Exploring the Role of Institutional Governance in Climate Action in the Western Balkans Economies

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Abstract
The new United Nations (UN) sustainable development (SD) agenda in 2015 heralded the beginning of a new global effort for the planet's sustainability through the Sustainable Development Goals (SDGs). They provide a framework for all countries, regardless of income levels, to guide national planning for achieving SD. Climate change may impact almost all SDGs and vice versa, though, of the 17 SDGs, the 13th is designated to climate action. The growing concern for environmental degradation has raised the question of how countries will manage to achieve SDGs and whether the answer can be found in their institutions. Reducing emissions necessitates environmental policies influenced by political institutions that shape policy adoption and implementation. This paper aims to analyze the effects of institutions adopting the dimensions of good governance on particular SDG indicators of the 13th SDG by using a Nonparametric Kernel Regression framework and a panel data set of 5 Western Balkans (WB) countries from 2000 to 2020. The target countries share the ambition of EU accession and hold the EU candidate status. WB countries spark our interest because of the severe institutional governance problems, which limit their ability to progress towards SDGs. The paper's empirical analysis uses a specific SDG indicator for the 13 SDG of the Europe Sustainable Development Report, similar to that used by the OECD for the report on Measuring Distance to the SDG Targets. The analysis includes as independent variables the World Governance Indicators (WGI). Contributing to the existing literature on institutions and SD, the novelty of our approach is the use of the WGI with SDG indicators in measuring the impact of quality of governance on the progress towards the 13th SDG referring to climate action.

Keywords: institutional governance; sustainable development; Western Balkans economies; climate action; environment

1. Introduction

The United Nations (UN), on its 70th anniversary in 2015, issued a call for universal action to eradicate poverty in all forms and dimensions, protect the environment, and ensure prosperity by 2030. The new UN's sustainable development (SD) agenda, ratified by 193

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countries, introduced a more comprehensive and holistic vision of SD through the Sustainable Development Goals (SDGs), the successors of the Millennium Development Goals (MDGs) (United Nations, 2015a). The ambitious agenda heralds the beginning of a new global effort for the planet's sustainability. The SDGs represent a universal multi-dimensional integrated set of 17 goals, 169 targets, and 232 indicators whose primary purpose is to combine and fulfil the three aspects of SD, thus the economy, environment, and society (Allen et al., 2021; Bali Swain & Ranganathan, 2021; Dalampira & Nastis, 2020). They provide a framework for all countries, regardless of their income levels, to guide national planning for achieving SD (Allen et al., 2021, p. 635).

The European Union (EU), its institutions, and member states contributed most to adopting the 2030 Agenda and the SDGs since they represent a global affirmation of the EU's values (Lafortune et al., 2020). The most developed areas in the EU already invest the most in environmental protection (Androniceanu et al., 2021). States are required to incorporate the SDGs into their national sustainability and development plans (United Nations, 2015c). The 2030 Agenda and the SDGs are closely linked with the climate, as does the Paris Agreement. The Paris Agreement on Climate Change is integrated into SDG 13 (climate action): "*take urgent action to combat climate change and its impacts*". Climate change may impact almost all SDGs and vice versa. The growing concern for the planet's sustainability has raised the question of how countries will manage to achieve SDGs and whether the answer can be found in their institutions. Well-functioning state institutions are critical to a country's socio-economic development (Frazer et al., 2022, p. 2). Institutions are made up of principles and laws that serve as catalysts for long-term development (Shao & Razzaq, 2022, p. 2). There is a debate about the importance of institutions on a country's environmental performance. Reducing emissions necessitates environmental policies influenced by political institutions that shape policy adoption and implementation (Lægreid & Povitkina, 2018, p. 441). Environmental policies are rarely managed without the state's intervention and thus without regulation, which in turn is heavily dependent on the country's institutions (Castiglione et al., 2012, p. 255).

Institutional governance ensures strict environmental conservation laws and sustainable practices are followed (Shao & Razzaq, 2022, p. 2). Governance is a broad term that describes the institutions, structures, and processes that assign political, economic, and social authorities and responsibilities within a particular society (Frazer et al., 2022, p. 3). Good governance is a new approach that recognizes the state's role in the economy and emphasizes the importance of collaboration between state and non-state actors, civil society, and the private sector in the process of public governance (Stojanović et al., 2016, p. 558). Policymakers and academics are not agreeing on a single definition of governance or institutional quality (Croissant & Pelke, 2022, p. 145).

This paper aims to analyze the effects of institutions adopting the dimensions of good governance on particular SDG indicators of the 13th SDG by using a panel data set of 5 European countries from 2000 to 2020. The South-Eastern European countries (SEE) located in the Western Balkan peninsula and share the ambition of EU accession are the target countries for our research. The four held the EU candidate status, Albania, the Republic of North Macedonia, Montenegro, and Serbia, for many years, while in 2022, Bosnia and Herzegovina changed status from potential candidate to candidate. The Western Balkans (WB) must achieve regional transformation aligned with the EU to reach EU accession goals. These WB transition economies are encouraged to implement the 2030 Agenda, strengthen the capacity of all relevant institutions, and improve the framework that governments and relevant stakeholders can use to progress toward the SDGs (SDSN, 2022).

Since 2018, WB countries have committed to embracing the EU's Green Agenda to become carbon neutral by 2050 and begin transitioning to a more sustainable energy system (Sanchez-Nicolas, 2021). WB countries spark our interest because of the severe institutional governance problems, which limit their ability to progress towards SDGs and achieve EU membership.

Our previous research on climate change used national CO_2 emissions to aggregate the amount of CO_2 that emitters operating within countries' borders release. This research uses a specific SDG indicator for the 13 SDG of the Europe Sustainable Development Report, similar to that used by the OECD for the report on Measuring Distance to the SDG Targets (Lafortune et al., 2022a). The SDG indicators are crucial for assessing country-level progress on the SDGs, thus measuring and tracking progress on the 2030 Agenda.

Contributing to the existing literature on institutions and SD, the novelty of our approach is the use of WGI with SDG indicators in measuring the impact of quality of governance on the progress towards the 13th SDG referring to climate action. The empirical analysis includes the six governance dimensions defined by Kaufmann et al. (1999) for the World Bank's Worldwide Governance Indicators (WGI) project as independent variables. The current study also adds to our understanding of the relationship between institutional governance and climate action in WB countries, a group of countries not included in the field's empirical literature to the best of our knowledge. This paper will benefit policymakers, scholars, and field students because it determines the impact of institutions precisely matched with empirical results to derive conclusive answers.

The remainder of the analysis is arranged as follows: Section two reviews the literature on institutional governance and sustainable development, and section three presents the environmental and institutional challenges that the target group of WB faces. Section four is dedicated to data, descriptions, and methodology, and it discusses the empirical results, while the last section concludes.

2. Institutional Governance and Sustainable Development

At the UN High-Level Political Forum (HLPF) in July 2016, 22 countries presented their first national voluntary reviews of the implementation of the SDGs of the 2030 Agenda (Weitz et al., 2018). As countries began to move toward implementation, most of the reviews focused on the procedures and institutional arrangements, revealing the full complexity of the agenda and the situation of nations being befuddled in developing their action strategies (Weitz et al., 2018, p. 531). To exert influence over the multifaceted development of society, governments must establish and enhance state institutions (Stryzhak et al., 2022). Better institutional arrangements and their quality improvement enable governments to progress on SDGs. To improve our understanding of the importance of institutional governance on the state's SD, an analysis of the main concepts and trends supplemented by a literature review is presented below.

2.1 Institutional governance

Douglass North's writings emphasized the importance of institutions. North (1990) defined institutions as "*the rules of the game in a society*" and "*the human-made constraints that structure political, economic, and social interaction*" (North, 1991, p. 97). Mudambi and Navarra (2002, p. 638) indicate that the institutional environment of a given country

"*includes political institutions such as the regime type, the national structure of policymaking and the judicial system, economic institutions such as the structure of the national factor markets and the terms of access to international factors of production and socio-cultural factors such as informal norms, customs, mores and religions*". Two societies with identical institutions may deliver different outcomes, implying that "good institutions" are necessary but may not be sufficient to achieve their desired goals (Mudambi & Navarra, 2002, p. 639). Thus, the governance of institutions comes forth as an influential factor in states' performance. Governance incorporates the traditions and institutions by which authority in a country is exercised (Kaufmann et al., 2011, p. 222). There is a growing consensus among those working in international development, officials, practitioners, and researchers that governance is essential in determining the success of initiatives in society (Brinkerhoff & Wetterberg, 2018).

Governance emerged as a field in the late 1980s and early 1990s, focusing on how governments and citizens can work together effectively, and expanded significantly after the fall of the Soviet Union. The 15 newly independent republics had to address significant governance challenges during their transition from the socialist system to the market economy (Frazer et al., 2022; Fukuyama, 2016). The failed privatizations in the former Soviet Union prompted economists to acknowledge the importance of state institutions as a foundation for market exchange.

The term governance endangers to become an empty signifier due to the vagueness of the term and its widespread application. Multiple elements are frequently grouped under a single conceptual umbrella in governance definitions, which is confusing. The concept encompasses both the characteristics of political regimes, such as democratic and electoral systems, separation of powers, and citizens' rights, and the aspects of technocratic public sector management, such as regulatory systems, service delivery, or tax administration (Frazer et al., 2022; Fukuyama, 2016). Definitions of governance frequently display a normative preference for democratic structures, processes, and practices, labelling them as "good governance" (Frazer et al., 2022, p. 3). The first to use the term "good governance" was the World Bank in 1989. Much of the scholarly literature on "good governance" centres on governance as implementation, that is, the state's ability to provide essential public goods and services. International organizations such as the World Bank and the United Nations (UN) indicated that countries could benefit from good governance and strong institutions in succeeding in their development goals. The features that governance contains, efficiency and effectiveness, the rule of law, participation, accountability, transparency, respect for human rights, fighting corruption, tolerance to diversity and gender equality influence SD (Güney, 2017, p. 4). The 2000 UN Millenium Declaration cited good governance as a requirement for countries to promote economic growth and eradicate poverty (Holmberg et al., 2009).

In the last two decades, much scholarly activity has been centred on measuring state quality, propelled by the same forces that propelled the literature on good governance (Fukuyama, 2016, p. 97). Freedom House, and the Polity IV dataset, have tracked democracy and civil and political rights since the 1970s, supplemented recently by the Varieties of Democracy (V-Dem) project. World Bank's Worldwide Governance Indicators (WGI), the Bertelsmann Transformation Index (BTI), provide numerical measures on various dimensions of governance that capture the quality of democracy, the capacity of governments to deliver public goods and services to their citizens, and the effectiveness of their policymaking (Croissant & Pelke, 2022, p. 137). Based on expert surveys of government impartiality, the Quality of Governance Institute in Gothenburg has developed

a set of governance quality measures, amongst them the European Quality of Government Index, which relies on data in all EU 27 member state countries (Charron et al., 2022; Holmberg et al., 2009; Rothstein, 2015). WGI are still the most popular aggregate indicators due to their scope and time-series data. The Governance Database of the World Bank compiles a vast array of governance data to measure the various facets of governance according to their respective definitions. The World Bank's approach incorporates six governance dimensions and indicates that governance refers to three areas; in each one, two dimensions correspond, as *Table 1* presents.

Table 1. Areas and Dimensions of Governance

Areas	Dimensions
a) The process by which governments are selected, monitored and replaced	1. Voice and Accountability (VA)
	2. Political stability and the absence of Violence/terrorism (PV)
b) The capacity of the government to effectively formulate and implement sound policies	3. Government Effectiveness (GE)
	4. Regulatory Quality (RQ)
c) The respect of citizens and the state for the institutions that govern economic and social interactions among them	5. Rule of law (RL)
	6. Control of Corruption (CC)

Source: Authors' adjustment from Kaufmann et al. (2011, p. 222).

VA and PV focus on the electoral principle of democracy, while RL and CC centre on the liberal principle of democracy. Indicators of good governance have a different effect on different macro-phenomena depending on the country (Abid et al., 2021, p. 655). National governments must recognize the significance of environmental and economic development and their interdependence to improve their governance for the advancement of SD. The much broader geographical and temporal coverage of the WGI dataset increases its usefulness for academic researchers, policymakers, and development stakeholders, which is why the paper's empirical analysis lies on it.

2.2 Sustainable development: concepts and trends

Development is a multifaced concept aimed at enhancing the quality of life. From the 1950s to the 1980s, the predominant approach to development focused on fostering economic growth (Stojanović et al., 2016, p. 259). In 1987, the UN's World Commission for Environment and Development (WCED) published a report entitled "Our Common Future," also known as the "Brundtland Report". The report declared that it is within humanity's capacity to ensure that development is sustainable to meet the needs of the present without impairing the ability of future generations to meet their own needs (WCED, 1987). The report's release is regarded as a watershed moment in generating international consciousness and discourse regarding the significance of global SD. In economic terms, WCED's definition of SD indicates that today's economic development must guarantee that the succeeding generations are left no worse off than the present ones (Barbier & Burgess, 2017, p. 3). The systems approach, one of the earliest attempts in economics at defining SD, characterizes sustainability as the maximization of goals across environmental, economic, and social systems and not solely of environmental as widely established (Barbier & Burgess, 2019; Glass & Newig, 2019). Accordingly, the ultimate goal of sustainable economic development is to optimize the aims of all these systems through an iterative process of trade-offs. Maximizing one system's goals without considering how that might affect other systems is incompatible with sustainability (Barbier & Burgess, 2019;

Barbier & Burgess, 2017). Hence, a development that disregards climate change is unsustainable because it creates societies more susceptible to climate change and can lead to high emissions of greenhouse gases from energy, transportation, and land use (Kok et al., 2008, p. 104).

In September 2000, world leaders endorsed the UN Millennium Declaration to combat extreme poverty and its various dimensions through a global partnership commitment by 2015 (Diaz-Sarachaga et al., 2018, p. 1). The Declaration established eight MDGs; among them, MDG 7, "Ensure sustainability", called for action to reverse the loss of environmental resources and reduce biodiversity. The most vulnerable members of society are the least protected from the effects of climate change and environmental degradation. Despite progress, uneven achievements and shortfalls were recorded in many areas, leaving the work incomplete (United Nations, 2015b). However, any gains from the MDGs implementation are used to create people-centred development agenda for building a sustainable world where environmental sustainability, social inclusion, and economic development are equally valued.

The post-2015 action agendas, the 2030 Agenda for SD, the Paris Agreement, and the Addis Ababa Action Agenda on financing for development lay the groundwork for global sustainability. In a historic first, all UN member states have settled on the same set of SDGs (to be achieved by 2030, with mid-century goals for the Paris Climate Agreement) and established major principles and priorities for their financing (Sachs et al., 2022). The Paris Agreement focused on sustainable, low-carbon, and resilient development in a changing climate (United Nations, 2021). The Paris Agreement, signed at the close of 2015 by 197 countries, entered into force one year later with the primary goal to keep global warming below 2 degrees Celsius, preferably 1.5 degrees Celsius, above pre-industrial levels. This legally binding international climate change treaty is a watershed moment in the multilateral climate change process because it unites all nations behind ambitious efforts to combat climate degradation, adapt to its effects and strengthen support to developing countries. Countries aim to achieve this long-term temperature goal by peaking global greenhouse gas emissions as soon as possible to achieve a climate-neutral world by mid-century (United Nations, 2022). Paris Agreement on Climate Change is incorporated in SDG 13 (climate action), "*take urgent action to combat climate change and its impacts*". Climate change may impact almost all SDGs and vice versa (United Nations, 2022). SDG 13 acknowledges "*that the United Nations Framework Convention on Climate Change (UNFCC) is the primary international, intergovernmental forum for negotiating the global response to climate change*" (UN Sustainable Development Knowledge Platform, 2022). SDG 13's associated targets focus on integrating climate change measures into national policies and improving education, awareness-raising, and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warnings. The alphabetical targets of SDG 13 also call for implementing the UNFCCC commitment and promoting mechanisms capable of increasing capacity for effective climate-change-related planning and management in the least-developed countries and Small Island Developing States (UN Sustainable Development Knowledge Platform, 2022).

The international community, with the 2030 Agenda and the SDGs, has for the first time reached a consensus on the concept of SD, which has been operationalized through its 17 goals, triggering new research approaches that can be highly relevant to the political and societal implementation of the Agenda (Glass & Newig, 2019, p. 2). Sustainability indicators were developed to meet the need for measuring the progress of SD and to facilitate decision-making processes in light of its three dimensions (Diaz-Sarachaga et al.,

2018, p. 1). Notably, SDG indicators and outcomes-based assessments prepared by the Sustainable Development Solutions Network (SDSN), a global initiative to implement the SDGs and the Paris Agreement on Climate Change, but also by the OECD, Eurostat and other organizations (Lafortune et al., 2022b, p. 10). Indices' performance revealed the retarded progress towards the SDGs since 2019 due to multiple health and security crises, amplified by the climate and biodiversity crises (Sachs et al., 2022).

2.3 The relationship between governance and sustainable development

This section attempts to synthesize empirical findings from prior research regarding the relationship between institutional governance dimensions and SD in respect of the interdependence of the environmental, economic and societal terms of SD.

Most of the field's empirical work highlights the importance and effects of governance on SD. Some scholars outline the positive impact of institutional governance on SD (Bhattacharya et al., 2017; Güney, 2017; Hussain & Dogan, 2021; Lau et al., 2014; Omri & Ben Mabrouk, 2020; Tamazian & Rao, 2010). Institutions play a significant role in implementing appropriate energy mix and overall energy policies; consequently, countries with higher-quality institutions prioritize sustainable economic development (Bhattacharya et al., 2017, p. 165). Güney's (2017) analysis applies to all developed and developing countries and concludes that as governance improves, so does SD. The protection of property rights, the effective operation of the legal system, the rule of law, participation, accountability, transparency, respect for human rights, and tolerance for differences are all governance components that create a variable that can mitigate the severe damage caused by our present use of the natural resources. The positive impact of governance on SD is higher in developed countries than in developing ones (Güney, 2017, p. 17). Omri and Ben Mabrouk's (2020, p. 7) empirical analysis of 20 MENA economies leads them to the conclusion that improving institutional governance enables governments to mitigate the detrimental effects of carbon emissions on economic growth and human development and the impact of economic growth on increasing emissions, achieving SD. Hussain and Dogan (2021), providing evidence from BRICS economies, outline the positive contribution of institutional quality to limiting environmental degradation. In their empirical study of environmental quality in transitional economies, Tamazian and Rao (2010) concluded that governments can help to improve environmental quality by establishing firm policies and institutional structures that contribute to a long-term goal for benefits from the reductions in greenhouse gas emissions. The significance of the country's strong domestic institution framework in controlling carbon dioxide emissions in the development process is also analyzed by Lau et al. (2014).

There is also the opposite argument on the positive impact of institutional governance on increasing environmental degradation. Azam et al. (2021), in their empirical analysis targeting lower-middle-income and middle-income countries, conclude that institutional indicators positively contribute to environmental pollutants. One of the possible explanations they provide is that the varying level of the democratic political system has been primarily centred on industrial development and a considerable level of constituencies. As a result, it causes a significant rise in local and global pollution levels (Azam et al., 2021, p. 12).

Some scholars examined the regime type among the institutional factors to discover the contribution of governance to climate change. Regime type forms preferences within civil society and affects the rate of appearance of environmental policies on the political agenda (Lægreid & Povitkina, 2018; Povitkina, 2018; Povitkina & Jagers, 2022). A democratic

government tends to establish environmentally more friendly practices and policies than an autocratic one (Congleton, 1992; Fredriksson & Neumayer, 2013; Kneuer, 2012; Sinha et al., 2021). Although democracy improves environmental quality, specific issues such as the type of democracy, civil liberties, groups of interest, rule enforcement and access to justice generate contentious outcomes (Bernauer & Koubi, 2009; Sinha et al., 2021). Sinha et al. (2021) proved that improving governance dimensions like rule enforcement and access to justice can help decrease carbon dioxide emissions and improve environmental quality in democratic countries. The state's ability to provide effective governance such as a professional civil service, the free flow of information, and participation in international problem-solving enables the implementation of improved environmental policies in democratic countries (Kneuer, 2012, p. 867).

A strand of literature argues that specific dimensions of governance matter more to SD, for instance, the rule of law, sound bureaucratic system, corruption and political stability (Abid et al., 2021; Ali et al., 2019; Danish et al., 2019; Fredriksson & Neumayer, 2016; Hwang et al., 2023; Khan et al., 2022). Hwang et al. (2023), investigating the effect of corruption as a representative of institutional factors on environmental quality for a panel of the Commonwealth of Independent States (CIS), discovered empirically that the effect is negative, meaning that the more corrupt a state is, the lower its environmental quality, which is detrimental to the SD. Khan et al. (2022), on the effect of institutional governance on environmental quality, provide the empirical result for the negative effect of the rule of law, regulatory quality and political stability on carbon dioxide emission. Hence, enhancing the above indicators reduces carbon dioxide emissions, improving environmental quality. This result confirms Gani's (2012) previous empirical evidence that political stability, the rule of law, and control of corruption are negatively and statistically significantly correlated with CO_2 emissions per capita in a cross-section of developing countries. Abid et al. (2021), examining the relationship between governance indicators and green growth in Pakistan, outline the significance of the rule of law in the country's environmental sustainability. Danish et al. (2019), analyzing the role of governance in CO_2 emissions mitigation in Brazil, Russia, India, China, and South Africa (BRICS), conclude that all governance dimensions have a negative and significant impact on CO_2 emissions; thus, if they are sufficiently strong and efficient, they can address environmental issues. Ali et al. (2019) included property rights in their analysis to suggest that effective institutional functioning in developing countries will deliver appropriate laws, regulations, and property rights as well as ways to control corruption, which, if implemented systematically, will improve the level of environmental conditions. Fredriksson and Neumayer (2016) studied the effect of countries' historical legacy and corruption on current climate change policies and global cooperation. They empirically proved that countries historically free of corruption have a better chance of implementing more effective climate change policies and achieving global cooperation on environmental SD.

The paper's empirical analysis in the fourth section is aligned with the above literature review regarding the impact of specific governance dimensions on the progress of WB states on action against climate change.

3. Western Balkans' Challenges

The prospect of EU membership and policy conditionality has been crucial in promoting democracy in the WB region. However, in the first transitional years, EU policy prioritized the socio-economic aspects of democratization over the development of strong political institutions and the empowerment of democratic actors (Grimm & Mathis, 2015, p. 918). Hence, WB's political initiative of supporting democratic institution-building and capacity-building was halted. Furthermore, central planning legacies allowed post-communist autocrats and their allies to retain control over key economic assets, incentivizing them to oppose any progress in democratic transition and ultimately defining a WB country's economic development (Levitsky & Way, 2010, p. 87). In each WB country, the established political elite thwarted any structural reform necessary to complete the transition process, thereby preserving the status quo. The infrequent occurrence of environmental policies on the political agenda was attributable, in part, to the deliberate halting of governance enhancements.

The past's unresolved legacies, the slow implementation of EU accession criteria, and the outburst of the financial and European debt crises negatively affect WB's effort to join the EU. The EU keeps the WB's European perspective alive, though demands that the adoption and implementation of EU accession reforms must be expedited for WB countries to join the Union by the set deadline. To this end, WB countries are obligated, under the auspices of the "stabilization and association process," to adopt, put into effect, and enforce all 35 chapters of the EU acquis. Chapter 27, "Environment and Climate Change," is the largest and most demanding of the remaining chapters, involving adjustments and modifications to the WB's legal framework pertaining to the environment and climate change (Banja et al., 2020, p. 5). Chapter 27 also provides a solid foundation for WB to meet the Paris Agreement obligations, particularly regarding achieving GHG emission reduction targets (Vuković & Mandić, 2018, p. 34). By signing the Paris Agreement and the Sofia declaration, the WB governments have committed to limiting global warming to 1.5 degrees Celsius by 2030 and achieving net-zero emissions by 2050, respectively (Berishaj, 2021, p. 7). The Sofia Declaration on the Green Agenda for the WB (GAWB) is consistent with the European Green Deal, thus the European Commission's (EC) strategy for achieving the SDGs and building a more contemporary, climate-neutral, resource-efficient and competitive EU by eradicating net greenhouse gas (GHG) emissions by the year 2050 and decoupling economic growth from resource use (Hofhuis et al., 2021; Knez et al., 2022). Managing climate change and achieving the goals of the European Green Deal are receiving unprecedented financial, thus at least one trillion euros over the next decade (Štreimikienė et al., 2022). The EU will financially support the implementation of the GAWB through the Instrument for Pre-Accession (IPAIII) adopted in the Multiannual Financial Framework 2021-2027 (European Commission, 2020). WB governments also contracting parties to the Energy Community to align with EU climate and energy policies and reach climate neutrality by the set deadline must prepare National Energy and Climate Plans (NECPs) (Antonovska & Berishaj, 2022).

Given that WB economies are carbon-intensive, the aforementioned political commitments are challenging. The NECPs include, among others, policies and measures for decarbonization. The Climate Action Network (CAN) Europe Report (2022) for the WB countries' performance in NECPs mentions the region's limited progress in integrated energy and climate planning. The WB economies have a high carbon intensity due to their

heavy dependence on and use of coal (lignite). Coal-fired plants located in the WB peninsula provide almost 70 per cent of the region's electricity (Regional Cooperation Council, 2021). The Climate Action Network (CAN) Europe's Report (2021, p. 7) records that WB's energy sector accounts for the most greenhouse gas emissions in the region, while coal-based energy production (8.2 GW) for two-thirds of the region's CO_2 emissions. The region of WB is half the size of Germany, though it produces more coal emissions than the entire EU Coal provides (Carragher, 2021). The 2021 CAN Europe report also underlines that the thermal power plants in the WB countries are almost at the end of their lifespan, contributing to high pollution levels. Coal combustion causes 4,000 premature deaths, with direct health and lost productivity costs estimated at €11 billion annually, not including the damage in neighbouring EU member states (Regional Cooperation Council, 2021, p. 12).

Moreover, there is pollution from energy combustion, meaning indoor and local air pollution from inefficient and improperly used stoves, and deforestation and land degradation produced by excessive use of wood for fuel (Alfthan et al., 2015, p. 28). To meet the 2050 goals, WB should establish a correct policy framework by setting National Energy and Climate Plans. Considering that, WB countries experience low quality of governance, political and social instability, corruption, limited budget in environmental policies and the insufficient rule of law, especially in environmental issues, their capacity to limit the region's pollution is meagre (Gomes & Resende, 2019, p. 154).

EU's ambitious mid-century goals of climate change mitigation and the policy proposals to achieve them were mainly established before the COVID-19 pandemic and the war in Ukraine. These crises were decisive in slowing down progress on the SDGs in Europe and the rest of the world. According to the Europe Sustainable Development Report (ESDR) (2022), over the period 2015–2019, the EU progressed on the SDGs driven mainly by progress in European sub-regions holding very low sustainability scores in the beginning, such as the Baltic States, and the EU candidate countries. The report lists Bosnia and Herzegovina as the previous status of potential candidate, while the remaining four WB states and Turkey are EU candidate countries. In the following period, the rate of annual SDG progress in the EU halved, with candidate countries having more significant gaps to close to achieve the SDG. Notably, Northern Europe is on track to achieve approximately 78 per cent of the targets, whereas for 10 per cent of the targets, both EU and Northern Europe are trending in the wrong direction. Southern Europe and Central and Eastern Europe are below the EU27 average, with respectively 59 per cent and 53 per cent of the SDG targets achieved or on track, while candidate countries are on track to achieve 44 per cent by 2030 and are heading in the wrong direction for 22 per cent (Lafortune et al., 2022a, p. 2).

SDGs dashboards in the Sustainable Development Report (SDR) (2022) depict that Albania has achieved SDG13 and is on track or maintaining SDG achievement, while the ESDR (2022), which was published a few months later attributes Albania the status of stagnating. Similarly, the (SDR) (2022) presents Bosnia and Herzegovina and Montenegro's progress in achieving SDG13 as stagnating, while the ESDR (2022) as decreasing. Both reports agreed on the decreasing progress of North Macedonia and Serbia. ESDR's (2022) methodology to estimate trends at the indicator level is based on the annual percentage improvements needed to achieve the target by 2030 (from 2015–2030), in comparison to the average annual growth rate over the most recent period since the adoption of the SDGs (2015-2021) (Lafortune et al., 2022a, p. 88). The ESDR (2022) records the EU candidate countries' progress on the 13th SDG that is moderately improving, though, on the performance of total SDGs, the pace of convergence is slow, and if average growth rates

remain unchanged, it will take them 30 years to catch up to Northern Europe's SDGs progress.

The war compelled European countries to prioritize energy and increased fossil fuel production. Two threats appear together in Europe: climate change and the energy crisis. Some EU states' response to these threats may be to abandon fossil fuels and accelerate green investments, while others may reverse their energy policies and abandon significant investments in fossil fuel projects (Dunn & Arguedas Ortiz, 2022; Lazard, 2022). Since the war conflict in Ukraine continues, it is challenging to provide precise estimates on the intersection of climate change and the invasion. However, the new reality does not ease WB countries into finding their footing in combating climate change and progressing towards the 13th SDG on climate action.
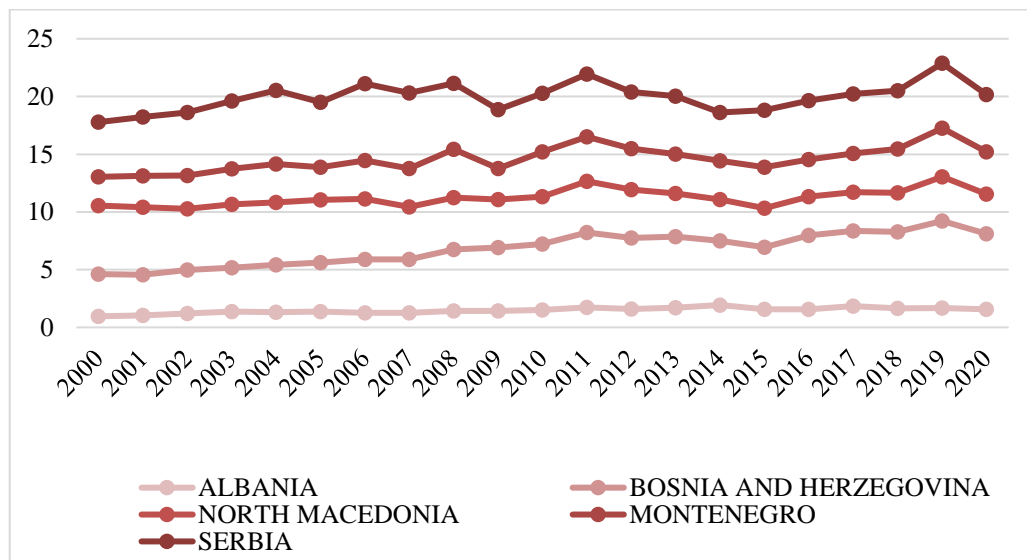
4. Empirical Approach and Data

The key objective of the empirical specification is to discover the relationship between institutional governance factors and the progress of five WB economies on the UN's 13th SDG, thus on action against climate change. As such, the description and data of the variables, empirical specification, results of the empirical analysis, and discussion are analytically presented below.

4.1 Variables and data

Dependent Variable. The dependent variable is the CO_2 emissions from fossil fuel combustion and cement production (tCO_2/capita), one of the key indicators of the SDG13 Climate action, as elaborated by Global Carbon Project in Globel Carbon Budget 2020 (Friedlingstein et al., 2020). The indicator includes the combustion of fossil fuels through various activities, such as transportation, heating and cooling, industry, fossil industry's own use, and natural gas flaring. It also includes the production of cement and other process emissions, such as the production of chemicals and fertilizers and CO_2 uptake during the cement carbonation process (Friedlingstein et al., 2020, p. 3274). The indicator excludes emissions from international aviation and maritime transport fuels. This article uses the above indicator as a proxy for WB countries' contributions to climate change mitigation since it is the only one of the three incorporated in SDG 13 that provides data for the target group of countries. The other two are CO_2 emissions embodied in imports (tCO_2/capita) and CO_2 emissions embodied in fossil fuel exports (kg/capita). The long-term objective for this indicator is a value of 0. Hence, the highest value of the indicator implies a high level of CO_2 emissions and a country's bad performance on climate action.

Figure 1 displays the performance of CO_2 emissions from fossil fuel combustion and cement production (tCO2/capita) in 5 WB countries during the period 2000-2020. The high performance of Albania in comparison to the rest WB states is evident.

Figure 1. CO₂ emissions from fossil fuel combustion and cement production (tCO₂/capita) in 5 WB countries during the period 2000-2020

Source: Adapted from the Sustainable Development Report (SDR) database based on Global Carbon Project (Dashboards.sdgindex.org, 2022)

Independent Variables. This empirical analysis includes the six governance indicators defined by Kaufmann et al. (1999) for the World Bank's Worldwide Governance Indicators (WGI) project as independent variables. Following the analysis of section 2.1, the governance indicators of the World Bank project used in this study's empirical model refer to the six dimensions of quality of governance, which correspond to the three areas of governance (please see ***Table 2***). The grouping of institutional indicators enables us to examine the governance dimensions that matter more in achieving SDG 13.

Income is included as a *control variable* to improve the model's explanatory power and limit the possibilities of omitted variable problems.

Quality of Governance. The indicators are described according to the definitions produced by the WGI (2019). All of them are expected to contribute positively to the success of SDG 13 in climate action. It is believed that the country's quality of governance is detrimental to increasing environmental quality. The highest the level of the six following governance variables, the more they correspond to institutions which have the ability to establish effective economic, social and environmental policies towards SD (Abid et al., 2021; Ali et al., 2019; Fredriksson & Neumayer, 2016; Hwang et al., 2023; Khan et al., 2022). Governance is estimated to range between -2.5 (weak) and 2.5 (strong) in performance.

Control of corruption measures perceptions of how public power is exercised for private gain, including low and high forms of corruption (WGI, 2019). It is built on data sources of public officials' level of corruption and public trust in politicians. The corruption that is deemed to affect the country's economic growth (Naomi & Akbar, 2021) within the public administration and executive, legislative, and judicial branches reflects the strength of the government's environmental commitments. The *Rule of Law* indicates the extent to which agents have confidence in and comply with societal rules (WGI, 2019). It also evaluates the judiciary's perceived efficacy, predictability, and contract enforceability. *Voice and accountability* assess the degree of citizens' participation in their government selection, as well as freedom of expression, association, and free media (WGI, 2019). Political rights,

civil liberties, confidence in the integrity of elections, and democratic accountability are some of the variables used as data sources for this variable. Electoral accountability incentivizes political leaders to be responsive to demands for environmental-friendly policies (Von Stein, 2022, p. 340). *Political stability* evaluates the likelihood of government destabilization through unconstitutional or violent means, such as politically motivated violence and terrorism (WGI, 2019). *Government effectiveness* assesses public and civil service quality, independence from political pressures, policy formulation and implementation quality, and the credibility of the government's commitment to such policies (WGI, 2019). When the existing policies are eco-friendly, they are expected to contribute to the fight against climate change (Von Stein, 2022, p. 353). *Regulatory quality* measures perceptions of the government's ability to formulate and implement sound policies and regulations that permit and encourage private sector growth (WGI, 2019). A high level of regulatory quality might help overcome the issue of environmental degradation (Khan et al., 2022).

Income. Relative studies include GDP per capita in the respect that the relationship between emission trends and income level captures the rising demand for environmental quality as income rises (Bernauer & Koubi, 2009; Fredriksson & Neumayer, 2016). Income is measured as the natural logarithm of GDP per capita to capture the permanent income, which is the theoretical measure of income in terms of environmental quality demand (Bernauer & Koubi, 2009, p. 1360). Income is expected to improve environmental quality.

The study's empirical analysis employs a panel dataset of the variables of interest from 2000 to 2020 across the five transition economies of WB. ***Table 2*** summarizes the variables in the empirical model, their coding, and data sources.

Table 2. Variables Description, Coding and Sources

Variables	Description	Code	Source of Data
Dependent Variable *Climate action*	CO_2 emissions from fossil fuel combustion and cement production (tCO_2/capita)	*sdg13_co2gcp*	Global Carbon Project (2020)
Independent Variables **Governance Indicators**	A set of traditions and institutions by which authority in a country is exercised		
Control of Corruption		CC	
Rule of Law		RL	
Voice and Accountability	Dimensions of Governance	VA	Worldwide Governance Indicators (WGI)
Political Stability		PL	
Government Effectiveness		GE	
Regulatory Quality		RQ	
Control indicators **Income**	The log of GDP per capita, PPP (constant 2017 international $)	*loggdpc*	World Bank-World Development Indicators

4.2 Empirical model and results

The paper's empirical analysis estimates the underlying relationship between the dependent variable $y = sdg13\_co2gcp$ and a vector of independent variables, X, where:

X={ *loggdpc*, *control of corruption*, *rule of law*, *voice and accountability*, *political stability*, *government effectiveness*, *regulatory quality* }

This study's empirical approach suggests that the above relationship is that the mean of the variable of interest is given by the unknown function of the covariates *x*, say, *g(x)*. Hence, the empirical specification of the model is the following:

$$y_i = g(x_i) + \varepsilon_i \text{ and } E(\varepsilon_i|x_i) = 0$$

Where ε_i , represents the disturbances and *i* , the countries under investigation. The above equations imply that $E(y_i|x_i) = g(x_i)$. Consequently, an estimate of the conditional mean of *y* on *x* by estimating the expected value of y_i , for all values of x in the dataset can be produced.

The Nonparametric Kernel Regression implements the above estimation methodology. The kernel function specifies the shape of the weighting function, which determines how much influence each data point has on the estimated value at a given point. The kernel function is typically centred at the point of interest, and a bandwidth parameter determines the width of the kernel. The bandwidth controls the amount of smoothing applied to the data. A narrow bandwidth yields a more flexible estimate that closely follows the data, whereas a wider bandwidth results in a smoother estimate that is less sensitive to local fluctuations in the data. Li and Racine (2004) recommend choosing the proper bandwidth by cross-validation to minimize the trade-off between bias and variance. ***Table 3*** reports the average marginal effects of the means of the derivatives for the independent variables X with the corresponding bootstrap standard errors, as well as the predicted mean of the depended variable *sdg13_co2gcp*.

Table 3. Results from the estimation

sdg13_co2gcp	Observed estimate	Bootstrap std. err.	z	P>z
Mean				
sdg13_co2gcp	3.902	0.180	21.690	0.000
Effect				
loggdpc	3.908	1.019	3.830	0.000
CC	0.156	1.090	0.140	0.886
RL	3.380	1.147	2.950	0.003
VA	-1.254	1.075	-1.170	0.243
PL	-0.683	0.520	-1.310	0.189
GE	-0.723	0.590	-1.230	0.220
RQ	-3.898	0.750	-5.200	0.000

4.3 Discussion

Empirical results show that two explanatory variables, the rule of law, the regulatory quality, and the control variable of income, are significantly associated with the SDG13 indicator CO_2 emissions from fossil fuel combustion and cement production (tCO_2/capita). Notably, the rule of law is negatively related to environmental quality in WB countries, meaning enforcing the rule of law increases the CO_2 emissions level and pulls down WB countries' performance in climate action. Given that democratic consolidation in these countries has not yet been achieved, this result may be in the low quality of institutions in WB countries which lack experience with democratic rules. Even consolidated democracies, to be effective in implementing environmental policies, need to strengthen their executive power and public administration and limit political interference in the judicial system, let alone the weak democracies or electoral autocracies such as WB countries (Jahanger et al., 2021, p. 11). The effectiveness of environmental policies addressing climate change is diminished in countries that have recently transitioned to democracy with little historical experience on constraints on the executive, which may explain the WB case (Fredriksson & Neumayer, 2013, p. 18).

The coefficient of the variable RQ in the model was found negative and statistically significant) confirming literature findings that improvements in this variable reduce CO_2 emissions (Danish et al., 2019; Gani, 2012; Khan et al., 2022). The improved regulatory quality may play a crucial role in combatting climate change when governments establish a framework in which businesses are mandated to use cleaner forms of energy and adopt technology that reduces environmental destruction (Gani, 2012, p. 90).

The rest of the institutional factors that reflect countries' quality of governance were found to be insignificantly related to climate action, though holding a negative sign. WB countries' institutional quality is still not sound enough to perform its environmental sustainability role. The good governance dimension of voice and accountability is an important institutional factor that all political leaders take into account regardless of the type of political regime (Tørstad et al., 2020, p. 3). Although it is not vital in the fight against climate change in WB states, the negative sign may be indicative of a tendency that a higher level of voice and accountability may lead to more friendly environmental policies. Similarly, political stability can be the basis for successful long-term environmental policies (Danish et al., 2019; Khan et al., 2022). The negative though insignificant relationship between control of corruption and CO_2 emissions may imply that countries controlling corruption tend to emit less. Corruption in WB is deeply rooted and is associated with lower environmental policy stringency. Hence the fight against corruption may create prospects for a country's better performance in climate change mitigation (Fredriksson & Neumayer, 2016; Gani, 2012; Khan et al., 2022; Povitkina, 2018; Povitkina & Jagers, 2022).

Finally, results reveal that income positively and significantly impacts environmental pollution indicators. A country's better economic performance increases the level of carbon dioxide emission and hence depletes the environmental quality (Ali et al., 2019; Azam et al., 2021). WB economies are predominantly dependent on fossil fuel consumption, and the challenges they face, as described in section 3, make it difficult to adopt alternative cleaner energy sources to replace fossil fuels as their economy grows. The outcome is the current state of perpetually increasing CO_2 emissions that move them away from achieving sustainable development.

5. Conclusion

The paper focuses on determining the effects of institutions adopting good governance on climate action (UN's 13th SDG) by using a panel data set of 5 WB economies from 2000 to 2020. The study's empirical analysis is aligned with the literature review regarding the impact of specific governance dimensions on the progress of WB states on action against climate change. The clustering of indicators allowed us to identify the governance dimensions that matter more in climate action. The main findings reflect that the rule of law and regulatory quality in WB countries significantly statistically impact the dependent variable of CO_2 emissions from fossil fuel combustion and cement production. The rule of law increases CO_2 emissions because environmental policies addressing climate change are less effective in newly democratic countries, like WB, with little executive constraint history. The negative relationship between regulatory quality and CO_2 emissions lies in the government's will to create a mandatory framework for businesses to use cleaner energy and adopt environmentally friendly technology.

The policy implication based on these findings is that, for transition economies like in the selected sample countries to reduce environmental degradation caused by pollution that emanates from CO_2 emissions, they need to strengthen their institutions to deliver proper regulations, which, if systematically followed, will reduce CO_2 emissions, and improve the level of environmental quality. Moreover, WB governments should keep improving the rest institutional factors of voice and accountability, political stability and control of corruption to encourage green energy consumption with little environmental problems. WB transitional economies focused primarily on their economic development, neglecting the environmental and social systems that the achievement of SD requires, as revealed by the negative relationship between income and CO_2 emissions in this study's empirical model. These countries disregarded environmental problems, established societies more vulnerable to climate change and economies producing high emissions of greenhouse gases from energy, transportation, and land use. Hence, WB countries are lagging in progress towards achieving the UN's SDG13 on climate action.

This research encountered data limitations on the environmental variable since the target level of SDG 13 incorporates three indicators, and only one provides data for the WB countries. The paper concludes with a recommendation for future research examining how improved governance will make governments implement effective policies to limit environmental degradation, incorporating data for all SDG 13 indicators, the energy crisis, and the Ukraine war.

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