the indicator of the lack of budget balance (intermediate variables)	% of households representing a given symptom
1. Arrears on mortgage or rent payments, on utility bills, on hire purchase instalments or other loan payments (arrears occurred at least twice or regarded to more than one area)	9.9
2. Subjective household's opinion on the inability to "make ends meet" (the household is able to "make ends meet" with difficulty or with great difficulty)	33.5
3. Household's declaration indicating the lack of sufficient financial leeway (inability to cover an unexpected expense of PLN 1000)	52.7
4. Declared household's income is lower than the necessary (minimum) level of income that would allow to "make ends meet"	27.5

Source: *The EU-SILC 2013, Central Statistical Office of Poland.*

BOX 2.

EMOTIONAL WELL-BEING INDICATOR

In the analyses based on the EU-SILC survey, the diagnosis of the emotional state of a person was made with a use of the answers to 5 questions concerning the frequency of incidence of nine various emotional states (2 positive and 3 negative) within one month preceding the survey.

In the case of positive emotional states (the person felt happy; calm and relaxed) it was assumed that:

- the presence of a given state at all times or the majority of days constitutes a positive symptom,
- no presence of a given state at all or seldom constitutes a negative symptom.

In the case of negative emotional states (the person felt nervous; depressed so that nothing could cheer him or her up; sad, depressed, or felt down;), it was assumed that:

- the occurrence of a given state at all times or the majority of days constitutes a negative symptom,
- no presence of a given state at all or seldom constitutes a positive symptom.

Positive symptoms result from declaration of frequent presence of positive states or rare presence of negative states. Negative symptoms result from declaration of rare presence of positive states or frequent occurrence of negative states. Declaration of presence of a given state for several days is treated neither as a positive symptom, rather than a negative one. People in a good emotional state are persons who have at least 3 from among 5 possible positive symptoms and no negative symptom.

Cronbach's alpha correlation coefficient for components of the indicator is 0.887. This values proves high internal consistency of the indicator.

Table 8. The frequency of occurrence of emotional states in % of persons aged 16 and more based on the eu-silc

A person felt ^a :	The frequency of occurrence of a given answer:					
	All the time	Most of days	For several days	Very rarely	Never	I don't know
Very nervous	1.7	9.0	29.8	45.0	12.8	1.6
Deeply depressed, nothing could cheer him or her up	0.9	4.3	12.9	34.8	45.0	2.0
Calm and relaxed	12.0	61.3	16.5	7.8	1.1	1.2
Sad, depressed, or they felt down	0.9	4.9	18.8	40.4	32.8	2.2
Happy	13.3	52.8	20.0	9.2	1.7	2.9

a On a basis of the answer to the question: „How often within last 4 weeks have you felt...?”

Items corresponding to the symptoms of good mental well-being have been marked in green, the symptoms of bad mental well-being – in red.

Source: Own calculations on the basis of the EU-SILC 2013, Central Statistical Office of Poland.
