

EUROPEAN INTEGRATION AND DEVELOPMENT OF THE EU-10 COUNTRIES IN VIEW OF SELECTED SOCIAL PHENOMENA

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Purpose: The aim of this paper is to determine the level of development in the EU-10 countries in view of social phenomena.

Design/methodology/approach: the TOPSIS method was applied to rank countries in terms of social phenomena – the list comprised countries, which in 2004 accessed the EU. The paper focused on social phenomena, i.e. health, the labour market, housing, demography and education.

Findings: It refers to the basic assumptions and the importance of integration in the international context as well as the related theories. Moreover, it presents the relationship between integration and the level of development in countries in terms of the social aspects. At the same time it discusses the process of social changes which have taken place in the Central and Eastern European countries (CEESs) since their accession to the European Union.

Research limitations/implications: The text discusses problems related to the European integration and social development in the EU countries.

Practical implications: The manuscript concerns social development in the EU-10 countries and European integration. It may be of interest for the broadly understood governmental sector. Social consequences: Conducted studies will constitute the basis for the development of European and national development strategies in terms of improvement of welfare for the populations, while also indicating the direction of changes and ensuring comparability of the results concerning transformations in the countries, which accessed the EU in 2004.

Originality/value: The originality of the study will stem from the application of the TOPSIS method, required to classify the countries and to determine the standard of their development in terms of social phenomena.

Keywords: European integration, EU-10 countries, TOPSIS, level of development, the social aspect.

Category of the paper: the authors' own research and review.

1. Introduction

Processes of economic integration constitute one of the most important phenomena observed at the turn of the 20th and 21st centuries. Doliwa-Klepacki (2000) stated that they are major factors promoting solution of economic problems and determining the rate of development in individual countries. In the international perspective the concept of integration in literature on the subject is defined as economic, cultural and political integration or cooperation of countries. Its primary objective is to establish a supranational organ (Bodenstein, 2017; Schimmelfennig, 2018; Pacana et al., 2021; Hooghe et al., 2021). Contemporary theoreticians of economic integration indicate five stages in its evolution: the free trade area, the customs union, a single market, the economic and monetary union and complete integration.

Studies on the European integration have been conducted e.g. Gorzelak (2002), Grosse (2001), Firlej (2010), Bodenstein (2017). In turn, Malendowski (2010), Ostasz et al. (2020), Pleśniarska (2017) and Kriesi (2020) investigated the problem of Euroscepticism and national sovereignty, while Foster et al. (2021) presented several benefits resulting from cooperation. Kiryluk-Dryjska (2012) and Klaus (2019) focused on changes taking place in policies aiming at European cooperation, while Pouliquen (2011), Klepacki et al. (2013) and Spsychalski (2015) studied a dependence between integration and agriculture. In turn, the relationship between European integration and development of the countries participating in the integration processes was investigated by Gorzelak (2002) and Jastrzębska (2008).

In turn, Kosach et al. (2020) in their studies focused on the capacity of public management to address internal problems and the dynamics of socio-economic development (Gorb et al., 2017), whereas Atkinson et al. (2000) and (2004) presented this dependence in view of social phenomena (Urmanaviciene et al., 2021).

The process of the establishment of the European Union may serve as an example of international integration. Its primary objectives include promotion of peace, protection of shared values and welfare of its citizens, among other things by attaining sustainable development based on viable economic growth, measured e.g. in terms of GDP per capita (Sadowski, 2012). However, in the opinion of Machowska-Okrój (2014) economic growth may not necessarily have a direct impact on increased social welfare (Miskiewicz et al., 2019). In view of this theory, welfare is understood as meeting the needs of individuals in relation to basic goods. As a rule goods are useful, which means that their consumption is to satisfy social needs, such as e.g. access to food, but also access to education, medical infrastructure and housing as well as the labour market. In this respect the social policy in the EU is run on the national level and is subjected to a degree of harmonisation at the EU level. What is important, it depends first of all on the national authorities, which leads to many controversies resulting from its importance for the process of convergence between the EU countries. Mucha-Leszko (2016) indicated the following problems in the structuring of social elements in the EU

countries: diverse models of welfare states in the EU countries and varied levels of financing for social needs, a lack of a development strategy for social policy, a crisis of the welfare state policy, monetary integration and the requirement to meet monetary union criteria stipulated in respective treaties¹.

The aim of this paper was to determine the level of development in the EU-10 countries in terms of the social aspect of development. The time frame covers the years 2004, 2010 and 2019 in order to compare changes which took place in these countries at the time of their accession to the EU; this scope also results from the currently available data. Analysis covers 10 Central and Eastern European countries (CEECs)², and to realise the objective of this study source data was collected from the Eurostat database.

The scope of the paper is as follows. Firstly, a brief review was presented concerning literature on European integration, its evolution and importance in terms of development, including social development of individual countries. Secondly, the research method was described. Thirdly, the TOPSIS method was applied to order countries in terms of social phenomena in the countries, which in 2004 accessed the European Union. Finally, the position of countries was described in terms of national conditions for development. This paper is concluded with a discussion on the importance of integration in the EU-10 countries as well as their development.

2. Integration processes in Europe

After WWII the primary cause for the initiation of integration among the European countries was connected with the need for their reconstruction. Following the war the economies of those countries were much weaker and their infrastructure was in decline. Moreover, there were serious concerns related both to the economic expansion of the USA and military and ideological expansion of the Soviet Union. Winston Churchill was one of the first politicians after WWII to voice the need to establish a unified Europe³, so as to prevent the recurrence of war and tyranny.

In the 1950s in Western Europe a growing trend was observed towards elimination of barriers in trade between neighbouring countries, at the simultaneous increase in their cooperation. These processes resulted in the development of the Schuman Declaration and establishment of the European Coal and Steel Community in 1952⁴. This plan assumed the

¹ Requiring improved budgetary balance and reduced government debt.

² Cyprus, Czechia, Estonia, Lithuania, Latvia, Malta, Poland, Slovakia, Slovenia, Hungary, alternately the term EU-10 was used.

³ During his speech he referred to the division of Europe and the Iron curtain, separating all the CEEC capitals (Berlin, Warsaw, Prague, Budapest, Belgrade, Bucharest, Sofia and Vienna).

⁴ Belgium, France, the Netherlands, Luxemburg, West Germany (at present Germany) and Italy.

equality of West Germany to the other parties to this project in relation to the production of coal and steel, at the same time allowing for mutual control and management of the heavy industry. With time other European countries started to be attracted by the integration processes and this trend stimulated development of cooperation in other parts of the world. It became a common model for the formation of similar integrated structures (Sadowski, 2012).

In 1957 the Treaty of Rome established the European Economic Community⁵, aiming at the harmonious economic development of the member countries, strengthening their economic stability and promoting cooperation between them thanks to the creation of a common market. Social policy was not focused on, since it was believed that it is a natural consequence of economic benefits brought about by the liberalisation of trade. The 1960s were the period of elimination of tariffs in trade between the member countries and a common policy aiming at food production control (Spychalski, 2015). Moreover, in 1961 the European Social Charter was signed, thus underlining the social functions of the state and the need for increased public welfare.

In 1973 the communities were joined by Denmark, Ireland and Great Britain (the so-called first enlargement of the EU⁶), while its policy in the 1970s focused on environmental protection and promotion of democracy. The 1980s marked two enlargements. In 1981 Greece joined the Union and in 1986 the same was done by Spain and Portugal. In terms of its social impact the most important event was the signing of the Single European Act, thus altering the approach to integration in terms of the social aspects (including working conditions and social welfare) (Machowska-Okrój, 2014).

The 1990s were the most important years for the formation of the European Union. At that time a single market was established ensuring free movement of individuals, capital, goods and services, the EU Treaty entered into force⁷ and Austria, Finland and Sweden joined the union (Sadowski, 2012). In 1994 a White Paper was prepared, describing a model of the EU social policy, while minimum objectives of the policy were specified at the same time honouring national diversity. The document identified social problems and main objectives were defined, aiming at improvement of the situation on the labour market, guaranteeing social progress and preventing social exclusion.

The next step towards full integration was connected with the introduction of a single currency. Moreover, in the “new decade” the focus was on the creation of new jobs and efforts made towards greater social cohesion⁸. Social policy was no longer understood as an element of the economic system. The year 2004 marked the greatest enlargement in the history of the European Union. The union was joined by as many as 8 Central and Eastern European

⁵ It comprised the same countries, which formed the European Coal and Steel Community.

⁶ It is arbitrarily termed EU enlargement, although it was the European Community at that time.

⁷ The Maastricht Treaty – signed in 1992, entered into force in 1993.

⁸ The Lisbon strategy.

countries, including Poland as well as Cyprus and Malta, which symbolically seemed to end the division of Europe. Bodenstein (2017).

In 2007 the EU was joined by Bulgaria and Romania and the Treaty of Lisbon was signed, transforming the EU into a more efficient, more democratic and transparent organisation. These actions were to ensure effective actions related to climate change, security and sustainable development. In 2013 Croatia became the 28th member of the European Union. In turn, in 2020 as a result of a national referendum Great Britain left the Union. At present the candidate and potential candidate countries include Albania, Bosnia and Hercegovina, North Macedonia, Kosovo, Montenegro, Turkey, Serbia and most recently Ukraine.

There are numerous benefits connected with cooperation with the European Union. First of all integration is to lead to interdependencies between all the member countries, support individual countries in their socio-economic development and efforts to ensure their population's welfare, provide security and justice as well as scientific and technical assistance (Machowska-Okrój, 2014). However, the progress in the unification of the EU policy, including social policy, is difficult, due to a lack of interest on the part of some EU member countries, among other things as a consequence of increasing costs of meeting all social needs as well as the necessity to reduce government expenditure. Each country implements reforms at their own pace.

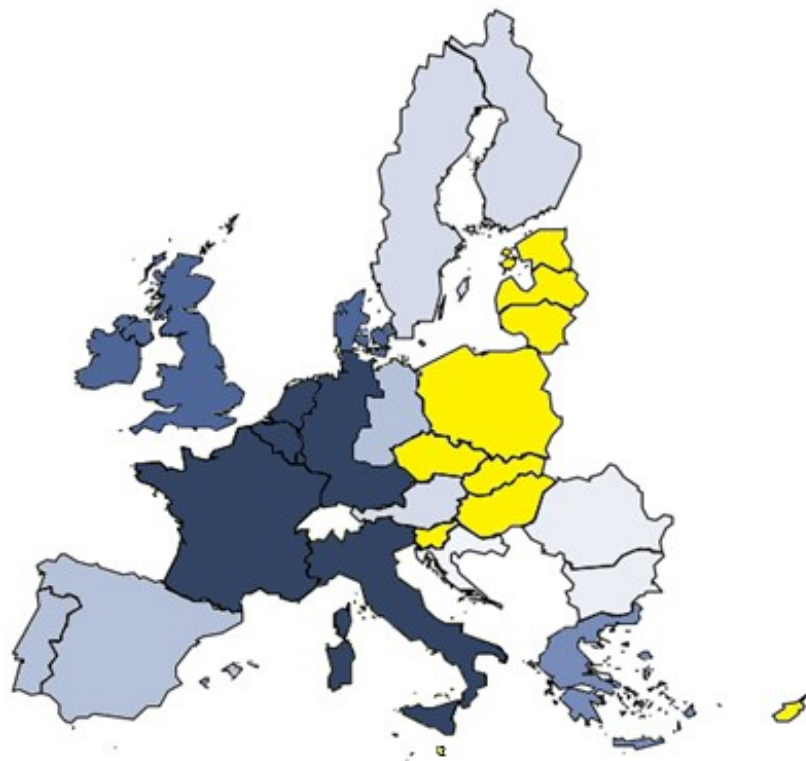


Figure 1. Enlargements of the European Union 1957-2013. Source: the authors' study based on <https://european-union.europa.eu> [accessed: 23.03.2022].

3. Material and Method

The extensive range of this study concerning development in European countries made it possible to select characteristics and the structure of a synthetic measure. By focusing on the social aspect of development the analysis comprised indexes related to education, health, demography, labour market and housing (Table 1). The material for analysis included information from the EUROSTAT database. Due to the availability of data the conducted analysis covered three years, i.e. 2004, 2010 and 2019, thus facilitating observations of changes in the discussed phenomenon over time.

The diversified level of social development in the EU-10 countries was investigated using a synthetic measure of development based on the classical TOPSIS method. This method is a tool frequently applied in research to construct a synthetic characteristic (Głowicka-Wołoszyn, Wysocki, 2018), among other things by using several simple traits concerning various types of socio-economic phenomena.

The proposed method consists of the following stages (Wysocki, 2010):

1) Selection of simple characteristics

For the purpose of this analysis it was decided to select the characteristics given in Table 1. Their selection was based on their informative value and statistical merit. Since the set of diagnostic characteristics may have contained variables, which repeated the same information, they were verified statistically. This verification was based on the coefficient of variation and Pearson's linear correlation.

Table 1.

Variable adopted for the analysis of the level of social development in the EU-10 countries

no.	Simple characteristics
X1	The rate of natural increase per 100 inhabitants
X2	Net migration rate per 1000 inhabitants
X3	The percentage share of individuals aged min. 60 years in the population structure
X4	The percentage share of individuals with higher education in the total population
X5	The percentage share of individuals with elementary education in the total population
X6	The percentage share of economically active individuals with higher education
X7	The percentage share of unemployed in the total population
X8	Young unemployed (the percentage of unemployed aged 20-29 years in the population aged 20-29 years)
X9	Number of people per 1 physician ⁹
X10	Number of hospital beds per 1000 people ¹⁰
X11	Mean number of rooms per person ¹¹

Source: the authors' study based on EUROSTAT data.

⁹ In the case of characteristic x9 for Poland the data from 2004, 2010 and 2018 was used.

¹⁰ In the case of characteristic x10 for Cyprus the data from 2005, 2010 and 2019 was used.

¹¹ In the case of characteristic x11 for the analysed countries the data from 2005, 2010 and 2019 was used.

In view of the potential presence of characteristics potentially leading to a distortion of results they were statistically verified. Among the selected diagnostic variables it was decided to reject characteristics x1 and x6, which exhibited low variability (the coefficient of variation below 10%). The structure of the inverse of the matrix of Pearson's linear correlation showed an excessively correlated characteristic (x8), which was removed from the set of selected simple characteristics.

2) Normalisation of values of characteristics

In the next stage of this procedure it was assumed that six characteristics are destimulants – x3, x5, x7, x9, x10 and x11, while the other characteristics are stimulants. This ordering made possible transformations according to the following formulas:

In the successive step of the procedure it was assumed that six characteristics are destimulants – x3, x5, x7, x9, x10 and x11, while the other are stimulants. This ordering made possible transformations using the following formulas:

- for stimulants

$$z_{ij} = \frac{x_{ij} - \min_i\{x_{ij}\}}{\max_i\{x_{ij}\} - \min_i\{x_{ij}\}}$$

- for destimulants

$$z_{ij} = \frac{\max_i\{x_{ij}\} - x_{ij}}{\max_i\{x_{ij}\} - \min_i\{x_{ij}\}}$$

1) Determination of coordinates of model units – model A^+ and antimodel A^- of development.

$$A^+ = (\max_i(z_{i1}), \max_i(z_{i2}), \dots, \max_i(z_{iK})) = (z_1^+, z_2^+, \dots, z_K^+)$$

$$A^- = (\min_i(z_{i1}), \min_i(z_{i2}), \dots, \min_i(z_{iK})) = (z_1^-, z_2^-, \dots, z_K^-)$$

When determining the coordinates of the model and the antimodel of development the maximum and minimum values were assumed. In this way the coordinates of model (A^+) were 1, while coordinates of antimodel (A^-) were 0.

2) Calculation of Euclidean distances for each evaluated object from the model and antimodel of development.

$$d_i^+ = \sqrt{\sum_{k=1}^K (z_{ik} - z_k^+)^2}, \quad d_i^- = \sqrt{\sum_{k=1}^K (z_{ik} - z_k^-)^2}$$

$i = 1, 2, \dots, N$

3) Calculation of the value of a synthetic characteristic.

$$S_i = \frac{d_i^-}{d_i^+ + d_i^-}$$

4) Linear ordering of countries, indication of the position in the ranking.

4. Results

The TOPSIS method made possible linear ordering of the countries within the analysed phenomenon, while the adopted measure showed considerable differences in the position of the countries in the analysed years (Table 3).

Table 2.

Selected descriptive statistics for the value of the synthetic measure for the EU-10 countries in 2004, 2010 and 2019

List	2004	2010	2019
max	0.6603	0.6749	0.6017
min	0.4112	0.4472	0.5098
mean	0.5164	0.5332	0.5675
med.	0.5088	0.5239	0.5800
range	0.1514	0.0919	0.0144
coefficient of variation (%)	14.0	12.4	5.1

Source: the authors' elaboration based on their studies.

It needs to be stressed that the value of the coefficient of variation decreased in the investigated years. This means that the EU-10 countries in the analysed years were characterised by low variability. In 2004 its value was 14.0 %, in 2010 it was 12.4 %, while in 2019 it was 5.1 %, which may be interpreted as a positive phenomenon. This means that countries exhibit increasing social cohesion, as confirmed also by the decreasing value of the range between the highest and lowest value of the measure in the investigated years. Moreover, an increase was observed in the minimum value of the investigated phenomenon and a decrease in the maximum value, which also confirms progress in the discussed phenomenon.

Table 3.

Values of the synthetic measure of the level of social development in the EU-10 countries in 2004, 2010 and 2019

countries	Value of the measure			Position in the ranking		
	2004	2010	2019	2004	2010	2019
Cyprus	0.6603	0.6749	0.5777	1	1	6
Czechia	0.5087	0.5112	0.5363	6	6	9
Estonia	0.5626	0.5392	0.5859	3	4	3
Hungary	0.5121	0.5043	0.5098	4	7	10
Latvia	0.4239	0.4764	0.5824	9	9	4
Lithuania	0.5038	0.4825	0.5678	7	8	7
Malta	0.4112	0.4472	0.5402	10	10	8
Poland	0.4954	0.5643	0.5913	8	3	2
Slovakia	0.5089	0.5367	0.6017	5	5	1
Slovenia	0.5771	0.5949	0.5822	2	2	5

Source: the authors' elaboration based on their studies.

The values of the measure of the level of social development in the EU-10 countries were comparable, in the investigated years ranging from 0.4112 to 0.6749 (Table 2, Table 3). Moreover, in the years of analysis the mean value of the measure of development increased from 0.5088 in 2004 to 0.5800 in 2019. In the years 2004 and 2010 the highest values of this

measure and the 1st position in the ranking were recorded in Cyprus (with 0.6603 and 0.6749, respectively), while in 2019 it was in Slovakia (0.6017). The lowest values of the measure in the first two years of analysis were recorded for Malta (0.4112 and 0.4472), which was reflected in the lowest position in the ranking.

Changes in the values of the measure led to more evident changes in the ranking position of individual countries. In the analysed years in most EU-10 countries the value of the measure increased, which in many cases caused advances in the ranking positions (Slovakia, Poland, Malta, Lithuania, Latvia, Estonia). In 2019 Poland was 2nd, which when compared to 2004 meant progress by as many as 6 positions in the ranking (2004 – 8th), at a simultaneous increase in this measure by 0.0959. It may also be stated that in comparison to 2004 it was the greatest progress in terms of the ranking position and the value of the measure (an increase by 0.0959). In turn, Slovakia in 2019 turned out to be the leader of the social development ranking with the value of the measure amounting to 0.6017. Nevertheless, it needs to be added that in 2004 it had a good initial social situation, which was reflected in the country's 5th position in the ranking and a high value of the measure (0.5089).

In 2004 and 2010 consistently the same positions in the ranking were maintained by Czechia (6th), Lithuania (9th), Malta (10th), Slovakia (5th) and Slovenia (2nd). In 2019 their ranking position changed as follows: Czechia (9th), Lithuania (4th), Malta (8th), Slovakia (1st) and Slovenia (5th). In 2010 in the case of Lithuania and Estonia a decrease was recorded in the value of the social development measure compared to 2004 by 0.0213 and 0.0234, respectively. For Czechia and Slovenia no marked increases were observed for the measure of development, as a result of which their ranking position decreased in relation to the first period of the study (2004). An exception in the analysed group was found for Cyprus and Hungary, in which a decrease in the level of social development was recorded in comparison to the other EU-10 countries. In the case of Cyprus the value of the measure dropped by 0.0826, which resulted in the fall from the 1st position in 2004 and 2010 to the 6th position in 2019. The level of social development in Cyprus to a considerable extent resulted from the prolonged recovery from the global financial crisis (Pastuszka, 2021). In turn, in Hungary the value of this measure decreased by 0.0023, in 2019 leading to the country's lowest position in the ranking. As it was stated by Moździerz (2016), in Hungary since 2010 the negative economic trends were connected with the world crisis, as well as the tax policy, which affected social changes in Hungary.

Changes in the values of the measure of social development in the EU-10 countries and their ranking positions resulted from the transformations made in the case of many of the indexes adopted in the analysis. Extremely strong variability was observed for the index expressing net migration per 1000 inhabitants (the coefficient of variation over 650%). However, it is not a phenomenon, which could be found surprising, since characteristics representing demographic changes as a rule exhibit strong variability both in terms of the time frame and the analysed countries. Strong variability (56.1-57.6%) was found for the indexes referring to education (the percentage of people with elementary education), the labour market

(the percentage of unemployed in the total population, the percentage of young unemployed) and health (Number of people per 1 physician). In this case it may be considered a positive trend for the values of passive factors to decrease (e.g. the percentage of individuals with elementary education or the percentage of unemployed), which affected the observed diversity. From the point of view of social development in the EU-10 countries it indicates a continuous improvement of intellectual capital as well as progress in terms of access to the labour market and health care. It may be problematic to consider the index related to the mean number of rooms, which increased in the investigated countries, at the same time exhibiting average variability (the coefficient of variation at 28.9%). Obviously it was connected to a greater extent with demographic changes (a decrease in the population size), which caused an increase in the mean number of rooms per person.

Results of these investigations are consistent with those presented by other authors analysing this problem. Examples of such research may be provided e.g. by studies of Łuczak and Wysocki (2019), who analysed EU countries in terms of social and economic development. Those investigations showed in 2016 progress in social development in the EU-10 countries except for Cyprus, where the socio-economic situation deteriorated, leading to a worsening of the development status. Research conducted by Stec (2004) concerning a comparative analysis of socio-economic development in the EU countries including candidate countries indicated weak positions in the ranking for the countries applying for EU membership, which provides another point of reference for the stated marked progress made since 2004. The evident reduction of differences in the level of social development shown in this study is consistent with the results of analysis conducted by Klonowska-Matynia (2018), who identified the process of decreasing disproportions in social cohesion.

5. Conclusion

This paper compared the level of social development in the EU-10 countries and presents the position of Poland by establishing ranking lists for three periods of time, i.e. 2004, 2010 and 2019. The scope of social indexes initially comprised 11 variables, representing health, housing, education, demography and the labour market, next it was reduced to 8 variables. Values of the adopted set of variables using the TOPSIS method made it possible to determine the ranking position of the countries in terms of the proposed statistical characteristics.

Changes in the values of the measure led to marked changes in the ranking positions of individual countries. In 8 countries the value of the measure increased in the analysed years, with Hungary and Cyprus being exceptions to this trend. Hungary was the only of the analysed countries which showed no marked positive changes in the social aspect. An improved ranking position was recorded for Lithuania, Malta, Poland and Slovakia. The greatest improvement in

the ranking position and the biggest increase in the measure of development were found for Poland, which in 2019 ranked 2nd (2004r – 8th). In turn, in 2019 Slovakia took the leading position. It also results from a study by Mucha-Leszko (2017) that Slovakia and Poland developed most dynamically. An interesting situation was observed in the case of Czechia, since despite the increase in the value of the measure of development ranked as low as 9th in 2019. It may be stated that accession of the analysed countries to the European Union, in most cases led to their dynamic social development (Mucha-Leszko, 2017; Ižová et al., 2021).

Realisation of the assumed research aim made it possible to identify a diverse approach to social aspects in the EU-10 countries. However, it may also be observed that between the countries diversification within the analysed aspect decreases, which may indicate their attempts towards uniformity in terms of social aspects (Berbeka, 2002; Wydymus, 2017).

Moreover, it may be stated that the recorded results may constitute a source of reference for the developed national strategies for social phenomena. Research may also facilitate the elaboration of support programmes in the problematic areas.

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