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## Poverty and Social Exclusion in the Context of the Implementation of the Sustainable Development Goals

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**Abstract:**

**Purpose:** The article aims to analyze the differentiation in poverty and social exclusion in the European Union countries between 2010 and 2018. The empirical research was based on a database of sustainable development indicators, from which indicators describing poverty and social exclusion were selected.

**Design/Methodology/Approach:** The research used one of the taxonomic methods – the TOPSIS method, based on which countries were divided into four classes characterized by a similar level of poverty and social exclusion.

**Findings:** The research results show that the highest level of poverty and social exclusion (at least 20th place in the rankings) was recorded mainly in the EU countries after 2004, except for Greece and Portugal. On the other hand, Finland had the lowest level of poverty and social exclusion in 2010 (in 2018, it was ranked second), and in 2018 the Czech Republic, which, compared to 2010, moved up by four positions in the ranking.

**Practical Implications:** The presented research results are essential for developing a policy of eradicating poverty and social exclusion. Well-functioning social protection systems can have a stabilizing effect on the economy and promote socio-economic equality.

**Originality/Value:** The article contributes to the most current European and world scientific discussions on the need to eliminate poverty and social exclusion, which are some of the world's most severe social problems.

**Keywords:** Poverty, social exclusion, sustainable development, TOPSIS method, classification.

**JEL classification:** C38, F63, H53, I3.

**Paper Type:** Research study.

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## 1. Introduction

Social exclusion and poverty are disturbing problems of contemporary societies and significant obstacles to achieving sustainable social development (Okech *et al.*, 2012; Thalassinos, Uğurlu, and Muratoğlu, 2012; Panek and Zwierzchowski, 2013; Madanipour, Shucksmith, and Talibot, 2015; O'Donnell, O'Donovan and Elmusharaf, 2018; Marchand, Genovese, Koh, and Brennan, 2019; Lin, Winkler, Wang, and Chen, 2020; Piwowar and Dzikuć, 2020; Duffy, 2020). Especially among the elderly, they are associated with a reduced quality of life and worse health (Szukiełojć-Bieñkńska, 2010; Prattley, Buffel, Marshall, and Nazroo, 2020). According to the report of the European Anti Poverty Network, the most at risk of poverty are children and young people up to 24 years of age, women, the disabled, retirees, people with low levels of education and professional qualifications, as well as the representatives of ethnic minorities and the citizens of one EU country living in another. Save the Children - the world's leading independent children's rights organization, claims that poverty is an everyday reality for millions of children in European societies (Save the Children, 2014).

In modern Europe, poverty is considered one of the most severe social problems. For more than two decades, the EU has been making efforts to promote action among the Member States to make social protection systems more responsive to socio-economic challenges and fight poverty and social exclusion. The year 2010 was the European Year for Combating Poverty and Social Exclusion. A strategy was then announced: "EUROPE 2020 Strategy for smart, sustainable and inclusive growth". One of its seven flagships was "European platform against poverty," aiming to ensure social and territorial cohesion so that the benefits of growth and employment are widely shared and that people experiencing poverty and social exclusion are enabled to live in dignity and take an active part in society. The main goal was to reduce the number of people at risk of poverty and exclusion by at least 20 million by the end of the decade.

In 2015, 193 states of the United Nations (UN) adopted the 2030 Agenda for Sustainable Development, an action program that defines a model of sustainable development at the global level. According to the 2030 Agenda, modernization efforts in the modern world should eliminate poverty in all its manifestations while achieving several economic, social, and environmental goals. The 2030 Agenda includes 17 sustainable development goals (SDGs) and 169 related tasks that reflect the three dimensions of sustainable development – economic, social, and environmental.

On November 17, 2017, The European Parliament, the Council, and the Commission have jointly proclaimed the European Pillar of Social Rights to respond to Europe's social challenges (ESF+). The twenty most essential principles of the pillar are grouped into three categories: equal opportunities and access to employment, fair working conditions, social protection, and social inclusion. To contribute to the European Pillar of Social Rights implementation, the ESF+ should support investment

in human capital and systems in the policy areas of employment, education, and social inclusion, thus promoting economic, social, and territorial cohesion (ESF+, 2018).

According to European Parliament (Milotay, 2018), spending on social protection about the gross domestic product (GDP) increased by 18.5% (2.9% annually) in the period 2008-2014. In 2014, the average social expenditure in the EU was 28.7% of GDP. Financing social protection in the EU-28 in 2014 favored social security contributions (54.1% of total revenues) over tax financing of government and self-government institutions (40.5% of total revenues). In 2015 expenditure on benefits absorbed around 40% of all public expenditure in the EU (Socjal w Europie, 2021). Almost half of the social protection expenditure (45.2%) was spent on old-age benefits, 37.3% on health, illness, and disability, 8.9% on families and children, 4.8% on unemployment, and 4.1% on housing and social exclusion. The at-risk-of-poverty rate (after social transfers) in the EU was 16.8% in 2018, almost unchanged compared to 2017 (16,9 %).

In the poverty level analysis, the level of wealth of countries is essential, most often calculated as GDP per capita, which significantly differentiates expenditure on social assistance. Such differences in expenditure mean that beneficiaries in Luxembourg, Denmark, the Netherlands, Austria, France, Germany, Belgium, Sweden, and Finland perform very well compared to beneficiaries in Latvia, Bulgaria, and Romania.

The above observations and doubts prompted the authors to start research on both theoretical and practical aspects of the phenomenon under study. The research aims to examine the differentiation in poverty and social exclusion in the European Union countries (EU-28 as of 2018) by analyzing the indicators included in the 2030 Agenda. In order to find out whether there are changes in the studied phenomenon, two years will be examined: 2010 and 2018. One of the taxonomic methods was used in the research – the TOPSIS method.

This article's structure includes an introduction that presents the primary purpose of the work and explains the authors' most essential motivations to research poverty and social exclusion. Then, the literature on social assistance in the European Union countries is reviewed. In the following part, the statistical data used in the study were presented, and the research procedure was described. The article ends with the presentation of research results, discussion, and conclusions resulting from the research.

## **2. Literature Review**

There are many definitions of social assistance. Despite their diversity, they share common characteristics that encompass all private and public initiatives targeting disadvantaged or vulnerable groups with the overall aim of reducing poverty and social exclusion. There is no comprehensive, regulated governance framework at the EU level for social and employment policy, as is the case with economic policies. The

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EU's social policy is implemented through several tools, such as legislation, funding, and political guidance. Each Member State is responsible for the organization and financing of social security systems. As a result, the models used in individual Member States slightly vary, while the EU has a coordinating role in ensuring that people moving across borders continue to receive adequate protection (Milotay, 2018).

The social policy of the welfare state is aimed at ensuring social order and solving social problems. According to Ferrera, Hemerijck and Rhodes (2001). European welfare states need to emphasize "dynamic equality," especially in the context of globalization. There are five models of social policy in Europe (Zgliczyński, 2017):

- conservative (including Austria, Belgium, France, Germany),
- social-democratic (Sweden, Finland, Denmark, the Netherlands, Norway, and Iceland),
- liberal (Great Britain, Ireland),
- Southern European (including Spain, Greece, Portugal),
- Central and Eastern European (including Poland, the Czech Republic).

In the conservative model, social support is proportional to the status of the labor market. It depends on seniority, income, and the number of contributions paid. The patriarchal family model with a man supporting it and a woman not working outside the home is still preferred. Family benefits are primarily intended to stimulate motherhood. According to these principles, Germany is at the forefront of European countries in terms of social spending. In 2010-2018 it allocated over 28% of GDP each year to social protection benefits. Germany has an extensive insurance system and tax-financed benefits – from unemployment benefits (*Arbeitslosengeld*) to parental benefits. In 2007, both parents were entitled to parental leave (*Elternzeit*) and parental allowance (*Elterngeld*). Working persons (regardless of the amount of income) may receive additional funds for education and maintenance of children until they start working, but no longer than until the age of 25 – *Kindergeld* child benefit. Its amount depends on the number of children; in 2010, it amounted to EUR 184-215, currently EUR 194-225 per month per child.

The social-democratic model is characterized by egalitarianism manifested in a high level of social security and the provision of public social goods to citizens (Kościewicz, 2012). Sweden, which functions according to these principles, has been in the lead in Europe in terms of social spending for many years, is called the welfare state. It offers comprehensive social insurance (in case of unemployment or illness), assistance for mothers and families, for sick and older people. Sweden reconciles older people's high social security with an active pro-family policy (Rutkowski, 2005; Kłosiński, 2017). Family benefits in Sweden include *barnbidrag* (SEK 1,050), a monthly tax-free child allowance up to the age of 16, which is extended until the child reaches the age of 20 while the child is still in education (*förlängt barnbidrag*) and a

large family allowance (flerbarnstillägg). In 2010-2018, Sweden spent 28-29% of GDP on social protection benefits.

In the liberal model, the state supports only the weakest, ensuring only a minimum level of existence. People on low incomes receive a moderate amount of care benefits to encourage them to take up employment. For example, in the UK, people on low incomes can apply for Council Tax Benefit (help in paying taxes) or Housing Benefit (help pay the rent). Child Benefit is not dependent on family income; it is paid for each child under the age of 16 and until the age of 20 when he or she continues education. However, when one's income exceeds a certain threshold, Child Benefit is taxed. Child Benefit is paid every four weeks, with the first child receiving £82.8 in 2018 and £54.8 for each subsequent child. In the second decade of the 21st century, Great Britain experienced a double crisis of the welfare state (re-doubling) due to the pressure to increase benefits for the aging population and, at the same time, the pressure to pay more attention to the problems of innovation and competitiveness (Golinowska, 2018). There is no specific minimum subsistence level in the Southern European model, and people in need are to be supported mainly by the family. Retirees receiving high benefits are favored, while family and unemployment benefits are low. For example, in Greece, in 2013, the average monthly child benefit was the lowest among EU countries, while Italy had a slightly higher value (Leventi *et al.*, 2016).

Compared to the other models, the Central and Eastern European model has the lowest social security expenditure. In Poland, the support for groups at risk of poverty and social exclusion is included in the Strategy for Responsible Development (2021) until 2020 (with a perspective until 2030). The strategy's primary goal is: "Creating conditions for the income growth of Polish residents with a simultaneous increase in social, economic, environmental and territorial cohesion." As part of the implementation of the Specific Objective II "Socially sensitive and territorially sustainable development" in the area of "Social cohesion," the following point is included: "Reduce poverty and social exclusion and improve access to services provided in response to demographic challenges." Social assistance supports those in need in the financial, material form, and services. Apart from the social insurance system, the implementation of support for groups at risk of poverty and exclusion is also based on many government programs:

- "State aid in nutrition" for the years 2014-2020 (which in 2019 was replaced by "Meal at school and home") a long-term program focusing on financing municipalities in the field of feeding children and adolescents, with particular emphasis on students from areas with high the level of unemployment and from rural environments and adults - the elderly, the lonely, the disabled or the sick).
- "From exclusion to activation. A program to help socially and professionally excluded people" announced in December 2018.
- "Care 75+" was implemented from January 1, 2018, the aim of which is to improve access to care services (including specialist services) for people aged 75 and above.

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- "Family 500+" is a family support program, effective from April 1, 2016, aimed at not only improving the demographic situation but also reducing poverty among the youngest thanks to monthly tax-free benefits of PLN 500 for the second and subsequent children up to the age of 18 (for the first child depending on the family income, which was changed only on July 1, 2019).
  - "Good start" is a program supporting the education of children regardless of their family income, in which all students starting the school year receive a one-time allowance of PLN 300 to complete the school layette.

Eurostat data shows that in 2016 when the "Family 500+" program was launched, the highest increase in the value of social protection benefits in Poland was recorded – they amounted to 20.3% of GDP (excluding administration costs) and increased by 1.3 pp compared to the previous year. According to the Oxfam International report, in 2018, Poland was ranked first regarding the impact of social spending on reducing inequality (The commitment to reducing inequality index 2018, 2018). However, the shape of family benefits in Poland may not be favorable in the long run, as it does not encourage the most impoverished families to increase their income from work (Poverty Watch, 2019). The European Union coordinates the social security systems operating in the individual Member States. In its efforts to counteract poverty and social exclusion, each country is guided by a separate policy, has its institutions and regulations to support people in a difficult life situation who cannot cope with them using their resources. Detailed information on the organization of all EU Member States' social security systems can be found in the MISSOC database (MISSOC).

According to some authors (e.g., Alesina, Glaeser, and Sacerdote, 2001), European countries are much more generous to the poor than the United States are. Americans provide less social welfare than Europeans because: (1) most of them believe that such assistance favors racial minorities, (2) Americans believe that they live in an open and fair society, and if someone is poor, they should do something about it, and (3) the political system is focused on preventing broadly understood social assistance, as is the case in the so-called welfare states of Europe. For many years, critics have argued that social support programs do not do so because: (1) only a tiny fraction of transfers reach the poor, (2) these programs create a prosperity/poverty trap, or (3) weaken the economy (Kenworthy, 1999). Moreover, countries with higher social spending levels are also less effective in reducing inequalities (Cyrek, 2019). However, this does not diminish the fact that social transfers can reduce income poverty and the extent and depth of material deprivation (Notten and Guio, 2016).

### **3. Research Methodology**

The empirical research presented in this paper is based on a database created based on Eurostat data. This database contains statistical data describing the European Union's sustainable development in spatial (concerning individual EU countries) and dynamic (in individual years) terms. The sustainable development indicators in the Eurostat database are assigned to the 17 goals of the 2030 Agenda. The main objectives under

which all or most indicators can be qualified as describing poverty and social exclusion are Objective 1-eradicating Poverty in All Its Forms in the World and Goal 10. Reduce inequalities within and between countries. Besides, the study also included one indicator, each representing Objective 7. Provide everyone with access to sources of stable, sustainable, and modern energy at an affordable price and Goal 8. Promote stable, sustainable, and inclusive economic growth, full and productive employment, and decent work for all (Table 1). The indicators presented in the table are de stimulants, which means that along with the increase in this indicator's value, deterioration is observed in the analyzed area.

**Table 1. Indicators describing poverty and social exclusion**

Symbol	Name	The goal and number of the 2030 Agenda	$\bar{x}$	$V_s$ (%)	$A_s$
$X_1$	At risk of poverty or social exclusion (%)	SDG 01.10	24.67	32.85	1.341
$X_2$	At-risk-of-poverty rate after social transfers (%)	SDG 01.20	16.03	21.30	0.012
$X_3$	Severe material deprivation rate – population at serious risk of material deprivation (%)	SDG 01.30	10.64	94.13	1.997
$X_4$	Low work intensity in the household (the percentage of the total population under 60 living in households with very low work intensity, i.e., those where adults aged 18-59 worked less than 20% in the past year their total work potential)	SDG 01.40	9.75	34.66	2.103
$X_5$	Housing cost (total) overburden rate (% of population)	SDG 01.50	9.31	51.64	0.856
$X_6$	Total the at-risk-of-poverty rate for living conditions (population living in an apartment with a leaking roof, damp walls, floors or foundations, or window windows rotting by poverty) (% of the population)	SDG 01.60	16.80	38.16	0.371
$X_7$	Percentage of population unable to heat their home adequately due to poverty (% of population)	SDG 07.60	11.77	112.59	2.740
$X_8$	Long-term unemployment rate (% of working population)	SDG 08.40	4.25	56.59	0.484
$X_9$	Relative poverty rate (% of the distance to the poverty line)	SDG 10.30	22.10	21.63	0.496
$X_{10}$	Income distribution (ratio). A measure of inequality in the distribution of income. It is calculated as the ratio of the total income received by the 20% of the highest-income population (highest quintile) to that received by the lowest-income 20% (bottom quintile).	SDG 10.41	4.79	20.54	0.385
$X_{11}$	Share of the lowest income of 40% of the population in total income (% of income)	SDG 10.50	21.64	9.69	-0.084

*Source: Own elaboration based on Eurostat.*

All the analyzed indicators, except for X11, are characterized by a significant differentiation level. The highest level of the coefficient of variation is the indicator of X7 – the percentage of people unable to heat their homes due to poverty adequately. Such a large diversity is influenced, among others, by significant differences between maximum and minimum values. At the level of 66.5%, the highest value of this indicator was recorded in Bulgaria, and the lowest, at the level of 0.5%, for Luxembourg. It is also worth noting that most of the indicators adopted for the study were characterized by high or moderate right-hand asymmetry, which means that in the case of most EU countries, their values were below the average. In the case of indicators classified as de stimulants, this is a favorable situation because most analyzed countries are below average.

One of the multivariate statistical analysis methods – the TOPSIS method – was used to classify the EU countries in poverty and social exclusion. The TOPSIS method, i.e., Technique for Order Preference by Similarity to an Ideal Solution, proposed and described by Hwang and Yoon in 1981, belongs to multi-criteria decision-making methods (Yoon and Kim 2017; Parida and Sahoo, 2013; Roszkowska, 2019). The TOPSIS procedure used for the linear ordering of multidimensional objects takes place in seven steps.

*Step 1.* The starting point is to define the matrix:

$$X = [x_{ij}] \quad (1)$$

where:

$i$  – object number ( $i = 1, 2, \dots, n$ ),

$j$  – diagnostic feature number ( $j = 1, 2, \dots, m$ ),

$x_{ij}$  – the value of  $j$ -th feature for  $i$ -th object.

*Step 2.* In order to ensure the comparability of variables, the initial values of diagnostic features are normalized based on the formula:

$$z_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^n x_{ij}^2}} \quad (2)$$

where:

$z_{ij}$  – the value of  $j$ -th standardized diagnostic feature for the  $i$ -th object.

*Step 3.* Values of normalized diagnostic features are weighted, which results in the matrix:

$$V = [v_{ij}] = [w_j z_{ij}] \quad (3)$$

for:

$$\sum_{j=1}^m w_j = 1 \quad (4)$$

where:

$w_j$  – weight of  $j$ -th diagnostic feature.

*Step 4.* For each normalized weighted diagnostic feature from the matrix (3), two reference points are determined, which are determined by the Positive Ideal Solution and Negative Ideal Solution coordinates, respectively:



$$v_j^+ = \begin{cases} \max_i v_{ij} & \text{for stimulant} \\ \min_i v_{ij} & \text{for destimulant} \end{cases} \quad (5)$$

$$v_j^- = \begin{cases} \min_i v_{ij} & \text{for stimulant} \\ \max_i v_{ij} & \text{for destimulant} \end{cases} \quad (6)$$

where:

$v_j^+$  –  $j$ -th coordinate of Positive Ideal Solution,

$v_j^-$  –  $j$ -th coordinate of Negative Ideal Solution.

*Step 5.* For all objects, their Euclidean distances from the positive and negative ideal value are calculated, respectively:

$$d_i^+ = \sqrt{\sum_{j=1}^m (v_{ij} - v_j^+)^2} \quad (7)$$

$$d_i^- = \sqrt{\sum_{j=1}^m (v_{ij} - v_j^-)^2} \quad (8)$$

where:

$d_i^+$  – Euclidean distance of the  $i$ -th object from Positive Ideal Solution,

$d_i^-$  – Euclidean distance of the  $i$ -th object from Negative Ideal Solution.

*Step 6.* The value of the aggregate variable denoting the relative proximity of the  $i$ -th object to the Positive Ideal Solution is determined as the quotient:

$$R_i = \frac{d_i^-}{d_i^- + d_i^+} \quad (9)$$

where:  $0 \leq R_i \leq 1$ .

The preferred object has the shortest distance from the positive ideal value and, at the same time, the most significant distance from the negative ideal value, i.e., it has the highest value of the coefficient  $R_i$ .

*Step 7.* Linear ordering of objects is performed due to the aggregate variable's non-increasing value (9).

#### 4. Results and Discussion

The values of eleven indicators (defined in Table 1) describing poverty and social exclusion in 28 EU countries for 2010 and 2018 were used in the TOPSIS method (for  $i = 1, 2, \dots, 28$ ;  $j = 1, 2, \dots, 11$ ). Following the procedure of this method, they were normalized in the first step. The weighting uses equal weights for all normalized values of  $w_j = \frac{1}{11}$ , which results from the equal treatment of all features listed in the 2030 Agenda objectives. The values of the aggregate variable determined using the TOPSIS method were arranged in non-increasing order, and on their basis, two rankings of 28

European Union countries were created according to the degree of poverty and social exclusion summarized in Table 2. Higher rankings mean lower levels of poverty and exclusion in a given country.

Based on both rankings, countries were divided into four classes (numbered I-IV) characterized by a similar poverty level and social exclusion (class I has the lowest level, class IV – the highest). The division was made based on the following formulas:

$$\text{Class IV: } 0 \leq R_i < \bar{R} - S(R) \quad (10)$$

$$\text{Class III: } \bar{R} - S(R) \leq R_i < \bar{R} \quad (11)$$

$$\text{Class II: } \bar{R} \leq R_i < \bar{R} + S(R) \quad (12)$$

$$\text{Class I: } \bar{R} + S(R) \leq R_i \leq 1 \quad (13)$$

where:

$\bar{R}$  – arithmetic mean of aggregate variable  $R$ ,

$S(R)$  – standard deviation of aggregate variable  $R$ .

When analyzing the information included in Table 2, it can be noticed that in 2010 Finland had the lowest level of poverty and social exclusion resulting from the lowest (total) at-risk-of-poverty rate for living conditions ( $X_6$ ) and the relative poverty rate ( $X_9$ ), as well as low values of the indicators: measures of inequality in the income distribution ( $X_{10}$ ), long-term unemployment rate ( $X_8$ ) and the percentage of population unable to heat their home adequately due to poverty ( $X_7$ ).

A similar low level of poverty and social exclusion in 2010 was recorded in Austria (the lowest value of the long-term unemployment rate among EU countries), Sweden and Luxembourg (the lowest values of indicators: severe material deprivation and the percentage of the population unable to heat their home adequately due to poverty), also belonging to class I.

Bulgaria achieved the highest level of poverty and exclusion in 2010, which was mainly due to the highest values of four indicators among EU countries: at risk of poverty or social exclusion ( $X_1$ ), severe material deprivation ( $X_3$ ), the percentage of the population unable to heat their home adequately due to on poverty ( $X_7$ ) and the share of the lowest income of 40% of the population in total income ( $X_{11}$ ). Latvia, Romania, and Lithuania were also in class IV.

The most numerous in 2010 was class II, which included 13 countries, such as the Czech Republic, Germany, France, Great Britain.

Further analyzing the information contained in Table 2, it can be noticed that in 2018 the Czech Republic, which had the lowest level of poverty and social exclusion, advanced in the ranking by four places. This was due to the lowest values in the EU: at-risk-of-poverty or social exclusion rate ( $X_1$ ), at-risk-of-poverty rate after social

transfers (X2), low household work intensity (X4), and long-term unemployment rate (X9). There were no other countries in class I.

Finland, which led the ranking in 2010, fell by one position in 2018 and was placed in class II. This class was also the most numerous this time, consisting of 16 countries; it included Poland, which did not change its class but recorded the most significant advance in the ranking (by 11 places). Poland was promoted to sixth place due to declines in most indicators, including the percentage of the population unable to heat their home adequately due to poverty (by 9.7 pp), severe material deprivation (by 9.5 pp), and poverty or social exclusion (by 8.9 pp).

**Table 2.** Values of the aggregate variable, ranks, and typological groups of European Union countries in 2010 and 2018

Country	2010			2018			
	$R_i$	Rank	Class	$R_i$	Rank	Class	Rank change
Belgium	0.7685	9	II	0.7498	16	II	7
Bulgaria	0.3222	28	IV	0.4635	27	IV	-1
Czech Republic	0.8352	5	II	0.8952	1	I	-4
Denmark	0.7357	12	II	0.7742	15	II	3
Germany	0.7652	10	II	0.7821	14	II	4
Estonia	0.7295	13	II	0.8239	8	II	-5
Ireland	0.6816	19	III	0.8048	11	II	-8
Greece	0.6380	21	III	0.2225	28	IV	7
Spain	0.6869	18	III	0.6474	22	III	4
France	0.8262	6	II	0.8078	9	II	3
Croatia	0.6284	24	III	0.7274	19	III	-5
Italy	0.7266	15	II	0.6188	25	III	10
Cyprus	0.6684	20	III	0.6391	23	III	3
Latvia	0.5021	27	IV	0.6778	20	III	-7
Lithuania	0.5464	25	IV	0.6069	26	III	1
Luxembourg	0.8744	2	I	0.7970	13	II	11
Hungary	0.6302	23	III	0.7347	18	III	-5
Malta	0.7902	8	II	0.8684	3	II	-5
Netherlands	0.8126	7	II	0.8255	7	II	0
Austria	0.8461	4	I	0.8641	4	II	0
Poland	0.7172	17	II	0.8470	6	II	-11
Portugal	0.6326	22	III	0.6646	21	III	-1
Romania	0.5313	26	IV	0.6326	24	III	-2
Slovenia	0.7556	11	II	0.8062	10	II	-1
Slovakia	0.7175	16	II	0.8020	12	II	-4
Finland	0.9010	1	I	0.8703	2	II	1
Sweden	0.8741	3	I	0.8514	5	II	2
Great Britain	0.7276	14	II	0.7362	17	II	3

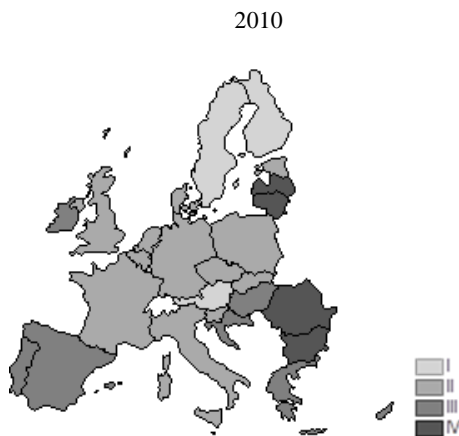
*Source:* Own elaboration.

The highest poverty and social exclusion level in 2018 was Greece, where the long-term unemployment rate and the housing overburden rate increased. Bulgaria, which only moved up one place in the ranking, is just behind Greece.

In 2018, the most significant decrease in the ranking concerned Luxembourg (by 11 places) and Italy (by ten places). Only Austria (4) and the Netherlands (7) did not change their positions.

The maps (Figures 1-2) presenting the division of the member states into groups characterized by similarity in terms of poverty and social exclusion are a graphic image of the taxonomic analysis of the analyzed EU countries. In 2010 better results were achieved by the Scandinavian countries and countries located in Europe and the Czech Republic. In 2018, only the Czech Republic was included in the best, first typological group. Bulgaria was characterized by the worst situation regarding the studied phenomenon, regardless of the analyzed period. In 2010, it was joined by Latvia, Lithuania, Romania, and in 2018 only by Greece. Group II turned out to be the most numerous, covering the analyzed years, respectively: 13 and 16 member states..

**Figure 1.** The division of EU countries into similar groups according to the level of poverty and social exclusion in 2010      **Figure 2.** The division of EU countries into similar groups according to the level of poverty and social exclusion in 2018



*Source: Own elaboration.*



*Source: Own elaboration.*

## 5. Conclusions

Globalization, technological change, an aging population, and changes in the labor market have made economic and social protection for all populations a major global challenge. Therefore, researching this area seems entirely justified. The problem of poverty, without exception, but to a different degree, affects all European Union countries. The research in this study indicates that the lowest aggregate indicator (at least 20 places in the rankings), indicating a high level of poverty and social exclusion, was characteristic mainly of countries that joined the EU after 2004. This group also included Greece, and in 2018 Italy, Spain and Portugal. On the other hand, Finland had the lowest level of poverty and social exclusion in 2010 (in 2018, it was ranked

the second), and in 2018 the Czech Republic, which, compared to 2010, advanced by four positions in the ranking. These results are consistent with the research of other authors, e.g. Sutkowska and Kandefer, 2013, Panek and Zwierzchowski, 2013, Pęciak, and Tusińska, 2015, Piwowar and Dzikuć, 2020, Mansi, Hysa, Panait and Voica, 2020. In the study of poverty in the Visegrad Group, Piwowar and Dzikuć (2020) used indicators marked here as X1 and X2. Decancq, Goedemé, Van den Bosch, and Vanhille (2013) recommend using a wide range of poverty measures, as has been done here.

According to Eurostat data, the countries with the lowest poverty level in 2010, i.e., Finland, Austria, Sweden, and Luxembourg, spent on social protection allowances (having deducted the administrative costs) 28.4%, 28.8%, 27, 8%, and 22.1% of GDP respectively, which in terms of calculation per capita amounted to EUR 9,948, 10,197, 11,107 and 17,555.

Bulgaria, which reached the highest level of poverty in 2010, allocated only 16.6% of GDP to social protection allowances, EUR 854 per capita, the lowest among EU countries. The remaining class IV countries, i.e., Latvia, Romania, and Lithuania, spent 17.9%, 17.3%, and 18.2% of GDP respectively on social benefits, i.e., EUR 1,529, 1,072, and 1,647 per capita.

In the most numerous class II in 2010, Poland had the smallest share of social protection benefits in GDP (19.2%), and Denmark the largest (32.9% – this is also the highest value among EU countries). Calculated per capita, it amounted to EUR 1,829 and EUR 14,404, respectively.

The Czech Republic, which in 2018 was characterized by the lowest level of poverty and social exclusion, allocated 17.9% of GDP to social protection benefits, which per capita (at constant prices from 2010) amounted to EUR 3,196. In 2010, these figures amounted to 19.3% of GDP and EUR 2,904.

In 2018, Poland achieved the most significant advance in the ranking, taking sixth place. At that time, Poland allocated 19.2% of GDP to social protection allowances (the same as in 2010), which per capita (at constant prices from 2010) amounted to EUR 2,392, i.e., EUR 563 more than in 2010.

The most significant decline in the ranking concerned Luxembourg and Italy. In Italy, the number of social protection allowances per capita remained unchanged compared to 2010, while in Luxembourg, it increased by more than EUR 1,000, reaching the highest value among EU countries – EUR 18,569.

Last ranked in 2018, Greece allocated 25% of GDP, or EUR 4,337 per capita, to social protection allowances. It should be noted that since 2010 these values have decreased by 0.6 pp and EUR 831, respectively. In the following position, Bulgaria allocated a

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similar part of GDP to social benefits compared to 2010 – it was 16.4%, which amounted to EUR 1,151 per capita.

The above considerations show that in 2010, the EU countries' poverty level was usually inversely proportional to the percentage of GDP allocated to social benefits. In 2018, this rule was no longer fulfilled – the top-ranking Czech Republic and Poland spent a minor part of their GDP on social protection than last-ranked Greece. Luxembourg, which had the highest social benefits per capita among the EU countries, recorded the most significant drop in the ranking. This phenomenon can be explained by differences in social models between EU countries – the Scandinavian and some other affluent countries spend more on social benefits related to poverty alleviation. In contrast, southern European countries focus their social policies first on reducing inequalities (Cyrek, 2019).

Many challenges remain to close the gaps in social protection systems between and within the EU Member States. An effective fight against poverty is essential for implementing the Europe 2020 strategy or implementing sustainable development goals and the European Union's future. Well-functioning social protection systems can stabilize the economy and promote socio-economic equality, while inadequate or ineffective systems can exacerbate these inequalities.

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