Changes in the Subjective Interpretation of Poverty due to COVID-19: the Case of a Peripheral County of Hungary

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Abstract—The paper describes how the subjective interpretation of poverty changed during the COVID-19 pandemic. The results of data collection at the end of 2020 are compared to the results of a similar survey from 2019. The methods of systematic data collection are used to collect data about the beliefs of the population about poverty. The analysis is carried out in Borsod-Abaúj-Zemplén County, one of the most backward areas in Hungary. The paper concludes that poverty is mainly linked to material values and it did not change from 2019 to 2020. Some slight changes, however, highlight the effect of the pandemic: poverty is increasingly seen as a generational problem in 2020 and another important change is that isolation became more closely related to poverty.

Keywords— Hungary, interpretation of poverty, pandemic, systematic data collection, subjective poverty

I. INTRODUCTION

The paper examines how the interpretation of poverty changed from 2019 to 2020 in Borsod-Abaúj-Zemplén County, one of the poorest areas of Hungary, and how it is linked to the hierarchy of human goals. The examined period includes the COVID-19 pandemic and the related economic and social downturn. The research work aims at revealing the changes in the interpretation of poverty that happened during these unprecedented times.

The paper aims at testing the validity of the modernization hypothesis, put forward in political scientist Inglehart, in the interpretation of poverty [1]. It examines whether the pandemic caused changes in the value priorities. Reference [1] shows that material values have priority when a significant part of the population experiences existential insecurity. When, however, the satisfaction of basic human needs can be taken for granted, post-materialist values become dominant. Inglehart argues that value changes are possible only in the long run. The author examines whether Inglehart's hypotheses are true during these unprecedented times of the pandemic.

The paper first describes the definition and measurement of subjective poverty as well as the modernization theory about the relationship between economy and culture, with special regard to Inglehart's scarcity and socialization hypotheses. A review of the socioeconomic position of Borsod-Abaúj-Zemplén County, Hungary is presented. Then the procedure for collecting data in 2020 is outlined. Next, the author presents the main features of the interpretation of poverty in Borsod-Abaúj-Zemplén County in 2020, makes a comparison over time, and discusses the implications of the findings.

II. SUBJECTIVE POVERTY

The concept of subjective poverty is less often used to measure poverty than objective concepts of poverty. However, this poverty concept is beneficial to identify poverty and to work out strategies towards the eradication of poverty because individuals can judge better than others whether they live in poverty or not [2]. Besides referring to the individuals' own opinion of whether their financial situations are below the level they consider acceptable [3], subjective poverty concept is also an appropriate way to examine how people define poverty in general. This latter way of subjective poverty concept expresses the subjective interpretation of poverty.

Subjective poverty is usually measured with questionnaire surveys. Van Praag worked out the Income Evaluation Question (IEQ) to collect data on subjective well-being and analyzed subjective poverty for eight European countries using his questionnaire [4], [5]. Besides, Goedhart et. al. developed the Minimum Income Question (MIQ) which was used to measure subjective poverty of the United States [6], [7], [8]. Garner and Short modified MIQ and developed Minimum Spending Question (MSQ) to study subjective poverty of the United States [9]. They concluded that subjective poverty line is higher when measured with MIQ than with MSQ. A third type of questionnaire to measure subjective poverty is the Social Policy Question proposed by Deleeck and Van den Bosch [10]. Siposné Nándori used the methods of systematic data collection and consensus theory to elaborate a survey to measure poverty in Hungary and in the United States [11], [12].

III. MODERNIZATION THEORY

Modernization theory holds that the level of socioeconomic development in a country is associated with coherent value changes in the society. It argues that values of the communities change with the changes of the decomposition of the economy as socioeconomic development influences the individual chances of survival [13].

First, socioeconomic development from agrarian to industrial societies gives rise to bureaucratization and

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rationalization, which brings changes in cultural beliefs from traditional to secular rational values. The next process of change, rooted in the economic development from industrial to postindustrial societies, is associated with a shift from survival to self-expression cultural values [13].

Socioeconomic development brings changes in cultural beliefs from materialist to post-materialist values [14]. Agrarian societies are usually characterized with materialist values, while communities increasingly embrace post-materialist values with to industrial and then to postindustrial societies [15], [16], [17].

Inglehart's theory of value change is based on two key hypotheses. The scarcity hypothesis holds that the spread of postmaterialist values depends on the existential security of the individuals which is rooted in economic conditions [18]. While scarcity prevails, materialistic goals, directly related to human survival – like the satisfaction of hunger, thirst, rest, shelter, sustenance, or physical security, have priority over postmaterialist goals. When, however, material needs are satisfied, priority will be given to post-material needs like belonging, intellectual satisfaction, personal freedom, self-esteem, or protecting the environment.

Financial conditions and value priorities, however, are not adjusted to each other immediately. Inglehart's socialization hypothesis holds that adjusting cultural values to socioeconomic conditions needs some time because basic values of the adults change relatively little when they reach adulthood [1].

Siposné Nándori concluded that except for some slight changes in the subjective interpretation of poverty, the value priorities of the adult population did not change from 2007 to 2019 in Borsod-Abaúj-Zemplén County, Hungary, and therefore the basic nature of the interpretation of poverty among residents remained unchanged [19].

IV. Socioeconomic position of Borsod-Abaúj-Zemplén County, Hungary

Borsod-Abaúj-Zemplén County, one of the 20 counties of Hungary, is situated in the northeastern part of the country. Despite its natural and environmental potentials, it is one of the poorest counties in Hungary with high unemployment and poverty rates and one of the lowest average life expectancies in Hungary [20].

Due to the COVID-19 pandemic, unemployment rate increased by more than 15% from April to December 2020 compared to the same quarter of the previous year. At the same time, the slight decrease of employment rate in 2019 was interrupted in 2020 and the quarterly employment rate decreased in 2020 compared to 2019 (Fig. 1).

The unfavorable socioeconomic position of the County is reflected by the low ability to retain its population and the high percentage of the Roma minority with its low education level, low labor market participation rate, and high social discrimination, too [21], [22].

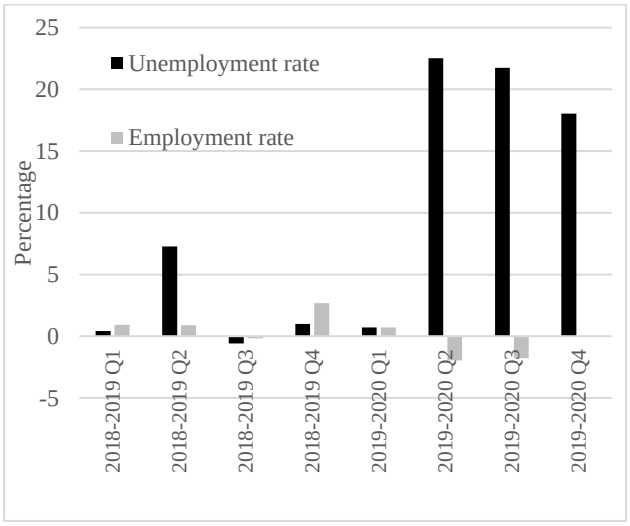

Fig 1 Change in the quarterly unemployment and employment rate in Borsod-Abaúj-Zemplén County, Hungary, 2018-2020, compared to the same quarter of the previous year

Source: own compilation based on the data of the Hungarian Central Statistical Office

V. Methodology

Details of the 2019 data collection are described in [19]. The data collection carried out in 2020 was realized with the same methods. Data about the subjective interpretation of poverty is collected with the methods of systematic data collection. Within the framework of these methods, a preliminary study is used to define the necessary sample size. Consensus theory is used to determine the minimum number of informants, which depends on the average level of competence, the confidence level and a minimum rate of questions to be classified correctly [23]. To apply consensus theory, the following three assumptions must be met:

- the average level of competence shall be at least 0.5;
- the answers of the individuals shall be independent of each other;
- each question must deal with the same domain [19], [24].

Table 1
Items selected for further research based on free listing results (in alphabetical order)

Addiction	Isolation	Not enough working opportunity
Debt	Low education level	Poor clothing
Family issues	Low income level	Poor housing
Having child(ren)	Low willingness to work	Poverty cycle
Illness	Malnutrition	Roma minority
Inflation	No access to basic needs	Unemployment

Source: own compilation

Interviews are first conducted to elicit a list of poverty related items with the method of free listing. A total of 88 informants were asked from the examined county and free listing elicited a total of 52 items. Out of them, 18 were selected for further research taking into account the aim of the research and the frequency of the items mentioned in the free

listing[2] [25], [26]. The items selected for further research can be seen in Table 1.

TABLE 2
MINIMUM SAMPLE SIZE NEEDED TO CLASSIFIED A DESIRED PROPORTION AT THE 0.99 CONFIDENCE LEVEL FOR DIFFERENT LEVELS OF COMPETENCE

Proportion of questions	Average level of competence				
	0.5	0.6	0.7	0.8	0.9
0.80	15	10	5	4	4
0.85	15	10	7	5	4
0.90	21	12	7	5	4
0.95	23	14	9	7	4
0.99	*	20	13	8	6

* Well over 30 informants needed

Source: [23] p 77

Based on the list elicited by free listing, the sample size needed for further research can be defined using the guidelines of the consensus theory provided that its three assumptions are met. The average level of competence is nearly 0.8 (0.794). At least 99% of the questions should be classified correctly at the 0.99 confidence level, therefore the minimal number of informants is eight (refer to Table 2).

TABLE 3
SAMPLE DECOMPOSITION BASED ON THE DISTRIBUTION OF THE POPULATION OF BORSOD-ABAÚJ-ZEMPLÉN COUNTY, HUNGARY

	Population (2020)	Sample size for free listing	Minimal necessary sample size for formal interviews	Actual sample size for formal interviews
Town with county rank	152,901	21	2	7
Other towns	220,436	30	3	10
Villages	263,727	37	3	12
Total	***637,064***	***88***	***8***	***29***

Source: own compilation based on the data of the Hungarian Central Statistical Office

Informants were then selected with the method of multistage cluster sampling with stratification [27]. The minimum number of informants from each settlement category was determined respecting the ratio of the population in the three categories (Table 3). Instead of the necessary 8 informants, a total of 29 persons were asked. Seven informants from the town of Miskolc, ten from other towns (Emőd), and twelve from communities (Radostyán and Karcsa) were selected.

In the second and final step of the interviews, quicksort was conducted to rank the poverty related items from the one most often linked to poverty to the one least often related to poverty. Poverty related items were written on cards and then randomized. In each interview, a card was selected as a standard and informants were asked to compare all other items to the standard and group them into two groups: items greater than the standard and those less than the standard. This process is repeated for each categories until all items are ordered [23], [26].

Free listing was conducted between September and October 2020, while quicksort was realized during November – December 2020. The comparison of the data with the results of the similar survey in 2019 was carried out with Student's t test in SPSS program.

VI. RESULTS

Shortlisted poverty-related items mentioned by the informants in free listing in 2019 and 2020 are described in Figure 1. "Low willingness to work" and "debt" was among the top five items in each survey. "Family issues" and "less working opportunity" were first mentioned in 2020.

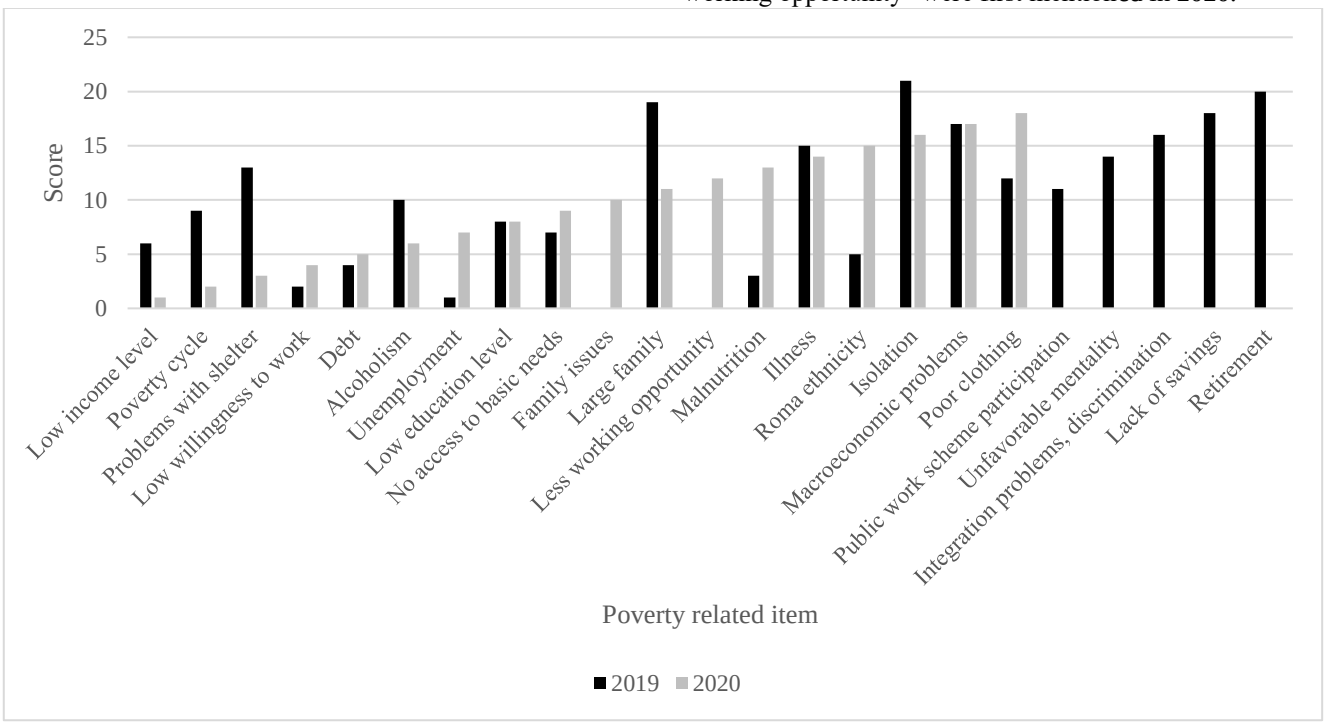

Fig 1 Rank order of poverty related items in 2019 and 2020 (score 1 refers to the item most often related to poverty)
Source: own compilation

[2] Items mentioned by fewer than four informants were excluded from the final research step.

Others like "public work scheme participation", "unfavorable mentality", "integration problems, discrimination", "lack of savings", and "retirement", however, were listed only in 2019. Some items (like "low income level", "poverty cycle", "problems with shelter", "large family", and "isolation") had become more important by 2020. To test whether their closeness to poverty strengthened significantly from 2019 to 2020, statistical tests need to be carried out.

In the case of 16 items, it is possible to test whether changes from the second half of 2019 to the second half of 2020 were significant. To do so, the quicksort results are used. The number of poverty-related items included in quicksort was 21 in 2019 and 18 in 2020, therefore their scores are not directly comparable.

TABLE 4
CHANGE IN THE RANKING OF POVERTY-RELATED ITEMS BETWEEN 2019 AND 2020

Poverty-related item	***F (sig)***	***t (sig)***	***Mean (in percentage)***	
			2019	***2020***
Unemployment	1.118 (0.296)	-1.389 (0.171)	34.0852	45.4023
Low willingness to work	1.008 (0.321)	0.542 (0.591)	39.5990	34.6743
Malnutrition	2.530 (0.119)	-3.376 (0.002)*	36.5915	65.3257
Debt	0,952 (0.334)	1.107 (0.274)	42.8571	35.2490
Roma minority	0.098 (0.756)	-2.223 (0.031)*	46.7419	67.0498
Low income level	7.910 (0.007)	2.168 (0.039)*	49.1228	29.6935
No access to basic needs	9.816 (0.003)	-0.457 (0.652)	45.2381	49.4253
Low education level	1.620 (0.210)	0.525 (0.602)	52.2556	47.7011
Poverty cycle	0 .944 (0.336)	2.332 (0.024)*	53.3835	32.9502
Addiction	5.627 (0.022)	2.138 (0.041)*	60.2757	40.2299
Poor clothing	9.876 (0.003)	-3.869 (0.001)*	60.0251	88.3142
Poor housing	2.626 (0.112)	3.938 (0.000)*	59.1479	33.9080
Illness	2.889 (0.096)	.029 (0.977)	65.9148	65.7088
Inflation	0.033 (0.856)	-.321 (0.750)	72.4311	74.9042
Having child(ren)	0.066 (0.798)	2.567 (0.014)*	74.6867	55.1724
Isolation	5.116 (0.028)	2.703 (0.010)*	85.9649	71.0728

Source: own compilation

Their scores expressed in the percentage of the total number of items (21 and 18 respectively) are calculated and used for the comparison. F-test and t-test results (Table 4) highlight that the importance of more than half of the poverty-related items (56%) significantly changed in the examined period. Two out of the items related to basic human needs (poor housing, having child(ren)) became more closely linked to poverty, while other items expressing basic needs (malnutrition and poor clothing) became less closely related to poverty. The item "no access to basic needs", which seems to include several aspects of the satisfaction of basic needs, did not change its position significantly. Other significant changes are related to "Roma minority", which had become less closely linked to poverty by 2020. "Low income level", however, had become the item most closely related to poverty. Moreover, "generational poverty", "addiction", and "isolation" had also significantly increased their importance in relation to poverty.

TABLE 5
TOP 17 ITEMS IN THE TWO SURVEYS AND THEIR CLASSIFICATION TO VALUE CATEGORIES

Value	***2019***		***2020***	
	Item	***Rank***	***Item***	***Rank***
Materialist values	low income level	6	low income level	1
	malnutrition	3	malnutrition	13
	debt	4	debt	5
	no access to basic needs	7	no access to basic needs	9
	addiction	10	addiction	6
	having child(ren)		having child(ren)	11
	public work scheme participation	11	less working opportunity	12
	poor clothing	12	problems with shelter	3
	problems with shelter	13	illness	14
	illness	15	inflation	17
	inflation	17	unemployment	7
	unemployment	1	low willingness to work	4
	low willingness to work	2		
	Average	**8.42**	**Average**	**8.50**
Post-materialist values	unfavorable mentality	14	isolation	5
	integration problems, discrimination	16	low education level	8
	low education level	8		
	Average	**12.67**	**Average**	**6.50**

Source: own compilation

To test whether there were any changes in value priorities from 2019 to 2020, the top seventeen items mentioned in the free listing are compared in the two surveys (Table 5). Most of the items expressing materialist values are related to physical needs (like no access to basic needs, malnutrition, problems with shelter), to child rearing (having child(ren)), and to financial circumstances (like low income level, debt, inflation). Unemployment

and low willingness to work are also classified as materialist values following the criteria of Abramson and Inglehart and Inglehart and Welzel [28], [29]. Social needs (like unfavorable mentality or isolation), ethical needs (like integration problems and discrimination), and self-actualization (like low education level) are classified as post-materialist values.

Some items (like Roma ethnicity, retirement, old age, or poverty cycle) are considered family values, therefore cannot be classified as unambiguously expressing either materialist or post-materialist values. They are considered non-classifiable values [30].

Comparison of the importance of materialist and post-materialist values in the interpretation of poverty, carried out with F and t tests (Table 6), show that there are no significant differences in the average rank of the materialist values between the two surveys and the same applies to the average ranks of post-materialist values. The pandemic and the related economic and social downturn were not associated with significant value changes.

TABLE 6
COMPARISON OF THE IMPORTANCE OF MATERIALIST AND POST MATERIALIST VALUES IN THE TWO SURVEYS

Materialist values		***Post-materialist values***	
F (sig)	t (sig)	F (sig)	t (sig)
0.189 (0.668)	-0.040 (0.969)	1.660 (0.288)	1.870 (0.158)

Source: own compilation

VII. CONCLUSION

The analysis of the interpretation of poverty in Borsod-Abaúj-Zemplén County, Hungary, revealed that most of the perceived poverty related items belong to material values (related to financial issues, physical safety, child rearing, or health) in both surveys. This finding highlights the economic drawbackness of the examined region before and during the pandemic and implies that the values of the adult population did not change significantly from 2019 to 2020. The time that had passed was not long enough to modify the basic values of the adult population, in spite of the pandemic and the related economic and social downturn. This supports Inglehart's socialization hypothesis and implies that the socialization hypothesis is true also during times of unprecedented changes like a pandemic.

The examined time period, however, was associated with some small changes in the interpretation of poverty. In spite of the fact that the importance of "no access to basic needs" did not change significantly, items like "poverty cycle", "addiction", and "isolation" became more closely related to poverty. Once an individual gets poor, public perceive it to be more difficult to get out of poverty. Because of the lockdown and the requirement to practice social distancing associated with the pandemic, more people may have felt isolated.

The significant decrease in the importance of "Roma minority" in relation to poverty holds that less attention is paid to ethnic origin in relation to poverty nowadays and more emphasis is put on the previously mentioned items like perpetuated poverty, addiction or isolation.

Research could be extended over time by repeating the survey in the future to test whether the basic values in the long run can modify the interpretation of poverty.

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