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Political Regime and Governance on climate Change. Evidence from the Western Balkan Economies

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Abstract. *The political environment plays a crucial role in steering societies to address the challenges posed by global warming and contributing to global initiatives toward a resilient and environmentally sustainable future. Political regimes in different places in the democracy-authoritarianism spectrum show varying degrees of effort to reduce their nation's respective carbon emissions. This paper aims to determine the role of political regimes along with governance dimensions in climate change mitigation. The analysis uses the V-Dem database and the World Governance Indicators (WGI) to conceptualise and measure each country's political system and its institutional quality of governance, respectively. The empirical model uses a panel database of the variables of interest for the years 1998-2022 regarding the Western Balkan (WB) economies. The target group of countries sparks our interest due to their significant challenges, such as widespread pollution, political regime changes, and severe governance problems. Furthermore, integrating the Environmental Kuznets Curve (EKC) hypothesis, which suggests a complex relationship between economic growth and environmental sustainability, the analysis provides evidence that the relationship between CO_2 emissions and GDP per capita follows a quadratic trend, suggesting that as GDP per capita increases, the associated CO_2 emissions may not change linearly but instead follow a parabolic pattern. WB countries also share the ambition of EU accession and hold the EU candidate status. To the extent these states manage to overcome their institutional issues, they will be in the position to implement the EU environmental acquis efficiently, which will amount to a critical step in the region's environmental health. Policymakers and scholars of the field will benefit from this paper since it determines the impact of political systems precisely matched with empirical results to derive conclusive answers regarding the political systems and climate change debate.*

Keywords: Political regimes, Governance, Climate change, Environment, Western Balkans economies, Institutions, Environmental Kuznets Curve.

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Introduction

Political leaders must prioritise sustainable practices, promote green investments, and enforce regulations to restrain harmful emissions in their countries. The quality of institutions is critical in ensuring that governments follow strict environmental laws and best green policies, contributing to global initiatives towards an environmentally sustainable future. Hence, the domestic political landscape may determine the course of action in the fight against climate change. Quantitative studies have indicated that domestic political regimes impact emission levels. Kneuer (2012) observes diverse efforts by regimes to reduce carbon emissions, while Kim et al. (2019) raise concerns about the role of democracies in addressing climate issues. However, differences in emissions might be influenced by factors beyond the political environment, potentially including the stages of economic development as conceptualised in the Environmental Kuznets Curve (EKC) hypothesis (Clulow, 2019; Eren, 2022). Lindvall (2021, p. 9) argues that democracies, typically found in industrialised, high-income countries with significant greenhouse gas emissions, have not successfully met the targets of the Paris Agreement. Hence, the question raised here concerns the interplay between economic growth captured and climate change mitigation efforts under different political regimes.

This study investigates the extent to which the political surroundings and the stage of economic development affect climate change mitigation, focusing on the South-Eastern Europe (SEE) countries known as the Western Balkans (WB). WB countries not part of the European Union (EU) include Albania, Bosnia and Herzegovina (BiH), North Macedonia (formerly the Former Yugoslav Republic of Macedonia - FYROM), Montenegro, Serbia, and the partially acknowledged Kosovo. Kosovo is omitted from our environmental variable analysis due to data limitations. WB are a representative sample of countries with low environmental and institutional quality, suffering from political and economic fluctuations, but which are committed to adopting the European Green Agenda to become climate-neutral by 2050 (Sanchez-Nicolas, 2021).

The paper contributes to the existing literature by examining the impact of political environment and economic development stages on CO_2 emissions, specifically focusing on a group of countries that are rarely included in the field's empirical literature. Policymakers, scholars, and students will find value in this paper as it aims to define the relationship between political systems, economic growth, and climate change, precisely matched with empirical results to derive conclusive answers.

The rest of the study is structured as follows: Section two reviews the literature on the relationship between political regimes, economic growth, and climate change. Section three discusses the political and natural environment of the WB. Section four includes the empirical analysis, and section five provides conclusions.

Political Regime, Growth, and Climate Change: A Literature Review

The type of regime at any given time forms preferences within their respective societies, affecting the rate at which environmental policies appear in the political agenda state (Lægreid & Povitkina, 2018). Environmental policies aim to advance individual welfare on both ends of the political spectrum; however, the decision-making procedures differ. In liberal democracies, citizens are free, and even encouraged, to act against climate change and criticise authorities' indifference or incompetence (Lindvall, 2021, p. 9). Hence, an increased level of democracy in the country may contribute more to reducing environmental degradation.

Conversely, authoritarian states, characterised by a single ruler or an unelected elite, may have shorter time horizons for environmental policy, prioritising immediate political stability over long-term environmental sustainability (Congleton, 1992; Fredriksson & Neumayer, 2013). Beeson (2016) argues that an authoritarian response may be adequate to climate change, with Jahanger et al. (2021) proving that in a globalised world, democracy generally negatively influences emissions, unlike autocracy. Similarly, Gilley (2012, p. 300) refers to the concept of authoritarian environmentalism in that authoritarian regimes can establish more effective environmental policies based on their centralised power and firm control over the environmental policymaking process while ignoring individual liberties. Hence, the country's institutional structure becomes a significant factor in determining the environmental quality.

International collaboration and the free flow of information, hallmarks of democratic states, support the establishment of efficient and inclusive environmental policies (Kneuer, 2012). Existing literature supports the contention that democracies are more effective in mitigating the effects of climate change by incorporating a greater number of mechanisms and critical factors into their research (Fredriksson & Neumayer, 2013; Kim et al., 2019; Lægreid & Povitkina, 2018; Lv, 2017; Povitkina, 2018; You et al., 2020). Factors such as civil liberties, the type of democracy, the justice system, and groups of interest play a nuanced role in shaping environmental outcomes (Bernauer & Koubi, 2009; Clulow, 2019; Sinha et al., 2021; Von Stein, 2022). Muhammad and Long (2021) go also beyond the political regime and examine specific institutional factors that impact carbon emissions based on the country's income level. Political stability, control of corruption, and the rule of law are critical in reducing carbon emissions levels and contributing positively to combating climate change.

Whereas there is a debate about which political environment produces the best environmental outcomes, there is a debate about economic growth's impact on environmental degradation. The inconsistency of the empirical results on the correlation between environmental degradation and economic development inspired the Environmental Kuznets Curve (EKC) hypothesis, which posits an inverted-U relationship between economic growth and environmental degradation. EKC's origin is the Kuznet hypothesis, which examines the relationship between economic growth and income distribution (Kuznets, 1955). As economies grow, emissions increase, but after reaching a certain level of economic development, the trend reverses, suggesting that more prosperous democracies might eventually prioritise environmental sustainability (Bättig & Bernauer, 2009; Bernauer & Koubi, 2009; Eren, 2022; Lv, 2017; Sinha et al., 2021; You et al., 2020).

The relationship between CO_2 emissions and economic development, as examined through the Environmental Kuznets Curve (EKC), has been the subject of diverse findings in recent research. The empirical studies of Hannesson (2022); Htike et al. (2022); Beşe & Kalayci (2021); Zhang (2021); Kacprzyk & Kuchta (2020); Shahbaz & Sinha (2019); Pata (2018); Bilgili et al. (2016) reveal a complex and multifaceted relationship between economic development and environmental impact, as evidenced by CO_2 emissions, with results varying across countries, time periods, and methodologies.

Therefore, this study, following the literature review, in the examination of the political environment, economic development and environmental degradation nexus, uses variables from the political environment considering dimensions of governance like voice and accountability, political stability, government effectiveness, the rule of law, and control of corruption (Kaufmann et al., 1999, 2011) within the context of the EKC hypothesis, which provides a framework for understanding how economic growth interacts with political regimes and environmental outcomes.

Natural, Economic and Political environment in WB countries

WB nations continue to aspire for EU membership. Despite being candidates for over 18 years, accession progress varies. The EU stresses the need for WB countries to speed up the adoption and implementation of EU accession reforms to join the Union by a certain deadline. Within the "Stabilisation and Association Process," these nations are required to conform to 35 chapters of the EU acquis, with Chapter 27 on "Environment and Climate Change" being the most comprehensive and challenging. This chapter is pivotal for meeting the Paris Agreement goals, particularly in reducing greenhouse gas emissions (Banja et al., 2020; Vuković & Mandić, 2018). Concerns about the WB region's environmental sustainability and its potential impact on economic growth have prompted international policies like the Sofia Declaration on the Green Agenda for the WB states. By ratifying the Paris Agreement (excluding Kosovo) and the Sofia Declaration, WB nations pledged to limit global warming to 1.5 degrees Celsius and achieve zero emissions by 2050 (Berishaj, 2021, p. 7). Given the WB countries' reliance on coal, which accounts for 70% of their electricity production, and the ageing coal-based power plants contributing significantly to CO_2 emissions, this transition presents a significant challenge (Berishaj, 2021; Carragher, 2021). Moreover, the energy sector in WB, a substantial source of greenhouse gases, air pollutants, and oil spills, is under scrutiny (Alfthan et al., 2015, p. 28). Achieving the 2050 goals necessitates robust policy frameworks and National Energy and Climate Plans. However, the WB countries are hindered by poor governance, political instability, corruption, limited environmental policy budgets, and inadequate rule of law, particularly in environmental matters (Mitić et al., 2023).

The WB region experienced a challenging period over the past three decades. The end of socialist regimes in the 1990s triggered regime changes and state-building in the WB peninsula. Since then, the EU policy has emphasised socioeconomic development over democratic institution building in the WB, leading to delayed democratic reforms. This approach allowed post-communist leaders to maintain economic control, impeding democratic transitions and necessary reforms (Grimm & Mathis, 2015).

Despite early 21st-century democratic advances, these nations seem to be unable to sustain democracy amid global financial crises. The resulting economic and social unrest provided fertile ground for illiberal politics, leading to abuses in elections, law, media, and public finances, although competitive elections continue (Freedom House, 2019; Pavlović, 2019).

The V-Dem Liberal Democracy Index (LDI) reveals a regional shift from democracy towards authoritarianism, with Serbia experiencing significant backsliding in 2021 (see Figure 1). The index classifies regimes with scores above 0.8 as liberal democracies, with Serbia and Montenegro now considered electoral autocracies and the rest of WB as electoral democracies. BiH is at risk of falling into electoral autocracy due to declining democratic standards that record (Boese & Eberhardt, 2022).

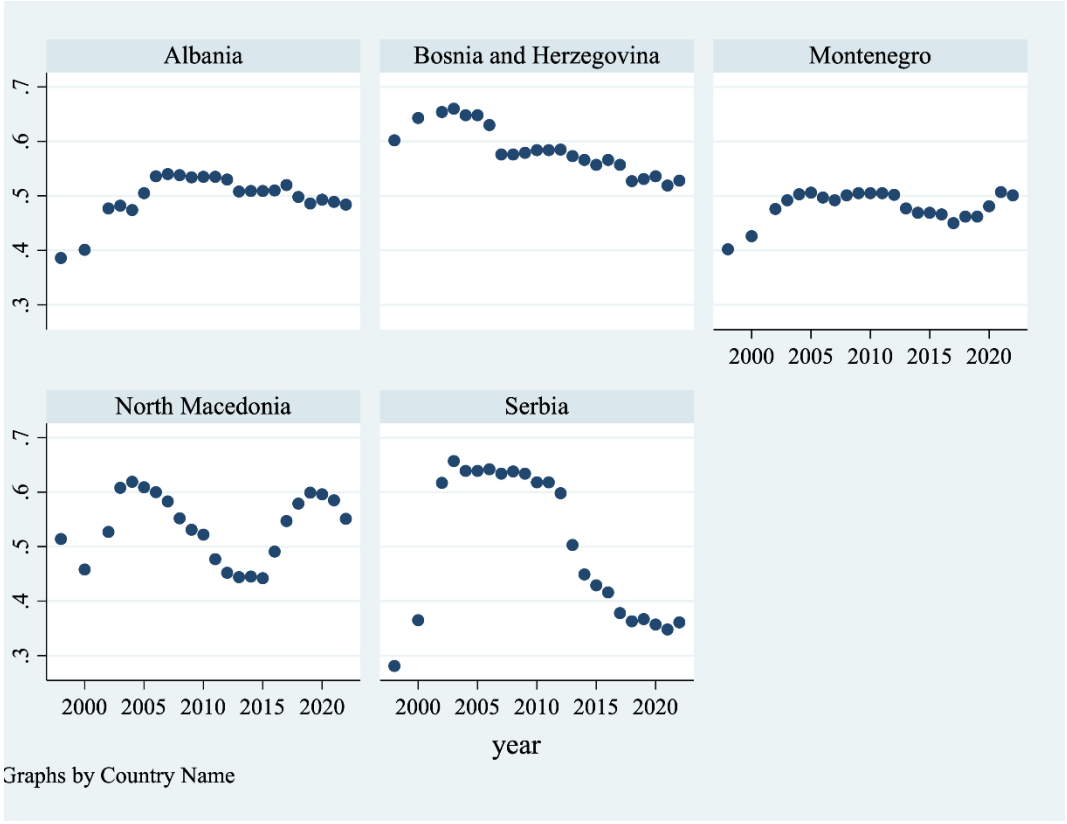

Figure 1. WB's Liberal Democracy Index (LDI) during the period 1998-2022

Source: Adapted from V-Dem data (2023).

As the WB approaches EU accession, it becomes imperative for their governments to prioritise the consolidation and reinforcement of democratic institutions. Notably to empower democratic structures towards corruption and organised crime, limited media freedom, and strong dependence on power parties' informal control over the state administration (Bieber, 2018, p. 338). The momentum for their implementation has been suspended by the outbreak of the COVID-19 pandemic, followed by Russia's invasion of Ukraine.

The mitigation of environmental degradation across WB has become even harder due to threats to their economies from the external environment. The World Bank's Western Balkans Regular Economic Report (2022) outlines that the post-COVID recovery in 2021 did not last since the war in Ukraine has led to increased energy prices and a global economic slowdown, negatively impacting the region's economies. The World Bank's Western Balkans Regular Economic Report (2023) estimated the economic growth in the WB region in 2023 to be 2.5 per cent, slightly lower than previous projections. However, since the onset of the 21st century, WB economies have recorded significant progress in terms of income convergence, meaning countries' per capita income is comparable to that of a more prosperous nation, such as the EU average. In 2022, the per capita income ratio in WB economies ranged from 27.3 per cent to 50 per cent, reflecting that the living standards in the region are between one-quarter and one-half of the EU average (World Bank, 2023, p. 7). The income convergence can be accelerated through the acceleration of regional integration, and the reduction of CO_2 emissions can be accelerated by implementing reforms towards sustainable economic growth (Mitić et al., 2023; World Bank, 2022).

Data and Methodology

This research covers the period 1998–2022 on an annual scale for the 5 WB countries.

Variables Description and Data

Dependent Variable

The primary focus of this study is on national CO_2 emissions, which are considered the most impactful element in the research on climate change, and their data are highly credible (Clulow, 2019, p. 248). This metric sums up the total CO_2 released within a country by various emitters (Povitkina, 2018, p. 417).

Independent Variables

This empirical analysis includes as independent variables the income, the level of liberal democracy as a regime variable and five indices of governance, voice and accountability, political stability and absence of violence/terrorism, government effectiveness, the rule of law, and control of corruption.

Income

Studies have consistently included GDP per capita in the analysis of emission trends based on the premise that the relationship between emissions and income levels reflects a country's ability to balance economic growth with environmental stewardship (Bättig and Bernauer, 2009). Income is measured as the natural logarithm of GDP per capita to accurately represent permanent income, which serves as a theoretical benchmark for gauging income in relation to the demand for environmental quality (Bernauer & Koubi, 2009, p. 1360). Additionally, the empirical model includes the quadratic term of the log of GDP per capita to highlight the existence of this pattern.
This study hypothesises that the emergence of democracy acts as a catalyst for industrial growth, thereby increasing GDP per capita and CO_2 emissions simultaneously. Studies employing the autoregressive distributed lag (ARDL) method, such as those by Shahbaz and Sinha (2019), Ridzuan et al. (2022), and Alola and Ozturk (2021), have confirmed the hypothesis for countries like India, Malaysia, and the USA, respectively. This positive correlation between economic growth and emissions is expected to persist up to a certain income threshold. Beyond this point, the hypothesis aligns with the Environmental Kuznets Curve (EKC) concept, which postulates an inverted-U relationship between income and environmental degradation. In this framework, as economies grow and reach higher income levels, more established democratic institutions begin to prioritise climate policy objectives in their agendas. This shift results in the enforcement of environmental regulations, leading to a reduction in CO_2 emissions despite continued economic growth.

Indices of democracy and governance

This analysis employs the V-Dem dataset, a novel, multi-faceted framework for measuring democracy, to assess the impact of political systems on climate change. This dataset addresses the limitations of previous indices and evaluates democracy across five core principles: electoral, liberal, participatory, deliberative, and egalitarian (Clulow, 2019). The focus here is on the Liberal Democracy Index (LDI), which evaluates the effectiveness of political systems in climate change mitigation. The LDI considers the limits placed on governmental power and includes electoral democracy aspects, ensuring free and fair elections (Lührmann et al., 2020, p. 32). Countries are

categorised into four regime types based on their LDI scores using the Regimes of the World (RoW) typology: closed autocracies, electoral autocracies, electoral democracies, and liberal democracies (Morgan et al., 2019, p. 5). Shifts in the LDI score signify transitions towards or away from democratic or autocratic systems (Lührmann et al., 2020, p. 11).

The study hypotheses a significant but not necessarily positive correlation between the LDI and CO_2 emissions, acknowledging the complex relationship between democracy and environmental impact, as previously discussed in the literature review. It also explores governance, employing World Governance Indicators (WGI), which measure government selection, policy effectiveness, and institutional respect (WGI, 2019). Kaufmann et al. (1999), for the World Bank (WGI project), defined five governance dimensions: Control of Corruption, Rule of Law, Voice and Accountability, Political Stability and Absence of Violence/Terrorism, and Government Effectiveness. This analysis examines the extent to which each dimension contributes to climate change mitigation, with the expectation that strong governance correlates with effective environmental policies.

Table 1. Variables Description and Coding

Variables		Description	Code	Source of Data
Dependent Variable		**Annual CO_2 emissions per capita (tonnes)**	CO_2	Our World in Data (Global Carbon Budget, 2023)
CO_2				
Independent Variables				
1.	**LDI**	The aggregate index that describes features of democracy at the highest level	*ldi*	V-Dem Dataset (2023)
3.	**Governance Indicators**	A set of traditions and institutions by which authority in a country is exercised.		
3a	*Voice and Accountability*	The dimension of Quality and Governance	*vα*	Worldwide Governance Indicators (WGI) (Kaufmann & Kraay, 2023)
3b.	*Political Stability and Absence of Violence/Terrorism*	The dimension of Quality and Governance	*polst*	
3c.	*Government Effectiveness*	The dimension of Quality and Governance	*gove*	
3d.	*Rule of Law*	The dimension of Quality and Governance	*rl*	
3e.	*Control of Corruption*	The dimension of Quality and Governance	*cc*	
Control indicators				The World Bank (2023)
4.	**Income**	The log of GDP per capita (current US$)	*loggdp*	

4.2 Model Specification and Empirical Results

Descriptive statistics for all variables of interest by country are presented in Table 2.

Table 2. Descriptive statistics

Variable	Mean	Std. dev.	Min	Max	Observations
ldi	0.520	0.079	0.281	0.660	N = 115
cc	-0.417	0.254	-1.196	0.497	N = 115
rl	-0.350	0.278	-1.278	0.317	N = 115
va	0.015	0.216	-0.974	0.334	N = 115
polst	-0.240	0.452	-2.142	0.817	N = 109
gove	-0.293	0.362	-1.208	0.330	N = 110
CO_2	4.028	1.772	0.543	7.805	N = 115
loggdp	8.385	0.534	6.702	9.220	N = 114

Using variables in the regression analysis that evolve in a timely manner, especially in the case of larger time dimensions relative to a smaller number of cross-sectional units, requires some care due to trending and unit root issues. Unit roots are of great concern in dynamic processes because they have important implications for stationarity and, as such, estimate the model parameters. Ignoring the existence of unit roots can lead to *spurious regressions* and produce misleading results.

First of all, to detect stationarity in panel datasets, a variety of tests can be used: the Im–Pesaran–Shin test (Im et al., 2003), the Levin–Lin–Chu test (Levin et al., 2002), the Breitung test (Breitung, 2000; Breitung & Das, 2005), the Fisher-ADF (Choi, 2001) and the Harris-Tzavalis test (Harris & Tzavalis, 1999). The asymptotic properties of each test require specific assumptions about the rates at which the number of cross-sectional units (countries), N, and the number of time periods, T, tend to infinity or whether N or T is fixed. In this study, considering the dimensions of our sample dataset, where we typically assume that N is fixed whereas T tends to infinity, we perform the Im–Pesaran–Shin (Im et al., 2003) or (IPS) test. The following equation gives the IPS model:

$$\Delta Y_{i,t} = \alpha_i + \rho_i Y_{i,t-1} + \sum_{k=1}^{n} \varphi_k \Delta Y_{i,t-k} + \delta_i t + \theta_i + u_{it}$$

Where Y= *{CO_2, ldi, cc, rl, va, polst, gove, loggdp}* is the vector of the independent and the explanatory variables, under the null hypothesis that all panels contain a unit root, we have $\rho_i = 0$ for all i, while the alternative is that at least a fraction of panels follows stationary processes. The null hypothesis is that each series (country series) in the panel contains a unit root against the alternative that allows for some, but not all, of the individual series to have unit roots. The test requires cross-sectional units to be small enough for the time dimension. Additionally, we elect to include time (t) and country (i) specific effects and the time trend variable in the equation above.

The test results concerning the level of the variables (see Table 3) suggest that we cannot reject the null of non-stationarity for all the variables except the *polst* variable. Regarding the variables' first differences, the tests indicate rejection of the null and conclude that at least some of the country series in the panel are stationary for all model variables. For the first difference of the variable *loggdp* there is no strong evidence for stationary though, for CI=5%, it cannot be rejected:

Table 3. Unit root tests of the variables

Variable	IPS Statistic	p-value
CO_2	-0.9888	0.1614
ldi	-0.0339	0.4865
cc	-1.1229	0.1307
rl	-0.1991	0.4211
va	0.6993	0.7578
polst	-3.2013	0.0007
gove	0.0653	0.5260
loggdp	0.6683	0.7480

Table 4. Unit root tests of first differences of the variables

Variable	IPS Statistic	p-value
CO_2	-6.848	0.000
ldi	-3.901	0.000
cc	-3.390	0.000
rl	-4.927	0.000
va	-1.999	0.025
polst	-2.201	0.016
gove	-4.255	0.000
loggdp	-1.989	0.022

Since the analysis revealed the presence of unit roots in the variables, the Pedroni (2004) and Westerlund (2005) tests were followed to provide evidence for cointegration between the variables with unit roots. Both tests have the null hypothesis of no cointegration. The Pedroni test's alternative hypothesis is that the variables are cointegrated in all panels, while the Westerlund test's alternative hypothesis is that the variables are cointegrated in some of the panels, along with the alternative hypothesis that the variables are cointegrated in all the panels. Table 5 presents the results of cointegration tests. Both tests provide evidence that all panels are cointegrated.

Table 5. Pedroni and Westerlund tests for cointegration

Pedroni test for cointegration			**Westerlund test for cointegration**		
	Statistic	p-value		Statistic	p-value
Modified Variance ratio	-4.360	0.000	Variance ratio	2.720	0.003
Modified Phillips–Perron	3.514	0.000			
Phillips–Perron	2.981	0.001			
Augmented Dickey-Fuller	2.393	0.009			
H0: No cointegration			H0: No cointegration		
Ha: All panels are cointegrated			Ha: All panels are cointegrated		

In these cases, when variables are I(1), and the model is probably dynamic in behaviour, a panel–ARDL procedure can be used for the parameters' estimation (Pesaran et al., 1999) so as the interpretation of the coefficients of the variables in levels expresses the long-run impact on the dependent variable. Hence, we proceed with the estimation of the model below:

$$\Delta y_{it} = \varphi_i(y_{i,t-1} - x'_{it}\beta_i) + \sum_{j=0}^{q-1} \gamma_{ij}\Delta x'_{i,t-q} + \sum_{j=0}^{p-1} \delta_{ij}\Delta Y'_{i,t-p} + a_i + u_{it} \quad (1)$$

Where y is CO_2 per capita and x′ represents the variables *(ldi, cc, rule, va, polst, gove, gdpsq, loggdp)′*. With this specification, the coefficients β_i represents the long-run relations between regressors and the dependent variable φ_i , accounts for the error corrector mechanism impact, while the γ's and δ' s coefficients are the short-run parameters.

The results are presented in Table 6. The error correction coefficient (model 1) was found to be statistically significant with a negative sign (-0.866, p-value=0.008). The calculated half-life of the adjustment process, given the value of -0.866, is approximately 0.345 periods. According to the data set, one period corresponds to one year; this would mean that it takes about 0.345 years (or roughly 4.1 months) for the deviation from the long-run equilibrium to be halved.

The coefficients indicate that the long-run impact of the explanatory variables *polst* and *rl* and *ldi* are negative and statistically significant (p-values<0.000, see panel A of Table 6). The coefficient of *va* is found insignificant in CI of 95%. The coefficients of *gove* and *cc* are insignificant (p-values>0.10). The coefficient of *gdp* is positive while the coefficient of the squared term is negative, and both are statistically significant, suggesting a non-linear relationship between *gdp* and CO_2 emissions.

Table 6. Results from the estimation of model (1)

	Coefficient	Std.err.	z	p-value
Panel A : Long run impact				
ldi	-0.135	0.042	-3.230	0.001
gdp	7.071	3.287	2.150	0.031
gdpsq	-0.413	0.194	-2.130	0.033
va	0.070	0.038	1.850	0.064
rl	-0.303	0.039	-7.780	0.000
polst	-0.089	0.017	-5.350	0.000
gove	0.070	0.071	0.990	0.321
cc	0.026	0.043	0.600	0.549
Panel B : *Short run coefficients*				
Φ	-0.866	0.326	-2.660	0.008
ldi	0.757	1.423	0.530	0.595
gdp	-0.233	0.084	-2.760	0.006
gdpsq	4.175	1.436	2.910	0.004
va	-0.089	0.185	-0.480	0.631
rl	0.009	0.093	0.090	0.926
polst	0.357	0.088	4.040	0.000
Gove	0.017	0.058	0.300	0.767
cc	-0.241	0.228	-1.060	0.289
_cons	4.491	1.717	2.610	0.009

Notes: φ in Panel B is the Error Correction Term and is significant and negative, indicating a correction towards long-term equilibrium after short-term shocks. The mean "half-life" which refers to the time it takes for the variables to cover half the distance back to their equilibrium after a shock can be calculated using the formula: $Half - life = \frac{-log(2)}{log(1+\varphi)}$ is approximately 4.1 months

Discussion

The empirical results of this study support the EKC hypothesis since the coefficient of *gdp* variable was found to be positive and statistically significant, while the coefficient of the quadratic term is negative and significant, hinging on the literature findings (Bilgili et al., 2016; Kacprzyk & Kuchta, 2020). Hence, economic development and environmental sustainability are related in the sense that higher-income countries are more capable of developing robust climate change policies (Bättig & Bernauer, 2009; Fredriksson & Neumayer, 2013). Regarding the stage of democratisation, as countries progress to higher levels of democracy at a certain level of development, they will produce better environmental outcomes (Lv, 2017). In the case of WB economies, as they achieve higher income levels and establish more vital democratic institutions, they will be in a better position to formulate efficient climate change policies. The importance of the role of a strong democracy in climate change reveals the empirical result of *ldi*, showing a negative long-run relationship with emissions, suggesting that as WB countries move towards democratisation, emissions decrease. This empirical result is aligned with Clulow (2019), who noted that a stronger democracy tends to emit less than a weaker one. The observed negative link between the rule of law and emissions points out that a strengthened legal system and improved access to justice can lead to a decrease in CO_2 emissions and an enhancement of environmental conditions (Muhammad & Long, 2021). This relation finds ground more in democracies since they are considered to have more respect for the rule of law and comply more with commitments under international environmental treaties (Sinha et al., 2021). Hence, WBs' transition to consolidated democracies will improve their environmental quality.

The *polst* empirical outcome validated the anticipated result; thus, political stability in WB countries is directly linked to lower environmental pollution. Stability extends the political horizon, encouraging leaders to adopt policies with short-term costs for long-term environmental benefits, a critical aspect of climate policy (Fredriksson & Neumayer, 2013, p. 16). Great political stability fosters an optimal environmental policy stringency (Fredriksson & Wollscheid, 2014, p. 56). The EU's policy towards the Balkans, aimed at reform and stabilisation, is crucial in this regard. However, delays in EU enlargement and external geopolitical factors, such as the Ukraine conflict, pose risks to regional stability and environmental health.

Finally, the findings for *cc* and *gove* reveal that there is not enough statistical evidence to conclude that the control of corruption and government effectiveness have a significant impact on the dependent variable in our model, neither in the short run nor in the long run; suggesting that there might be opposing forces at play within the political system that neutralise the impacts of 'Control of Corruption' and 'Government Effectiveness' on the dependent variable. The same aspects may also shape the positive correlation between voice and accountability and CO_2.

Conclusion

This paper sets up the target of defining the political environment's influence on climate change mitigation within the WB countries. Economic and political transitions in the WB region resulted in increased industrialisation and urbanisation, with notable environmental impacts. These transition economies encompass a spectrum from electoral democracy to electoral autocracy, reflecting the diverse contemporary political landscape. The literature review underscores that prior empirical studies have expanded their focus beyond the mere categorisation of regime types, incorporating additional mechanisms and key factors. Following this approach, this study employs empirical analysis that integrates both political regime and individual variables that are perceived to enhance institutional stability and credibility of the political system, thereby improving the

government's capacity to formulate and implement effective policies for mitigating environmental pollution. Notably, WB economies confront elevated pollution levels, negatively impacting their residents' overall quality of life. Consequently, it is imperative to prioritise the transition to environmentally sustainable practices in these economies. This is essential not only for alleviating the adverse impacts on citizens' well-being but also for advancing the WB nations towards the goal of EU membership.

The paper's empirical findings provide evidence for the significant relation of the two governance dimensions and the type of political regime to CO_2 emissions. The clustering of institutional indicators allowed us to identify the governance dimensions that matter more in the fight against climate change. Hence, among the pillars of governance, political stability, and rule of law are those that represent an effective and well-functioning government structure in planning and implementing an effective environmental strategy. The regime's variable empirical result indicates that as the level of democracy increases in the five WB countries, they tend to emit less and because of that these states must reverse the democratic backsliding they experience. Policymakers in each WB country, to reach the target of lowering emissions, should protect and strengthen the democratic structures of their country and enhance the quality of governance.

This research also highlights the relevance of the (EKC) hypothesis in understanding the relationship between economic development and environmental impact in the context of political regimes. The initial increase in CO_2 emissions in tandem with economic growth, as observed in some WB countries, aligns with the EKC proposition. However, it also underscores the need for robust democratic institutions and governance to transition towards the downward slope of the EKC, where higher income levels and economic development lead to environmental improvements.

The paper concludes with a recommendation for future research to incorporate data from all WB countries considering the impact of external factors such as the Ukraine war in this field of study.

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