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#### MAŁGORZATA HANNA RACZKOWSKA

Warsaw University of Life Sciences, Poland

ORCID iD: 0000-0002-8540-8958

MONIKA UTZIG Warsaw University of Life Sciences, Poland

ORCID iD: 0000-0003-4143-967X

ANETA MIKUŁA Warsaw University of Life Sciences, Poland ORCID iD: 0000-0001-7129-6898

## DIVERSIFICATION OF GOOD GOVERNANCE IN EUROPEAN UNION COUNTRIES USING THE TOPSIS METHOD

#### Abstract

The study aims to identify and assess the level of good governance and to see if there is a relationship between good governance and economic growth in European Union countries in 2021. The research used the TOPSIS method and Spearman's rank correlation coefficient. The study showed a wide variation in the level of good governance in EU countries. The rankings made it possible to distinguish countries with the highest level of good governance and economic growth. In both rankings Luxembourg is leading, which significantly deviates in the level of the analyzed characteristics from the other EU countries. According to the level of good governance, the last position in the rank was occupied by two Southern European countries, Greece and Cyprus. The analysis confirmed a significant relationship between good governance and economic growth in EU countries. It can suggest, that the higher the level of economic development of an EU country (measured by several indicators of sustainable development), the higher the level of good governance.

**KEYWORDS:** good governance, economic growth, sustainable development, European Union, TOPSIS

#### INTRODUCTION

The COVID-19 pandemic has highlighted significant global inequalities and caused disruptions to policymaking and the implementation of social norms. This has reinforced the need for systemic changes towards a more sustainable economy that serves both people and the planet. Sustainable development that promotes well-being, and satisfies a range of social needs such as education, health, social protection, and employment opportunities, while simultaneously protecting the planet, can only be achieved through good governance. Good governance requires an open and developmental policy, a professional administration, decision-makers who are willing to act for the public good, process transparency, and a strong civil society (Berniak-Woźny, 2017, p. 14). The European Union is a leader in promoting the concept of good governance, but while the concepts presented by major organizations are consistent, the methodology for measuring it needs to be further refined. The World Bank has been monitoring the implementation of good governance in most countries worldwide since the mid-1990s. Additionally, indicators of good governance are included in the EU's Sustainable Development Goals.

The concept of good governance (GG) has gained significance during the pandemic. The necessity of implementing preventive measures aimed at limiting the spread of the virus by state authorities has elicited reactions from citizens towards these measures. In many countries, trust in political authorities has increased following the outbreak of the epidemic (Devine et al., 2021, p. 282).

The main goal of this study is to identify and evaluate the level of good governance in European Union countries and to determine whether there is a relationship between good governance and economic growth. Due to the complexity of the problem, specific goals have also been adopted aimed at building a ranking of EU countries according to good governance and economic growth, as well as determining the relationship between the analyzed synthetic indicators. Empirical materials are based on currently available statistical data from Eurostat (Eurostat). The research time covers the year of the COVID-19 pandemic, which significantly affected the economic situation of the studied EU countries, i.e. the year 2021. In case of unavailability of unit data in the studied year, they were replaced with data from the nearest period, i.e. 2020. The subject scope of the study consists of 27 European Union member states. The calculations and visualization of research results were carried out using the Statistica 13.1 program and Microsoft Excel.

Due to the complexity of the analyzed categories and the possibility of ordering objects from best to worst to achieve the goal, we used the TOPSIS method (Technique for Order Preference by Similarity to an Ideal Solution) for multidimensional data analysis. This involved determining the distance of each multi-feature object from the ideal and anti-ideal solutions, and then linearly ordering the objects. The final result of the analysis is a synthetic indicator that creates a ranking of the studied objects (economies) from *best* to *worst* (Yoon and Hwang, 1995; Balcerzak and Pietrzak, 2016, p. 4). The best object is considered the one that has the smallest distance from the ideal solution and the largest distance from the anti-ideal solution (Jahanshahloo et al., 2006).

In the article, we evaluated good governance in the European Union based on Sustainable Development Indicators (SDIs) defined by Eurostat. The European Union considers good governance as one of the foundations for implementing a sustainable development strategy. Although there is a lack of a leading indicator in the GG area, several indicators have been defined within Goal 16 that reflect, to some extent, the five main criteria of good governance: openness, participation, accountability, effectiveness, and coherence (Commission of the European Communities, 2001, p. 6). It is worth noting that the idea of Good Governance is relatively new, and it will take many decades to develop effective measurement tools and indicators of its effectiveness.

In economic literature, there are few studies that use the TOPSIS method to assess Good Governance in European Union countries. For instance, Ardielli (2019) created a ranking of EU countries using the Worldwide Governance Indicators (WGI) monitored by the World Bank. More analyses focus on determining the relationship between good governance and economic growth (studies on developed countries – Méndez-Picazo et al. (2012), as well as studies by Cooray (2009) and Khyareh & Amini (2021). In this study, the authors combined data measuring Good Governance (Goal 16 SDG) with data on economic growth (Goal 8 SDG) to assess the relationship between GG and EG. This type of study using the TOPSIS method has not been carried out before.

#### **GOOD GOVERNANCE CONCEPT**

The concept of good governance was introduced by the World Bank in response to problems with development policy in so-called developing countries (World Bank, 1992). These countries mismanaged the money they received for development due to the low quality of their institutions and political systems. The main problems were corruption, unstable law, and ineffective budget policy, and the concept of good governance was intended to overcome these problems. The World Bank identified four key areas of good governance (World Bank, 1992, pp. 1-2): public sector management, accountability, the legal framework for development, and information and transparency. The World Bank also developed a list of good governance indicators, which have been collected since 1996. Currently, good governance is monitored based on six aggregated indicators – Worldwide Governance Indicators (WGI): Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption (World Bank, 2022).

Good governance is also a fundamental concept of the European Union's actions. The introduction of the White Paper on European Governance (Commission of the European Countries, 2001) established good governance as a key factor shaping the institutional structure and internal mechanism of the EU. In this document, governance was defined as the principles, processes, and behaviours that influence the use of powers at the European level. Five principles of good governance were also identified: openness, participation, accountability, effectiveness, and coherence.

A comprehensive view of good governance in the EU is available in the Council of Europe (COE) Recommendation on good administration (Council of Europe, 2007). This document defined the fundamental right to good administration and aimed to facilitate its effective implementation in practice. There are many scientific analyses regarding good governance in Europe. They suggest that promoting good governance in all EU activities has led to a broader view of this concept, not only in terms of administrative capacity but also in terms of respect for human rights, participation, and the rule of law (Börzel et al., 2008: Börzel & Hackenesch, 2013; Hackenesch, 2016). Additionally, the strong support for the concept of good governance by the EU means that it exports governance standards to countries that are not members of the EU to a great extent. A successful top-down Europeanization of post-communist Europe is given as an example, where internal reforms largely promoted democratization, political liberalization, and the fight against corruption (Börzel & Risse, 2009, 2012; Freyburg et al., 2015). However, there have been analyses indicating unfavourable internal conditions that limit EU transformation (Soyaltin-Colella, 2022b), as well as identifying negative effects of Europeanization, including the use of these processes by leaders to neutralize domestic political opponents (Dandashly & Noutcheva, 2019; Mendelski, 2015). Researchers also assess EU instruments for protecting democracy as weak (Sedelmeier, 2017; Soyaltin-Colella, 2022a).

Regardless of the interpretation and potential criticism of implementation, international organizations involved in sustainable development emphasize that the foundation for the effective achievement of SDGs is the level of public administration. Governments worldwide are still seeking solutions that support sustainable development, and good governance is identified as a crucial tool for achieving this goal (Güney, 2017). Good governance, among other things, is based on the belief that a system that delegates sovereignty to the people is more likely to direct public resources towards basic education, healthcare, and social services. Without such investments, it is impossible to eliminate poverty and achieve sustainable development (Kardos, 2012, p. 1167).

Many researchers emphasize the relationship between governance indicators and economic development (Kaufmann & Kraay, 2008, AlBassam, 2013; Jankauskas & Šeputienė, 2007). The institutional and organizational system of a given society co-determines its development possibilities. Studies have shown that the quality of institutions significantly affects the rate of economic growth. Improving the business climate is the main factor attracting both domestic and international investors to the country, which will ultimately translate into economic growth. Investors will move away from politically unstable, bureaucratic, and highly corrupt economies with ineffective and opaque government services. A socially responsible government that provides services and responds to the needs of its citizens will ultimately create a democratic environment leading to growth conducive to social inclusion and social development (Emara & Chiu, 2016).

The concept of good governance has gained increasing importance in recent years, both in developed and developing countries, as a way to promote effective and sustainable development, as well as reduce corruption and increase trust in government.

In this paper, the definition of Good Governance adopted by the European Commission, which identified five principles of good governance, has been used. Therefore, good governance in this paper is the governance that follows these five principles. Accordingly, good governance in this paper refers to the processes and behaviours that serve decision-making and exercising power in a country, which is accessible and understandable to the general public, transparent, effective, coherent, easy to understand, and provides broad citizen participation throughout the policy chain. This can be understood as citizens having a high level of trust in public institutions that are not corrupt. In measuring the level of good governance in EU countries, the indicators of Sustainable Development Goal 16 were adopted. Goal 16 aims to promote the building of peaceful and inclusive societies, provide access to justice for all, and build effective, accountable, and inclusive institutions. All of these assumptions fully correspond to the concept of good governance.

#### **Research method**

A synthetic measure was constructed based on the TOPSIS method using the following steps (Chen et al., 1992; Mikuła et al., 2021, pp. 6-8):

- Step 1. Choice of diagnostic variables.
- Step 2.

Developing a normalised data matrix according to the formula below:

$$z_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}}$$
, for  $i = 1, 2, ..., m$  and  $j = 1, 2, ..., n$ 

where:  $x_{ij}$  – observation of the *j*-th variable for the object *i*.

• Step 3.

Determining the model coordinates of the benchmark and anti-benchmark. The values of the benchmark (A+) and anti-benchmark (A-) are defined as:

$$A^{+} = [v_{1}^{+}, \dots, v_{n}^{+}], \text{ where } v_{j}^{+} = \begin{cases} \max v_{ij}, v_{ij} \in S \\ \min v_{ij}, v_{ij} \in D \end{cases}$$
$$A^{-} = [v_{1}^{-}, \dots, v_{n}^{-}], \text{ where } v_{j}^{-} = \begin{cases} \min v_{ij}, v_{ij} \in S \\ \max v_{ij}, v_{ij} \in D \end{cases}$$

where:  $J_Q$  – collection of stimulants,  $J_C$  – collection of destimulants.

#### • Step 4.

Calculation of Euclidean distances of the analysed objects from the ideal solution (benchmark) and the anti-ideal solution ( anti-benchmark) according to the formulas below

$$\begin{split} &d_i^+ = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^+)^2} \ \text{ for } i = 1, 2, \dots, m \text{ and } j = 1, 2, \dots, n \\ &d_i^- = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^-)^2} \ \text{ for } i = 1, 2, \dots, m \text{ and } j = 1, 2, \dots, n \end{split}$$

where:  $d_i^+$  – Euclidean distance of the *i*-th object from the pattern,  $d_i^-$  – Euclidean distance of the *i*-th object from the anti-pattern.

• Step 5.

Determining the ranking coefficient which defines the similarity of objects to the ideal solution:

$$S_i = \frac{d_i^-}{d_i^+ + d_i^-} \dots \text{ for } i = 1, 2, \dots, m. \text{ where } S_i \in [0; 1]$$

• Step 6.

Linear ordering and designation of types based on statistical criteria using the arithmetic mean and standard deviation of the synthetic measure values. The obtained values of the synthetic measure have been divided into four class intervals:

Class I (high):  $q_i \ge \overline{q} + s_q$ Class II (upper medium):  $\overline{q} \le q_i < \overline{q} + s_q$ Class III (lower medium):  $\overline{q} - s_q \le q_i < \overline{q}$ Class IV (low):  $q_i < \overline{q} - s_q$ where:  $\overline{q}$  - arithmetic mean of the value of the synthetic feature,  $s_q$  – standard deviation from

the value of the synthetic measure,  $q_i$  – value of the synthetic measure.

Two rankings of European Union countries were constructed (Ranking 1 – Economic Growth, Ranking 2 – Good Governance), and the Spearman rank correlation coefficient between them was calculated using the following formula (Spearman, 1987):

$$r_{S} = 1 - \frac{6\sum_{i=1}^{n} d_{i}^{2}}{n(n^{2} - 1)}$$

where:  $d_i$  – differences between the ranks of the corresponding features and feaindexture  $y_i$  (i = 1, 2, ..., n).

#### **Research results**

To build a ranking of EU countries and determine the relationship between good governance and economic growth, sustainable development indicators under Goal 8 (Decent work and economic growth) and Goal 16 (Peace, justice and strong institutions) were used. Following substantive premises and data availability, an initial set of variables included eight indicators under Goal 8 (Real GDP per capita, Investment share of GDP by institutional sectors, Young people neither in employment nor in education and training, Employment rate, Long-term unemployment rate, Fatal accidents at work per 100,000 workers, by sex, In work at-risk-of-poverty rate and Inactive population due to caring responsibilities) and four metrics under Goal 16 (Corruption Perceptions Index, Perceived independence of the justice system, Population with confidence in EU institutions, General government total expenditure on law courts).

To ensure appropriate data diversification and eliminate information duplication, variables were subjected to selection using variability and correlation coefficients. Due to a small degree of diversity (coefficient of variation below 10%), one indicator, Employment rate, was rejected. To eliminate overly correlated variables, a correlation matrix was calculated between the adopted variables. The Pearson correlation coefficient threshold was set at  $r_{xy} > 0,75$ . As a result of the analysis, the variable Perceived independence of the justice system was removed from further research. As a result, for further research procedures, seven indicators were selected for Goal 8, of which five were considered stimulants and two were considered de-stimulants. Three stimulant indicators were included for Goal 16 (Table 1).

Variable Symbol	The Name of the Variable	Character*					
GOAL 8							
<b>X</b> <sub>1</sub>	Real GDP per capita	S					
<b>X</b> <sub>2</sub>	Investment share of GDP by institutional sectors	S					
<b>X</b> <sub>3</sub>	Young people neither in employment nor in education and training	D					
<b>X</b> 4	Long-term unemployment rate	D					
<b>X</b> 5	Fatal accidents at work per 100 000 workers	D					
<i>X</i> <sub>6</sub>	In work at-risk-of-poverty rate	D					
<b>X</b> <sub>7</sub>	Inactive population due to caring responsibilities	D					
GOAL 16							
X <sub>10</sub>	Corruption Perceptions Index	S					
X <sub>11</sub>	Population with confidence in EU institutions	S					
X <sub>12</sub>	General government's total expenditure on law courts	S					

**Table 1.** The sustainable development indicators adopted in the study.

\* D – destimulant, S – stymulant

Source: own calculations based on (Eurostat).

The calculated values of the synthetic measure, using the TOPSIS method in the classical approach, allowed for the linear ordering of the examined countries and the identification of typological classes in terms of Good Governance (GG index) and Economic Growth (EG index) – a Table 2.

The value of the synthetic measure assessing Good Governance in the EU countries in 2021 ranged from 0.952 in Luxembourg to 0.045 in Cyprus. Therefore, the distance between the country with the highest level of GG and the country at the bottom of the list is very large and amounts to 21:1. The ranking of EU countries based on the analyzed characteristics identified three classes of countries with very high, high, and medium-low levels of Good Governance.

Rank	Country	EG index	EG class	Country	GG index	GG class
1	Luxembourg	0.9998		Luxembourg	0.952	
2	Ireland	0.6948	] '	Germany	0.525	1
3	Denmark	0.3459		Sweden	0.429	
4	Sweden	0.2765		Ireland	0.383	
5	Netherlands	0.2403	]	Netherlands	0.343	
6	Finland	0.1888		Austria	0.333	
7	Austria	0.1857		Finland	0.278	
8	Belgium	0.1755		Belgium	0.277	
9	Germany	0.1707		Denmark	0.238	
10	France	0.1424		Slovenia	0.214	
11	Italy	0.0937	]	Italy	0.182	
12	Cyprus	0.0848	]	Spain	0.159	
13	Spain	0.0707	]	France	0.158	
14	Malta	0.0661	]	Lithuania	0.128	
15	Slovenia	0.0572		Malta	0.125	
16	Portugal	0.0391		Estonia	0.123	
17	Czechia	0.0390		Portugal	0.120	
18	Greece	0.0369		Poland	0.117	
19	Estonia	0.0315		Romania	0.093	
20	Slovakia	0.0289		Latvia	0.084	
21	Lithuania	0.0242	]	Hungary	0.084	
22	Poland	0.0199	]	Croatia	0.075	
23	Hungary	0.0196	]	Bulgaria	0.072	
24	Croatia	0.0189		Slovakia	0.066	
25	Latvia	0.0169		Czechia	0.064	
26	Romania	0.0062		Greece	0.053	
27	Bulgaria	0.0006		Cyprus	0.045	

**Table 2.** *Rankings of EU countries according to the value of the economic growth index (EG index) and the good governance index (GG index).* 

**Source:** own calculations based on (Eurostat).

In the first group characterized by the highest level of Good Governance, three EU countries were included: Luxembourg, Germany, and Sweden. These countries are distinguished by a high Corruption Perceptions Index (above 80), which means that the public sector is perceived as low in corruption in these countries. This is a result significantly above the EU average of 64. Additionally, in this group of countries, the percentage of citizens expressing trust in public institutions ranged from 64% in Luxembourg to 48% in Germany, which can also be considered above the EU average. Total expenditure of the government and local government sector on the judiciary in this class was very high, amounting to over 120 EUR per inhabitant in Germany and Sweden, and over 202 EUR per inhabitant in Luxembourg.

The countries in the second class (Ireland, Netherlands, Austria, Finland, Belgium, Denmark), with a higher average level of GG compared to countries in the first group, were characterized by a lower average level of corruption perception index (excluding Denmark, Finland, and the Netherlands), a lower percentage of the population with trust in public institutions (by nearly 7 p.p.), and lower expenditure of the government and local government sector on the judiciary (on average by 55 EUR per inhabitant).

Class three, comprising 17 EU countries (including all countries of Central and Southern Europe), stood out with the lowest values of all analyzed indicators. The weakest results in terms of the analyzed characteristics in 2021 were achieved by two countries, Greece and Cyprus. Cyprus was characterized by the lowest expenditures of the government and local government sector on the judiciary in the entire EU (only 27 Euro per inhabitant), while Greece had the lowest percentage of the population who trusted public institutions (28%). These countries also showed significant deficiencies in the area of corruption (the Corruption Perceptions Index reached values significantly below the EU average). In this group, Poland was ranked 17th, outranking only seven countries from the former Eastern Bloc, as well as Greece and Cyprus.

No countries with a low level of GG were identified in the study of group four.

In 2021, Luxembourg and Ireland (class I EG) were the countries with the highest level of economic growth measured by2 multiple ZR indicators. The countries with the lowest level of analyzed economic growth were Romania and Bulgaria (class III EG). The difference in the level of the synthetic measure

between the country ranking first in the ranking, Luxembourg, and the country ranking last, Bulgaria, is very large. The EG index for Luxembourg reached a value close to 1, while for Bulgaria it was 0.

A Spearman's rank correlation coefficient was calculated between the GG index measuring the level of good governance and the EG index assessing economic growth in EU countries. The study shows that there is a statistically significant (p<0.05) strong positive correlation between the variables ( $r_s = 0.788$ ). This may mean that a high level of good governance, i.e., high institutional quality, a low-corruption public sector, and high trust of citizens in public institutions, coexists with a high level of economic growth evaluated by SD indicators.

#### Discussion

Research has shown the high position of Luxembourg, Germany, and Sweden among the EU-27 countries in terms of Good Governance. As rankings created by various international organizations (including the World Bank based on the Worldwide Governance Indicators index, the UN – Government Development Index, eParticipation Index; Council of Europe – European public administration country reports) demonstrate, these countries have long been among the top ten countries in the world with the best governance. Scientific studies by Charron et al. (2015), Ardelli (2019), and Kardos (2012) also reinforce the above findings.

To answer the main research question in the article, the Spearman rank correlation coefficient ( $r_s$ ) was calculated between the synthetic measure of Good Governance (GG index) and the synthetic measure of economic growth (EG index), indicating a statistically significant strong positive correlation between the variables under study. The obtained results are consistent with, among others, Mauro (1995), Evans & Rauch (1999), and Khan (2007), who argue that there is a positive correlation between many elements of governance quality and long-term GDP growth rates, perceiving good governance as an important factor in economic growth. Similarly, Kaufmann & Kraay (2002) and Acemoglu et al. (2004) indicate that weak governance is a characteristic

of low real per capita GDP countries. The studies of Roll & Talbott (2003) confirm that nearly 80% of the differences in per capita incomes between different countries can be explained by factors such as property rights, political rights, governance expenditures, and freedom of speech, and negative effects arise from excessive administrative regulations, informal economy, trade barriers, etc. Kaufmann (2003) also notes that economic development is related to the quality of institutional structure, such as judicial independence, corruption level, and ease of doing business. According to Hall & Jones (1999), an important factor in long-term economic development is social infrastructure, which includes government institutions and policies. By creating appropriate institutions, the government reduces uncertainty and transaction costs, thereby increasing trade efficiency, encouraging specialization, and promoting investment in physical and

In contrast to the above findings, Kurtz & Shrank (2007) argue that the relationship between good governance and economic growth may be merely theoretical and lacks sufficient evidence to support it. According to them, the link between economic growth and good governance may only be apparent in developed countries or over a very long period. This statement is reinforced by Pere (2015), who, based on World Bank data, examined the impact of good governance on the economic development of Western Balkan countries and found that some aspects of good governance have a greater impact on economic growth than others. In some cases, the relationship between the indicators is negative (government effectiveness, regulatory frameworks, and corruption), while in others it does not exist or is not statistically significant.

### Conclusion

The possibilities and usefulness of the TOPSIS linear ordering method for examining the spatial differentiation of Good Governance and Economic Growth in the countries of the European Union (EU-27) in 2021 are presented in this paper.

The analysis employed three indicators of sustainable development within goal 8, based on which a ranking of EU countries according to the level of Good Governance (GG index) was constructed. The study found that the

variable with the greatest impact on the ranking achieved by a given country in the GG range was the Corruption Perception Index, followed by the proportion of the population who trust EU institutions. In the presented comparison, three countries, Luxembourg, Germany, and Sweden, occupied the top positions in the GG scale, while Greece and Cyprus were at the bottom. Countries with very high GG accounted for 11% of the total number of EU countries. No countries were identified as belonging to the fourth class, which is characterized by a very low level of GG. The majority of countries, over 67%, were represented by those with medium to low levels of GG.

In both rankings, very large differences were observed between the country with the highest and lowest value of the synthetic measure. In the case of the GG index, the range was 0.908, and for the EG index, it was 0.999. The results confirm that EU countries differ from each other in terms of economic, social, and political systems. Additionally, the division of EU countries into Western and Southern/Central and Eastern Europe is still visible.

The analysis allowed for identifying a significant correlation between Good Governance and Economic Growth in European Union countries. It can be assumed that the higher the level of economic development (measured by many SDGs), the lower the level of corruption in state institutions, and the greater the trust of citizens in public institutions, which translates into a higher level of GG.

The article contributes to the existing literature by proposing a method for assessing Good Governance based on sustainable development data, rather than World Bank data. Moreover, this article enriches Good Governance research by examining the relationship between GG and economic growth using a taxonomic method based on the construction of a synthetic measure using the TOPSIS benchmarking method.

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