

The Impact of Good Governance on Sustainable Development: Evidence from Balkan Countries

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Abstract: This study examines the impact of good governance indicators—such as freedom of expression and accountability, political stability, government effectiveness, quality of regulators, rule of law, and control of corruption—on the level of sustainable development in Balkan countries (Bosnia and Herzegovina, Bulgaria, Croatia, Greece, North Macedonia, Romania, Slovenia, Turkey), emphasising the role of institutions. The study employs the ordered logit model method using data from the period 2006–2022. The findings indicate that in Balkan countries, accountability, political stability, government effectiveness and rule of law raise the level of sustainable development and are more effective at higher level of sustainable development and are higher likely to affect the higher level of sustainable development; while control of corruption reduce the level of sustainable development. Policy recommendations include further improving and ensuring the sustainability of good governance indicators such as accountability, political stability, government effectiveness and rule of law in the Balkan countries; ensuring citizens' participation in decision-making processes on governance; and establishing an institutional structure with solid foundations for good governance indicators. This study, which examines the impact of good governance indicators on sustainable development, contributes to the literature by employing a new methodology for the first time, such as the ordered logit model, which has not been previously used in the good governance-sustainable development literature.

1. Introduction

The concept of governance has been widely discussed among academics and policymakers, but there is no consensus on its definition. Although various authors and organizations have attempted to define it, the definition proposed by the World Bank is widely accepted in the literature. Good governance was first used by the World Bank in 1989 (Huang and Ho, 2016) and defined as “the way power is exercised in managing a country’s economic and social resources for development” (World Bank, 1992). Good governance is widely measured by the World Bank's Worldwide Governance Indicators. Kaufmann et al. (2011) propose three areas to define governance, then create two governance measures corresponding to these three areas, resulting in a total of six governance dimensions. These three areas are: a) The process by which governments are elected, monitored, and changed; b) The government's capacity to effectively formulate and implement sound policies; c) Respect for the institutions that govern the economic and social interactions between citizens and the state. The process by which governments are elected, monitored, and changed; freedom of expression and accountability and political stability; The government's capacity to effectively formulate and implement sound policies; government effectiveness and quality of regulators; The respect of citizens and the state for the institutions that govern their economic and social

interactions; rule of law and control of corruption (Kaufmann et al., 2011). Accordingly, the level of good governance is measured by six different indicators: freedom of expression and accountability, political stability, government effectiveness, quality of regulators, rule of law and control of corruption.

Freedom of expression and accountability captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Political stability measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. Government effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests (Kaufmann et al., 2011). Good governance indicators started to be calculated in 1996, but indicators have been calculated regularly every year since 2002. Governance indicators are presented in two forms: values and scores. The good governance indicators take values between -2.5 and +2.5 and scores between 0 and 100. As the value or score decreases, there is worse governance, and as the value or score increases, there is better governance (Kaufmann et al., 2010). In this case, good governance increases as the values approach +2.5 and the scores approach 100.

Governance began to gain importance in the 1990s, and in recent years the relationship between sustainable development and good governance has found a place in the literature. Essentially, based on the definition of good governance, it can be considered that good governance can be an effective variable on sustainable development. Although there are variables affecting sustainable development in the literature, the impact of good governance indicators on sustainable development has started to be investigated by researchers in recent years. Sustainable development was first used in the Brundtland Report (Our Common Future) published by the World Commission on Environment and Development in 1987 and defined as "meeting the needs of today without compromising the ability of future generations to meet their own needs" (WCED, 1987). Sustainable development, as defined by the WCED (1987), is based on three principles: economic prosperity, social justice, and environmental integrity. These three principles form the foundation of sustainable development. The principle of economic well-being involves the creation and distribution of goods and services that will help raise the standard of living worldwide by promoting the quality of life through the productive capacity of individuals and organizations in society. The principle of social justice encompasses ensuring that all members of society have equal access to resources and opportunities, enabling both current and future generations to benefit from the same resources. The principle of environmental integrity is the principle that ensures humankind does not destroy the land, water, and air (Bansal, 2004).

While indicators of international organizations such as the United Nations, OECD, European Union and World Bank are used in the measurement of sustainable development, there are also Sustainable Development Goals (SDGs) put forward by the United Nations Commission on Sustainable Development. There are 17 sustainable development goals: partnerships for the goals; life on land; peace, justice and strong institutions; life below water; responsible consumption and production; climate action; sustainable cities and communities; industry, innovation and infrastructure; reduced inequalities; decent work and economic growth; clean water and sanitation; affordable

and clean energy; gender equality; good health and well-being; quality education; no poverty; zero hunger. In this direction, the sustainable development goals index was created by the United Nations. The SDG index measures overall progress and success in achieving all 17 Sustainable Development Goals. The SDG index takes a value between 0 and 100 scores. A score of 100 indicates that all SDGs have been achieved (Sustainable Development Report, 2024).

Sustainable development generally refers to environmental, social, and economic integration, and specifically to environmental protection, poverty reduction, and strengthening economic growth. Governance is a means of using economic, political, and social governmental power in the management of social resources to ensure sustainable development. In this context, sustainable development can be considered an ideal management model for achieving the goals desired by society through good governance (Zahiri et al., 2021). Sustainable development emphasizes the necessity of public participation in decision-making processes concerning development and environmental issues aimed at respecting the well-being of future generations, raising the level of human welfare, protecting the environment, and meeting the needs of individuals. Since governance encompasses public institutions and decision-making processes in all public decisions, good governance and sustainable development are considered to be interrelated (Güney, 2017). According to Achot and Bill (2022) and Alier Riak and Bill (2022) good governance requires the existence of effective and accountable institutions that promote development, respect the rule of law, protect human rights, and enable people to participate freely in decision-making. In this context, development cannot be achieved without good governance, and good governance ensures that scarce resources are used most efficiently to promote development. Therefore, good governance can be considered a development-oriented policy. Good governance promotes sustainable development for three reasons. First, participating in decisions that shape one's life and having political freedom are fundamental human rights. Second, good governance helps protect people from economic and political disasters. Thirdly, good governance empowers citizens to influence policies that promote economic growth and prosperity. Thus, good governance can support sustainable development through these three effects (Achet and Bill, 2022; Alier Riak and Bill, 2022).

The process of globalization has strengthened the network of connections between economic, institutional, political, cultural, social, and environmental factors in countries. Therefore, improving governance practices to increase access to the global business world and secure the resources that this access provides has become a priority for countries. In this case, there should be a strong relationship between countries' governance level and sustainable development level (Lameira and Ness, 2010). Indeed, according to Bosselmann et al. (2008), good governance is a prerequisite for ensuring sustainability (Bosselmann et al., 2008). The United Nations has adopted the Sustainable Development Goals (SDGs) to be achieved by 2030. There are 17 Sustainable Development Goals that are to be achieved by 2030. The 16th of these 17 Goals envisages the establishment of institutions and mechanisms for good governance and emphasises the importance of good governance in ensuring sustainable development (Boruah, 2020). One of the most important requirements of the SDGs is the implementation of the principle of good governance in every country (Al-Sharafi et al., 2019). The success of the SDGs will depend on a number of institutional factors, such as the extent to which states formalise their commitments, adapt global goals to national contexts, strengthen relevant global governance arrangements, provide flexibility in governance mechanisms, and integrate sectoral policies (Mombeuil and Diunugala, 2021). One of the universal goals included in the 2030 vision for sustainable development is to establish the public administration necessary for a sustainable society. This goal focuses on creating sustainable societies and institutions through public administration. Therefore, to ensure sustainable development, societies must have a governance system aligned with these goals. According to Güney (2017), there is a positive relationship between sustainable development and good governance.

Accordingly, all components of governance promote sustainable development when they seek to protect ecosystems to ensure sustainable economic growth and are aware of the relationship between the environment and economic development (Güney, 2017).

According to Odugbesan and Rjoub (2019), in addition to economic, social and environmental factors, good governance is also effective in achieving sustainable development. Achieving sustainable development will be possible through an effective political system that enables citizen participation in decision-making processes and the rule of law (Odugbesan and Rjoub, 2019). The degree of sustainable development in any nation depends not only on economic, environmental and social factors, but also on the commitment of countries to good governance. Good governance is recognised as the most vital factor in strengthening sustainable development (Nasiru and Dahlan, 2020).

This study seeks to examine the effects of good governance on sustainable development in Balkan countries. We researched the effect of political stability, freedom of expression and accountability, government effectiveness, rule of law, quality of regulators and control of corruption on sustainable development, which are considered as indicators of good governance based on the literature. We think we have made four different contributions to the literature: First, we investigated the effects of good governance indicators on sustainable development, because few studies have examined it. Second, we have addressed the Balkan countries because the studies examining the effects of good governance on sustainable development in Balkan countries were not included in the previous studies. Third, we applied the ordered logit model, which has not been used before in the effects of good governance on sustainable development literature. Fourth, we used SDG index as a sustainable development indicator. Because SDG index has limitedly been used in the literature on the effects of good governance on sustainable development. This paper is organized as follows. Section 1 presents the introduction. Section 2 presents the literature. Section 3 presents the data, model and methodology. Section 4 contains our estimation results. Section 5 concludes the paper.

2. Literature Review

There are limited studies investigating the effects of good governance on the sustainable development in the literature. Empirical studies previously based mostly on regression analysis, survey and panel data analysis. The SDG Index, created by institutions as a measure of sustainable development, has rarely been used in the literature. When we examine the literature, the variables such as per capita GDP, poverty, Gini index, adjusted net savings, CO₂, environmental performance index, human development index, corruption perception index, SDG index, electric power consumption, energy consumption, capital, inflation, internet, Life expectancy, trade were used as an indicator of sustainable development. It becomes obvious that good governance affects sustainable development mostly positively in the literature. The relationship between good governance and sustainable development has been addressed in the literature from both theoretical and empirical perspectives, but empirical studies have been limited. Empirical studies in the literature present results based on different methods, different periods and different countries. In this context, the purpose of the literature review is to provide a comprehensive framework on the subject in the literature. In this context, the literature section addresses the existing theoretical and empirical literature on good governance and sustainable development.

The existing literature encompasses studies conducted on good governance and sustainable development, examining them from different perspectives. When the literature is considered from an empirical perspective; Lameira and Ness (2010), Odugbesan and Rjoub (2019), Nasiru and Dahlan (2020), Achot and Bill (2022), Alier Riak and Bill (2022) have revealed that there is a positive relationship between good governance and sustainable development. Akujuru (2015) found that good governance promotes sustainable development; Stojanovic et al. (2016) found that good governance affects sustainable development indicators, but that these effects vary between country

categories and sustainable development indicators. Al-Sharafi et al. (2019) found that accountability and transparency were weak in Yemen, that the principle of predictability was lacking, that there was a lack of analysis in government departments and that the relevant process needed to be improved; that the situation in India was better than in Yemen; and that further improvements were needed to facilitate sustainable development in both urban and rural communities. Wambulwa and Luengalongkot (2020) found a significant and linear relationship between good governance and sustainable development. Mombeuil and Diunugala (2021) argued that good governance indicators affect sustainable development in different ways. Güney (2017), Omri and Mabrouk (2020), Zahir et al. (2021), Gündoğdu and Aytekin (2022) found that good governance has a positive effect on sustainable development.

In addition to these empirical studies, there are also studies that theoretically address the relationship between good governance and sustainable development. Chris and Okoro (2016) examined the relationship between good governance, sustainable development and local government, concluding that sustainable development is based on good governance Abdullahi and Ahmad (2018) have highlighted the importance of good governance in achieving sustainable development. Emmanuel et al. (2018) suggested that good governance plays a strategic role in sustainable development in Nigeria. Dhaoui (2019) emphasised that good governance plays a powerful role in ensuring sustainable development. Gaghman (2019) has demonstrated that the implementation of good governance is important in ensuring sustainable development. Abubakar (2019) examined the extent to which the lack of good governance in Nigeria hinders sustainable development, emphasising that good governance is key to ensuring sustainable development in the country. Akhter and Ummara (2020) argued that good governance is the key to success in sustainable economic development for Pakistan. Langnel and Pathranarakul (2021) emphasised that, due to the complex, multifaceted and transboundary nature of environmental issues, the relationship between governance and sustainable development may not always be linear. Ikenga et al. (2022) examined good governance and sustainable development in Nigeria, highlighting that Nigeria has established interventionist institutions to ensure sustainable development, but that the impact of these institutions is weak, attributing this to corruption and project failure. Massey (2022) has argued that without the coordination and implementation of SDGs 16 and 17, none of the other 15 SDGs can be achieved, highlighting the link between sustainable development goals and good governance. Mamokhere (2022) identified the challenges encountered in implementing Sustainable Development Goal 6 (clean water and sanitation) in South Africa and examined the principles of good governance for sustainable development, finding that poor governance practices in South Africa hindered the achievement of SDG 6. Kaushik (2023) examines the role of good governance in achieving sustainable development in India, focusing on areas that need to be strengthened for improved governance.

A review of the literature reveals significant gaps in the literature: I) the limited research on the effects of good governance on sustainable development, II) The absence of studies examining the relationship between good governance and sustainable development specifically in the Balkan countries, III) the lack of studies examining the impact of all good governance indicators (six indicators) on sustainable development, IV) The scarcity of studies examining the impact of good governance on sustainable development using econometric analyses, V) The sequential logit model not being applied in the literature as a method in the relationship between good governance and sustainable development, IV) The lack of use of the sustainable development index (SDG index) in the literature on good governance and sustainable development. Filling these gaps identified in the literature will contribute to the literature.

Table 1. Literature Review

Author (Year)	Country/Period	Method	Result
Lameira and Ness (2010)	54 developed and emerging countries/2000-2008	Multiple regression analysis and Panel data analysis	He used the per capita GDP, CO2, electric power consumption, energy consumption, capital, inflation, internet, life expectancy, trade as a indicator of sustainable development. And he used the corruption perception index as a indicator of governance. He concludes that there is a positive relationship between governance levels and the economic dimension of sustainable development.
Akujuru (2015)	Nigeria/2001-2012	Survey	Good governance promotes sustainable development.
Stojanovic et al. (2016)	15 countries/2000-2012	Regression	Per capita GDP, poverty, Gini index was used as an indicator of sustainable development. Good governance affects sustainable development indicators. However, these effects vary across country categories and sustainable development indicators.
Güney (2017)	121 countries/1996-2012	Regression	Adjusted net savings was used as indicator of sustainable development. He concludes that governance has a significant and positive impact on sustainable development.
Al- Sharafi et al. (2019)	Yemen and India	Chi-square tests	It has been revealed that accountability is weak, the principle of predictability is lacking, the principle of transparency is weak, there is a lack of analysis in government departments, and the relevant process needs to be improved in Yemen. It is better in India than in Yemen and it is concluded that further improvements are needed to facilitate sustainable development in both urban and rural societies.
Odugbesan and Rjoub (2019)	26 Sub-Saharan African countries/1990-2016	Panel data analysis	Adjusted net savings was used as indicator of sustainable development. There is a long term, positive and significant relationship between good governance and sustainable development.
Omri and Mabrouk (2020)	20 MENA/1996-2014	Panel GMM	Per capita GDP, CO2 and human development index were used as a indicator of sustainable development. Governance has a positive impact on sustainable development.
Nasiru and Dahlan (2020)	Nigeria	Survey	There is a positive relationship between good governance and sustainable development goals.

				Good governance strengthens sustainable development goals.
Wambulwa and Luengalongkot (2020)	Uganda	Survey		There is a significant and linear relationship between good governance and sustainable development.
Mombeuil and Diunugala (2021)	10 Former European colonies/2007-2017	Panel analysis	data	Per capita GDP, corruption perception index and human development index were used as a indicator of sustainable development. The raise in corruption control increases the corruption perception index. As regulatory quality and the rule of law increase, economic growth increases, and as political stability increases, economic growth decreases. As government effectiveness and political stability increase, human development decreases.
Zahiri et al. (2021)	Iran/1997-2018	Johanson model	Joe	Per capita GDP, poverty, environmental performance index was used as an indicator of sustainable development. Good governance has a positive impact on the sustainable development index.
Achot and Bill (2022)	South Sudan/2007-2014	Survey		There is a positive relationship between governance and sustainable development. Good governance leads to sustainable development.
Alir Riak and Bill (2022)	South Sudan/2009-2015	Survey		There is a positive relationship between good governance and sustainable development. Good governance leads to improved sustainable development.
Gündoğdu and Aytekin (2022)	149 countries	Multiple regression analysis and Grey relational analysis		SDG index was used as indicator of sustainable development. He concludes that sustainable governance has a positive impact on sustainable development.

3. Materials and Methods

The study analyzes the impact of good governance on sustainable development for Balkan countries (Bosnia and Herzegovina, Bulgaria, Croatia, Greece, North Macedonia, Romania, Slovenia, Türkiye) in the period 2006-2022 by using panel ordered logit model. We used SDG index as the indicator of sustainable development. And we used good governance indicators as a indicator of good governance. Good governance indicators include freedom of expression and accountability, political stability, government effectiveness, quality of regulators, rule of law, and control of corruption.

We indicated an economic model to demonstrate the impact of good governance on sustainable development.

$$SDG=f(HES, POL, GOV, REG, RUL, COR, HRT) \quad (1)$$

SDG shows the level of sustainable development index. HES refers to accountability, POL refers to political stability, GOV refers to government effectiveness, REG refers to quality of regulators, RUL refers to rule of law, COR refers to control of corruption and these are good governance indicators. HRT refers to economic freedom index and is used

as a control variable. We seek to examine the impact of good governance on sustainable development. We scrutinized the effect of accountability, political stability, government effectiveness, quality of regulators, rule of law and control of corruption on sustainable development index by using the data from 2006–2022 period for Balkan countries. The sustainable development index is dependent variable, accountability, political stability, government effectiveness, quality of regulators, rule of law, control of corruption are independent variables and economic freedom index is control variable.

Table 2. Variable, Description and Database

Variable	Description	Database
SDG	Sustainable development goals index (0–100). 0 is the lowest value and 100 is the highest value.	United Nation
HES	freedom of expression and accountability (−2.5 and 2.5). As it gets closer to −2.5, accountability decreases; as it gets closer to 2.5 accountability increases.	World Bank
POL	political stability (−2.5 and 2.5). As it gets closer to −2.5, accountability decreases; as it gets closer to 2.5 accountability increases.	World Bank
GOV	government effectiveness (−2.5 and 2.5). As it gets closer to −2.5, accountability decreases; as it gets closer to 2.5 accountability increases.	World Bank
REG	quality of regulators (−2.5 and 2.5). As it gets closer to −2.5, accountability decreases; as it gets closer to 2.5 accountability increases.	World Bank
RUL	rule of law (−2.5 and 2.5). As it gets closer to −2.5, accountability decreases; as it gets closer to 2.5 accountability increases.	World Bank
COR	control of corruption (−2.5 and 2.5). As it gets closer to −2.5, accountability decreases; as it gets closer to 2.5 accountability increases.	World Bank
HRT	Economic freedom index (0–100). 0 is the lowest value and 100 is the highest value.	The Heritage Foundation

We generated a panel model for ordered logit analysis are:

$$SDG_{it} = \alpha + \gamma HES_{it} + \pi POL_{it} + \mu GOV_{it} + \beta REG_{it} + \delta RUL_{it} + \theta COR_{it} + \rho HRT_{it} + \varepsilon_{it}$$

(2)

SDG represents the sustainable development index of the United Nation and its lowest value is 0 and highest value is 100. We separated sustainable development index into three categories in Balkan countries: low, medium and high sustainable development level. We showed sustainable development index at three levels, from low level sustainable development to high level sustainable development (1 to 3). HES refers to accountability, POL refers to political stability, GOV refers to government effectiveness, REG refers to quality of regulators, RUL refers to rule of law, COR refers to control of corruption. HRT refers to economic freedom index. β_0 is the constant term and ε_{it} is the error term. The model analyzes the impact of good governance indicators on the level of sustainable development. Thus, an effort has been made to determine

which good governance indicators increase the level of sustainable development and which are more effective at higher levels of sustainable development.

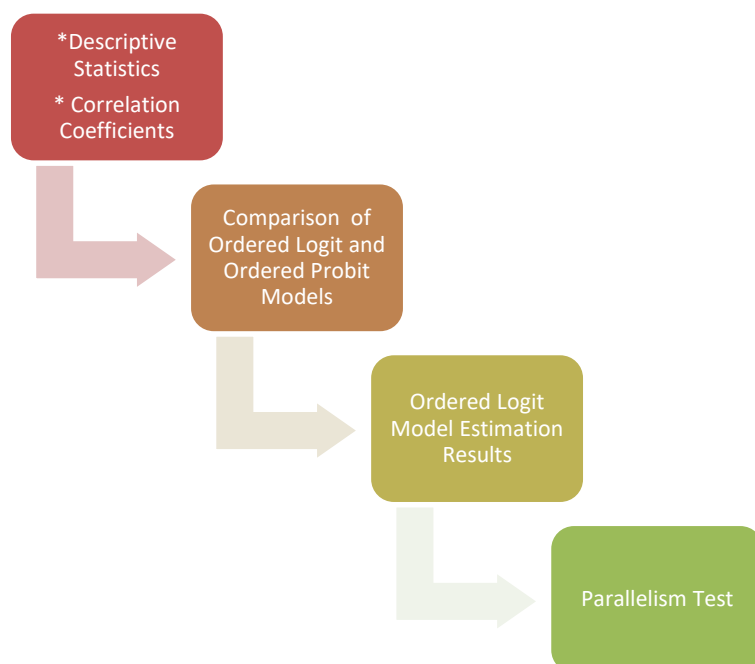


Figure 1. Empirical Stages. Source: Created by the authors

In the study, we used to ordered logit model as econometric method. The sustainable development index we used as a dependent variable is both a categorical and an ordered variable. Therefore, we used ordered logit/probit probability estimation methods. In the sustainable development-good governance literature, regression analysis, survey and panel data analysis are mostly used. Unlike the literature on the sustainable development-good governance, we made ordered logit model estimation. Thus, we intended to contribute to the literature with these estimations. In the study, the ordered logit model method was used to analyze the effect of good governance indicators on sustainable development levels. In the first stage, descriptive statistics and the correlation coefficient were examined. In the second stage, a comparison of ordered logit and ordered probit models was conducted. For this purpose, Pseudo R2 and information criteria (AIC and BIC) were used. If the information criteria in the ordered probit model are lower than the information criteria in the ordered logit model and the pseudo R2 value in the ordered probit model is greater than the pseudo R2 value in the ordered logit model, the ordered probit model is preferred (Piñeiro, 2005). Thus, it has been decided which of the ordered logit and ordered probit models will be used in the analyses. In the third stage, an ordered logit model estimation was performed. The ordered logit model is used when the dependent variable has an ordered and categorical structure. The ordered logit model is an extension of logistic regression applied when the dependent variable is categorical, has more than two categories (levels), and possesses a meaningful order. The ordered variable Y is a function of another continuous and unmeasured variable Y^* . The value of the observed variable Y is influenced by the unobserved variable Y^* and is shown in the following formulas (Bellizzi et al., 2018):

$$Y_i = 1 \text{ if } Y_i^* \leq k_1 \quad (3)$$

$$Y_i = j \text{ if } k_i \leq Y_i^* \leq k_{i-1} \quad (4)$$

$$Y_i = M \text{ if } Y_i^* \geq k_{M-1} \quad (5)$$

The continuous hidden variable is represented by the following equation:

$$Y_i^* = \sum_{k=1}^K \beta_k X_{ki} + \varepsilon_i \quad (6)$$

There is a normal distribution here, and the error term ε_i reflects the possibility that the variables may not be measured perfectly. β parameters are estimated using the Maximum Likelihood method. The goodness-of-fit of the ordered logit model is tested using R2, and the statistical significance of the variables is determined using Wald test p-values (Bellizzi et al., 2018). After estimating the ordered logit model, a parallel assumption regression test was conducted in the fourth stage of the study to determine whether the results were reliable. The Brant test, proposed by Brant (1990), is used for the parallel regression assumption. The Brant test statistic is compared with the chi-square table value. When the chi-square table value is greater than the Brant test statistic, the null hypothesis cannot be rejected, and it is stated that the parallel regression assumption has not been violated. Thus, it is concluded that the estimated results of the ordered logit model are reliable, and it is determined that the regression coefficients are the same for each category of the dependent variable (Brant, 1990). Figure 1 presents the empirical stages of the study.

4. Results

In the first stage of the analysis, descriptive statistics and correlation coefficients were examined, and the results are presented in Tables 3 and 4.

Table 3. Descriptive Statistics

Statistics	SDI	HES	POL	GOV	REG	RUL	COR	HRT
Mean	3.837	0.317	0.033	0.109	0.368	0.062	-0.106	62.803
Std. Dev.	0.506	0.457	0.624	0.496	0.291	0.450	0.413	4.378
Min.	3	-0.927	-2.007	-1.076	-0.468	-0.703	-0.791	53.1
Max.	5	1.070	1.149	1.143	0.997	1.085	1.052	71.3
Obs	153	153	153	153	153	153	153	153

According to the descriptive statistics in Table 3, the mean SDI is 3.837; HES is 0.317; POL is 0.033; GOV is 0.109; REG is 0.368; RUL is 0.062; COR is -0.106; and HRT is 62.803. The lowest standard deviation is for REG, and the highest standard deviation is for HRT.

Table 4 shows that there is a positive and 43%, 61%, 39%; 45%, 49%, 30%, 24% correlation between HES, POL, GOV, REG, RUL, COR, HRT and SDI respectively, which is statistically significant.

We estimated to choose which ordered logit and ordered probit models in our analysis.

Table 4. Correlation Coefficients

Variables	Correlation Coefficient	P-Value
HES	0.4294	0.0000
POL	0.6136	0.0000
GOV	0.3885	0.0000
REG	0.4502	0.0000
RUL	0.4857	0.0000
COR	0.2977	0.0002
HRT	0.2378	0.0031

In Table 5 the pseudo R2 in the ordered probit model is smaller than the pseudo R2 in the ordered logit model and is higher in terms of the information criteria. According to these criteria, we found it appropriate to choose the ordered logit model for Balkan countries.

We made ordered logit model estimation for Balkan countries. In order to realize that ordered logit models provide accurate forecasts, the parallel regression assumption must be satisfied. If this assumption isn't violated, ordered logit model estimations can be used. First, we made the ordered logit model estimation for developed countries, second, we made the parallel regression assumption test, finally we interpret the ordered logit model results. In Table 6, HES, POL, RUL and COR are significant at the 1% level, and GOV is significant at the 5% level but REG and HRT are insignificant. According to the chi2 test the model is significant as a whole.

Table 5. Ordered Logit and Ordered Probit Models

Model	Ordered Logit Model	Ordered Probit Model
HES	6.417***	-3.101***
POL	5.880***	2.813***
GOV	2.651**	1.093
REG	-0.871	-0.226
RUL	10.301***	5.050***
COR	-7.597***	-3.534***
HRT	0.105	0.042
McFadden R2	0.546	0.525
AIC (Akaike information criterion)	120.490	125.382
BIC (Bayes information criterion)	147.764	152.656
Log likelihood	-51.245	-53.691
LR statistics	123.38	118.48
Prob. (LR)	0.0000	0.0000
Observations	153	153

Note: *** sign shows statistical significance at the 1% level.

Table 6. Ordered Logit Model Estimation Results for Balkan Countries

Dep. Var.: SDG		1. low sustainable development level 2. medium sustainable development level 3. high sustainable development level				
		Obs. (N) = 153				
		LR chi2 (7)=123.38				
		Prob>chi2=0.0000				
		Log Likelihood = -51.245				
		Pseudo R2= 0.546				
Ind. var.	Coeff.	Std. E.	z	P> z	Odds ratio	
HES	6.417***	1.680	-3.83	0.000	0.002	
POL	5.880***	1.218	4.83	0.000	357.756	
GOV	2.651**	1.364	1.94	0.052	14.171	
REG	-0.871	1.914	-0.45	0.649	0.419	
RUL	10.301***	2.265	4.55	0.000	29767.5	
COR	-7.597***	2.095	-3.63	0.000	0.0005	
HRT	0.105	0.081	1.30	0.195	1.111	
μ1	2.914					
μ2	12.487					

Notes: μ's indicate cut points. *** sign show statistical significance at the 1% level.

We performed the parallelism test for all model. We obtained the value of 13.48 for all model at 7 degrees of sustainable development. The chi-sq. table value is 14.067.

We obtained the result $14.067 > 13.48$. We show that the parallel regression assumption isn't violated. The ordered logit model estimations can be used. Because according to the parallelism test, the ordered logit model result is reliable. Therefore, we interpret the Ordered Logit Model. In Table 6, we see the independent variables, coefficients, standard errors of the coefficients, z values of the coefficients, the odds ratio. Ordered logit models are not linear. Therefore, we calculated odds ratio. Thus, we can interpret the coefficients. We separated the levels of sustainable development into three categories as low, medium and high level. According to the results of high level of sustainable development against low and medium level of sustainable development, HES, POL, RUL and COR are statistically significant at the 1% level, and GOV is statistically significant at the 5% level but REG and HRT are insignificant. According to the results of ordered logit model, accountability, political stability, government effectiveness and rule of law are positive. We can say that accountability, political stability, government effectiveness and rule of law promote the possibility of a higher level of sustainable development for the high level of sustainable development versus the low and medium level of sustainable development. In other words, accountability, political stability, government effectiveness and rule of law have a positive effect on the level of sustainable development. These variables have an increasing effect on the level of sustainable development. Accountability, political stability, government effectiveness and rule of law are positively related to the level of sustainable development, and the control of corruption is negatively related to the level of sustainable development. HES, POL, GOV and RUL are positively valued according to the results of high sustainable development levels versus the results of low and medium sustainable development levels.

Table 7. Parallelism Test for Developed Countries

Variable	Chi-Sq.	P> Chi-Sq.	Degress
All Model	13.48	0.061	7

In Table 6 according to the odds, we can interpret the effect of the coefficients on the level of sustainable development. HES, POL, GOV, RUL and COR variables are significant. Accountability is 0.002 times more likely to affect the high level of sustainable development versus low and medium level sustainable development. As the accountability increases, sustainable development increases. Political stability is 357.756 times more likely to affect the high level of sustainable development versus low and medium level sustainable development. As the political stability increases, sustainable development increases. Government effectiveness is 14.171 times more likely to affect the high level of sustainable development versus low and medium level sustainable development. As the Government effectiveness increases, sustainable development increases. Rule of law is 29767.5 times more likely to affect the high level of sustainable development versus low and medium level sustainable development. As the rule of law increases, sustainable development increases. Control of corruption is 0.0005 times less likely to affect the high level of sustainable development versus low and medium level sustainable development. As the control of corruption increases, sustainable development reduces. On the other hand, according to chi-square test, the model is significant as a whole. According to Pseudo R2 value, 55% of the total change in the sustainable development can be explained by the HES, POL, GOV, RUL and COR.

5. Conclusion and Policy Recommendation

The relationship between sustainable development and good governance has been an important topic addressed by researchers in recent years. Good governance, a key element in a country's development and first used by the World Bank, is measured by six different indicators: freedom of expression and accountability, political stability, government effectiveness, quality of regulators, rule of law, and control of corruption.

When all six indicators are rising, good governance can be achieved in countries. Good governance is fundamentally linked to development and is also related to sustainable development. Sustainable development, which was first used in the Brundtland Report, basically includes economic, social and environmental factors, but recently the element of good governance has also started to be effective in achieving sustainable development. Indeed, the 16th of the 17 Sustainable Development Goals targeted for 2030 emphasises the importance of good governance in achieving sustainable development.

Considering these theoretical foundations, we researched the impact of good governance on sustainable development. We conducted ordered logit model, by using the data from the period 2006-2022 for Balkan countries. We used the SDG index as sustainable development indicator, and we used accountability, political stability, government effectiveness, quality of regulators, rule of law and control of corruption as good governance indicators. We analyzed the effect of accountability, political stability, government effectiveness, quality of regulators, rule of law and control of corruption on sustainable development with ordered logit model in Balkan countries.

According to the results of the analysis in Balkan countries, accountability, political stability, government effectiveness, rule of law and control of corruption variables are statistically significant. Accountability, political stability, government effectiveness, rule of law increase the probability of the highest category regarding the level of sustainable development, but control of corruption reduces it. Accountability, political stability, government effectiveness, rule of law at higher levels of sustainable development are more effective on sustainable development. In Balkan countries, while the probability of accountability, political stability, government effectiveness, rule of law affecting sustainable development at the low level and medium level of sustainable development are low, they are highly likely to affect the high level of sustainable development. The effect of accountability, political stability, government effectiveness, rule of law on sustainable development at the low and medium levels of sustainable development are lower than the level of high sustainable development.

The study demonstrates that the sustainable development can increase when accountability, political stability, government effectiveness, rule of law increase in Balkan countries. The effect of accountability, political stability, government effectiveness, rule of law at the high level of sustainable development are higher. To put it differently the accountability, political stability, government effectiveness, rule of law at higher levels of sustainable development are more effective on sustainable development.

When the findings are compared with studies in the literature, they are consistent with the literature indicating that good governance ensures sustainable development within the framework of good governance and sustainable development. In this regard, the study supports the literatures of Lameira and Ness (2010), Akujuru (2015), Güney (2017), Odugbesan and Rjoub (2019), Nasiru and Dahlan (2020), Omri and Mabrouk (2020), Zahiri et al. (2021), Achot and Bill (2022), Alier Riak and Bill (2022), Gündoğdu and Aytekin (2022).

It has been found that accountability, political stability, government effectiveness and rule of law, which are indicators of good governance increase the level of sustainable development, while control of corruption reduces the level of sustainable development in the Balkan countries. At this point, policy recommendations can be made that will further strengthen the sustainable development situation in the Balkan countries through accountability, political stability, government effectiveness and the rule of law, and support sustainable development by improving institutionalisation. Policy recommendations aimed at preventing the reduction of sustainable development due to the control of corruption may also be presented.

- Further improvement and sustainability of good governance indicators such as accountability, political stability, government effectiveness and the rule of law in the Balkan countries,

- Ensuring citizens' participation in decision-making processes regarding governance,
- Establishing an institutional structure with sound foundations for good governance indicators,
- Ensuring transparency and government effectiveness through digitalisation in good governance,
- The development of legal regulations that guarantee the rule of law and property rights,
- Delivering and supporting training on good governance within the framework of sustainable development
- Ensuring transparency through the reduction of bureaucracy in good governance.

There are limited studies in the literature examining the impact of good governance on sustainable development. Furthermore, no studies have been found examining the relationship between good governance and sustainable development in the context of Balkan countries. In the literature on the impact of good governance on sustainable development, the ordered logit model method and the SDG index, which is a sustainable development indicator, have not been used before. The study fills these gaps in the literature by presenting findings on whether good governance will increase or decrease sustainable development.

The study found that accountability, political stability, government effectiveness and rule of law, which are indicators of good governance raised the level of sustainable development in the Balkan countries. However, the study has some limitations. Due to data constraints, Montenegro, Kosovo and Serbia in the Balkan countries could not be included in the study. While the study examines the impact of each good governance indicator individually on the sustainable development index, it cannot examine their individual impact on sustainable development goals. Considering the limitations of this study, it is recommended that future studies analyse the impact of good governance on sustainable development using data from Montenegro, Kosovo and Serbia, employ different methodologies, and examine the impact of each good governance indicator separately on sustainable development goals.

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