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THE ROLE OF POLITICAL INSTITUTIONS IN IMPROVING ENVIRONMENTAL QUALITY IN NIGERIA

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We examines how democracy affects air quality in Nigeria using ARDL bound test approach to co-integration, Dynamic OLS and Fully Modified OLS for a period of 1980-2015. The study finds that democracy reduces air pollution. The short run and long run democracy effect on air quality is negative and statistically significant. This means that Nigerian citizens can express their preferences and put pressures on the governments to protect the environment. With democracy, citizens are more aware of environmental problems. They can express their preferences for environment and create lobbying groups. Political leaders are prompted to implement environmental policies at national and international levels which will lead to improvement in the quality of the environment.The study also considers other institutional variables such as corruption and bureaucratic quality. However, corruption and bureaucratic problem deteriorate environmental quality. These findings support the view that environmental quality is negatively influenced by both corruption and political instability.

Keywords: *Democracy, pollution, Nigeria, environment*

INTRODUCTION

Environmental quality including air quality is referred to as the extent to which naturally occurring resources (land, air and water) are freed from impurities and degradation caused by human activity. The environment plays a crucial role in people's physical, mental and social well-being. The complex relationships between environmental factors and human health, taking into account multiple pathways and interactions, should be seen in a broader spatial, socio-economic and cultural context. Environmental quality has become an important issue that is gradually becoming more present in the development strategies. They occupy a significant place in the economic policy of many countries and constitute a major concern for the international community. This concern, expressed at the international level, is illustrated at many international meetings and conferences. In fact, about 192 United Nations Member States undertook in 2000 to 'integrate the principles of sustainable development into country policies and programs, reverse loss of environmental resources, reduce biodiversity loss, by 2015. The proportion of people without sustainable access to safe drinking water and basic sanitation is high.

This great interest is explained by the fact that environment is intimately connected to a viable ecosystem as explained by the United Nations Secretary General, in the United Nations Environmental Program 2007 Annual Report that 'it keeps the climate stable, clothes our backs, provides the medicines we need, and protects us from radiation from the space.

Environmental protection is nowadays an important emerging concept and the search for large and sustainable pro-poor economic growth remains a necessity and a priority for all economies. The simultaneous pursuit of environmental quality and sustainable progress for economic performance gives rise to at least one question: what is the relationship between Pollutant emissions and Institutions? During the early decades, many authors have tried to give theoretical and empirical responses to this question and the most popular among them remains the environmental Kuznets curve hypothesis (EKC). The EKC describes the relationship between declining environmental quality and economic growth as an Inverted-U, that is, in the course of economic growth and development, environmental quality initially worsens but ultimately improves with improvements in income level (Grossman and Krueger 1995; Torras and Boyce, 1998).

However, studies have proposed that the relationship between income and environmental quality should not be limited to the EKC (Bovenberg and Smulders 1995, 1996; Bruvoll, Glomsrod, and Vennemo 1999). Air pollution emission may give adverse effects to the health of the populace. Emissions of greenhouse gases have the potential of aggravating the problem of climate change which poses serious health challenges, in terms of cardiovascular and cerebrovascular disease, among the elderly as it is usually associated with excessive temperatures and heat waves that can alter arterial pressure and blood viscosity. Additionally, thermal stress and temperature-related air pollution, pollen counts, mold growth and pollution precursor can cause a variety of respiratory diseases including asthma, bronchitis, pneumonia, cough and cold while increasing temperature humidity and rainfall can effect proliferation, density and maturation of insect vectors such as mosquitoes as well as ticks and flies.

To control the effect of air pollution emission in a nation, studies suggested that it is important to improve on institutional conditions in such a country like Nigeria. Based on this note, this study's objective is to investigate the effect of institution on air quality in Nigeria. Examining the relationship between air quality and institution is important for many reasons. First of all, the quality of institution plays an important role. It helps to reduce environmental degradation in a country even if it is in a low income country like Nigeria. This means that countries are expected to enjoy improvements to the environment with higher future income levels because institutional quality can reduce the environmental cost of higher economic growth (Panayotou, 1997; North, 1994). Secondly, quality of institutions matters as it helps to minimize opportunism, to foster cooperative behaviour among agents, and to enable agents internalise

externalities. Thus, the improvement of institutional quality can provide a favourable environment for the adoption of cooperative solutions that will in turn help to enhance economic growth.

However, studies on institutional variables and environmental quality remained scarce in Nigeria. Meanwhile, economists have only recently started to address quantitatively the implications of institutional variables on environmental quality and performance. A careful look at Nigerian political settings would show that special interest groups enjoy disproportionate influence on policymaking. This implies that public goods (environmental quality) may be underprovided in the presence of strong special interest groups opposing environmental policies (Olson, 1965, 1982; Midlarsky, 1998). Despite the fact that this phenomenon exists, it has been become very difficult to identify any study that addresses the effect of institutions on air quality (such as improvement in air quality, reduced CO_2emission) in Nigeria. This study, therefore, fills the gap by examining the possible effect of institutions on air quality in Nigerian context.

REVIEW OF THEORETICAL AND EMPIRICAL LITERATURE

Authors have provided that theoretical explanations on how non-democratic system of a country can likely underprovide public goods such as air quality to its citizens (McGuire and Olson, 1996; Deacon, 1999). From their view, we deduce that a system without democracy is typically ruled by small elites that would use the resources of their respective country to create personal wealth and thereby leading to imbalance redistribution of income. If the costs of stricter environmental policies are born disproportionately by the elites (as it would be the case with restrictions on polluting industrial activities) while the benefits are uniformly dispersed throughout the population, then these elites would have little incentive to implement such policies (Bernauer and Koubi, 2009). However, the situation would have been different in the case of democratic system. The median voter, who decides on public policy, faces lower costs from environmental policies relative to the economic and political elite. This makes the adoption and implementation of stricter environmental policies more likely in democratic regimes.

Different bodies of researches (Polaskya, et al, 2019; Burnell, 2012; Bernauera and Koubib, 2009) in comparative politics and political economy have suggested that institutions can enforce social norms, rules, laws and play crucial role in preventing harmful, exploitative, or predatory behavior of the elites. North (1994) suggests that the creation of centralized law enforcement institutions by modern states is the crucial factor allowing societies to maintain the availability of public goods (including air quality). However, Ostrom (1990) and Agrawal (2001) are of the opinion that decentralized or localized institutions lead to better outcomes than state enforcement.

Bernauera and Koubib (2009) empirically test existing theories on the provision of public goods, in particular air quality, using data on sulfur dioxide (SO2) concentrations for 42 countries from 1971 to 1996. The results support the claim that the degree of democracy has an independent positive effect on air quality. Kelleher, Kim and Young-Jae Chang (2009) confirm that political institutions explain not just variation in one particular environmental indicator such as air pollution, but variations in water pollution and other environmental indicators as well. However, this is not consistent to Kinda (2011). He analyse the effect of democratic institutions on environmental quality (carbon dioxide per capita, sulfure dioxide per capita). Using panel data from 1960 to 2008 for 122 developing and developed countries and modern econometric methods. The results show that democratic institutions have opposite effects on environment quality: a positive direct effect on environment quality and a negative indirect effect through investments and income inequality. It implies that democratic institutions attract investments that hurt environment quality. Moreover, as democratic institutions reduce income inequality, they also damage environment. He also find that the direct negative effect of democratic institutions is higher for local pollutant (SO2) than for global pollutant (CO2).

Furthermore, Sekrafi and Sghaier, (2018) who evaluate the impact of corruption on the environmental quality in Tunisia using the autoregressive distributed lag (ARDL) cointegration framework. Results show that positive and significant relationship between control of corruption and economic growth, a negative and significant relationship between control of corruption and environmental quality (CO2) and a negative and significant relationship between control of corruption and energy consumption. The findings suggest that while the control of corruption contributes to economic growth, its positive effect could be transposed indirectly via its impacts on environmental quality. Povitkina (2018) explored a sample of 144 countries over 1970–2011 to empirically test the relationship between democracy and $C0_2$ emission which is moderated by the levels of corruption. The results indicate that more democracy is only associated with lower CO2 emissions in low-corruption contexts. If corruption is high, democracies do not seem to do better than authoritarian regimes.

METHODOLOGY

Model specification and econometric strategies

The study objective is to examine the effect of institutions on air quality in Nigeria from year 1980-2015. To do this, the study follows the work of Bernauer and Koubi (2009), Kinda (2011), Sekrafi and Sghaier, (2018), and specifies the base line model as stated below:

$$AQ = f(PI, TO, IN, AT, BQ)$$

The study adopts the autoregressive distributed lag (ARDL) model to establish the effects of institution on air quality in Nigeria. The problem of endogeneity and non-stationarity of variables can

be partly solved by developing a dynamic framework. The fundamental importance of this technique is that we can simultaneously discuss long run and short run relationship within the same framework regardless of whether the variables are integrated of the same order, that is, whether all variables are I(1) or I(0) or the combination of I(1) and I(0) variables. In other to examine the contribution of institution on air quality in Nigeria, the linear form of equation (1) is formulated;

$$AQ_t = \beta_0 + \beta_1 PI_t + \beta_2 TO_t + \beta_3 IN_t + \beta_4 AT_t + \beta_5 BQ_t + e \quad \ldots (2)$$

Where AQ is Air quality (SO_2), PI is the political institutions (proxied by democratic accountability), IN is the income per head, TO is the trade Openness, AT is the Average Annual Temperature. e is the error term. The key independent variables are political institution (PI) and Bureaucratic Quality (BQ) while income per capita, trade openness and average temperature are the control variables. The study includes trade openness to follow some authors such as Frankel and Rose (2002) who argued that trade affects the domestic economy and environmental behavior. Antweiler et al. (2001) establish that, at least for SO_2 emissions, the net effect of trade is to reduce pollution levels. The study also includes the average annual temperature to take into account seasonal influences on the demand for fuels that contribute to emissions of SO_2. We also include income per capita because a large number of literatures reveal that income growth influences pollutant emission in a country (Grossman and Krueger, 1995; Selden and Song, 1994).

From equation (2), the autoregressive distributed lag model is formulated. Moreover, to overcome the problems of endogeneity and serial correlation in which any of the variables correlates with the error term, more dynamics are added to the short run variables in the model. Thus, the ARDL model is specified below:

As aforementioned, the paper adopts the recently developed autoregressive distributed lag (ARDL) framework by Pesaran and Shin (1995, 1999), Pesaran*et al*. (1996) and Pesaran (1997). This approach does not involve pre-testing variables, which means that the test on the existence relationship between variables in levels is applicable irrespective of whether the underlying regressors are purely I(0), purely I(1) or mixture of both. The F test is used for testing the existence of long-run relationship. Given a relatively small sample size in this study of 35 observations, the critical values used are as reported by Narayan(2004). The test involves asymptotic critical value bounds, depending whether the variables are I(0) or I(1) or a mixture of both. Two sets of critical values are generated which one set refers to the I(1) series and the other for the I(0) series. Critical values for the I(1) series are referred to as upper bound critical values, while the critical values for I(0) series are referred to as the lower bound critical values.If the F test statistic exceeds their respective upper critical values, we can conclude that there is evidence of a long-run relationship between the variables regardless of the order of integration

$$\Delta AQ_t = \propto_0 + \sum_{i=1}^{k} \prod_i \Delta AQ_{t-i} + \sum_{i=0}^{k} \gamma_i \Delta \mathrm{PI}_{t-i} + \sum_{i=0}^{k} \theta_i \Delta TO_{t-i} + \sum_{i=0}^{k} \psi_i \Delta IN_{t-i} + \sum_{i=0}^{k} \delta_i \Delta AT_{t-i} + \sum_{i=0}^{k} \emptyset_i \Delta BQ_{t-i} + \alpha_1 AQ_{t-1} + \alpha_2 PI_{t-1} + \alpha_3 TO_{t-1} + \alpha_4 IN_{t-1} + \alpha_5 AT_{t-1} + \alpha_6 BQ_{t-1} + \epsilon_t \quad (3)$$

of the variables. If the test statistic is below the upper critical value, we cannot reject the null hypothesis of no cointegration and if it lies between the bounds, a conclusive inference cannot be made without knowing the order of integration of the underlying regressors.If there is evidence of long-run relationship (cointegration) of the variables, long run estimation would be performed.

Sources of Data and Measurement of Variables

Time series data spanned from 1980-2015 were used for the study. The study sourced for data from World Bank Development Indicators (WDI) and International risk Guide (2016). While data on institutions were sourced from International risk guide, other data were sourced from WDI. The measurements of the variables are stated as follows:

1. **Air Quality**: This proxy as Sulphur dioxide (SO_2). The study also uses PM_{10} for robustness checks.
2. **Trade Openness (TO):** the study measured Nigeria's trade openness by the ratio of the sum of exports and imports to GDP. We expect a negative effect of trade on pollution.
3. **Average Temperature (AT):** As one of the control variable data, we shall employ average annual temperature in Nigeria. We included the average annual temperature at each site to take into account seasonal influences on the demand for fuels that contribute to emissions of SO_2.
4. **Gross fixed capital formation (GF):** As one of the control variable data also, we shall employ gross fixed capital formation as a percentage of GDP.
5. **Income per head (IN):** GDP per head is used as a proxy for income per head.
6. **Institutional variables (IS):** These include: Democratic Accountability **(PI)** to measure institution. Other institutional variables included are: Bureaucratic quality **(BQ)** and Corruption perception index **(Corp).**

RESULTS AND DISCUSSION

Unit root tests and Co-integration test

Since non-stationary time series data posed some challenges in regression result, it is important to check the properties of time series data before analysing the relationship that existed among the variables. Econometric studies have shown that most financial and macro-economic time series variables are non-stationary, and using non-stationary variables leads to spurious regression (Engle and Granger, 1987). To avoid spurious regression result, unit root tests were performed on all the variables used in this study. Unit root test to ascertain the stationarity level of the variables to be used in the model using Augmented Dickey-Fuller and Phillips-Perron tests. The results in Table 1 showed that average temperature (AT) are stationary at first difference in both Augmented Dickey-Fuller and Phillips-Perron tests. Meanwhile, other variables are stationary at level in both tests. The results of the two tests showed that there was no higher order of integration such as I(2) in the model. Thus, bound test approach to cointegration is applicable given its dynamic advantage. That is, it is capable of testing for cointegration of a model comprising variables of different orders of integration, provided these variables are I(1) and I(0).

Table 1: Unit Root Test

VARRIABLES	ADF STAT.	AT 5%	PP STAT.	AT 5%	REMARKS
AT	-5.6515	-2.9511	-5.6496	-2.9484	I(0)
BQ	-6.2049	-2.9511	-6.2049	-2.9511	I(1)
CORP	-4.9528	-2.9511	-4.9595	-2.9511	I(1)
PI	-5.706	-2.954	-9.353	-2.9511	I(1)
IN	-3.5989	-2.9511	-3.5472	-2.9511	I(1)
PM10	-4.8783	-2.9511	-9.6085	-2.9511	I(1)
SO_2	-9.0065	-2.9511	-9.0819	-2.9511	I(1)
TO	-8.0679	-2.9511	-8.0353	-2.9511	I(1)

Table 2: ARDL Bounds Test –Approach to cointegration

Null Hypothesis: No long-run relationships exist

F-statistic	K	Models	ARDL Selected
4.674515	5	*AQ = f (PI, TO, IN, BQ, AT)*	(3,3,4,4,4,4)
Significance level	I0 Bound	I1 Bound	
10%	2.45	3.52	
5%	2.86	4.01	
2.5%	3.25	4.49	

Table 2 showed the result of bound test for the model built for the study and critical values provided by Pesaran*et al.* (2001). The F-statistic is compared with the critical bounds at 5% level of significance with unrestricted intercept and no trend (Upper bound is 4.01 and Lower bound is 2.86). Specifically, the F-statistics of the three models range from 4.67 which is greater than the upper bound critical value (4.01), and we therefore concluded that there are evidences to reject the null hypothesis of no long run relationship among the variables. Hence, the alternate hypothesis is accepted that there is long run equilibrium relationship among the variables

Main results

After confirming that there is long run relationship among the variables in the Models, we then estimate the effect of institutional variable (**PI** and **BQ**) on air quality in Nigeria as presented in Table 3. It is necessary to note that the democratic accountability variable is negative. This is consistent with the results of Bernauer and Koubi (2009). Their results show that democratic accountability reduces the effect of air pollution. A 1% increase in coefficients of democratic accountability would reduce air pollution by 49% on average. This finding also is consistent with the finding by Li and Reuveny (2006), Gleditsch and Sverdrup (2003), Barrett and Graddy (2000), and Torras andBoyce (1998). They stress that the degree of democratic accountability is good for the environment. In addition, greater trade openness and higher temperature contribute to lower pollution levels in Nigeria.

However, this is not in line with the theoretical arguments of Congleton (1992). He states that elected governments in a democratic setting may have shorter planning horizons than non-elected governments because of political myopia. That is, the environmental degradation develops slowly which may take long periods. In this case, the costs of current economic behavior and political choices often materialize over the long term and burden future generations and future politicians. Therefore, democracies may undersupply environmental public goods such as air quality; relative to non-democratic regimes where political leaders do not face frequent re-election and can take, if they want to, more costly decisions with longer-term benefits without fear of been punished by myopic voters.

Table 3: Effect of Institutions on Air Quality

ARDL Cointegrating And Long Run Form
Dependent Variable: AQ (Proxied by SO_2)
Selected Model: ARDL(3, 3, 4, 4, 4, 4)
Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AQ(-1))	0.990952	0.563462	1.758684	0.1535
D(AQ(-2))	0.591283	0.328662	1.799058	0.1464
D(PI)	**-0.323189*** **	**0.137318**	**-2.353583**	**0.0782**
D(PI(-1))	**0.358165*** **	**0.13353**	**2.682291**	**0.0551**
D(PI(-2))	0.191836	0.202716	0.946327	0.3976
D(TO)	-0.234293***	0.093108	-2.51636	0.0656
D(TO(-1))	0.101054	0.126385	0.799574	0.4687
D(TO(-2))	0.062616	0.117658	0.53219	0.6228
D(TO(-3))	-0.187114	0.097338	-1.922317	0.1269
D(IN)	0.008415***	0.003624	2.322176	0.0809
D(IN(-1))	0.016186***	0.006303	2.567983	0.0621
D(IN(-2))	-0.00179	0.004653	-0.384603	0.7201
D(IN(-3))	-0.00545	0.004487	-1.214671	0.2913
D(AT)	-3.259716***	1.463137	-2.227895	0.0898
D(AT(-1))	-0.078063	1.787515	-0.043671	0.9673
D(AT(-2))	-2.57061	2.005473	-1.281797	0.2692
D(AT(-3))	-1.508792	1.86486	-0.809065	0.4639
D(BQ)	-0.374776	0.195988	-1.912237	0.1284
D(BQ(-1))	-0.390772	0.349067	-1.119476	0.3256
D(BQ(-2))	0.157437	0.227062	0.693368	0.5262
D(BQ(-3))	**0.500222** **	**0.160317**	**3.120211**	**0.0355**
CointEq(-1)	-1.917117***	0.716123	-2.677078	0.0554

Long Run Coefficients

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
PI	**-0.493622** **	**0.121064**	**-4.077371**	**0.0151**
TO	-0.231124**	0.060201	-3.839212	0.0185
IN	-0.003929***	0.001552	-2.53161	0.0646
AT	-2.311181	2.766856	-0.835309	0.4505
BQ	-0.074399	0.094222	-0.789618	0.4739
C	163.858163***	63.153504	2.594601	0.0604

*1%,*5%,***10% Significance level

The results further support the assertions of Payne (1995), he expresses that democracy is virtuous and can improve the level of environmental quality. This is because population, in a democratic setting, is free to collect information about environmental quality. The Nigerian citizens can express their preferences and put pressures on the governments. With democracy, citizens are more aware of environmental problems (freedom of media). They express their preferences for environment (freedom of expression) and create lobbying groups (freedom of association). Political leaders are prompted (rights to vote) to implement environmental policies at national and international levels

Furthermore, our results showed that income per capita (IN) is negative and significant in the long run. This is constituent with the theoretical arguments of Grossman and Krueger (1995); Selden and Song (1994). They state that air quality first deteriorates and then improves as income per capita increases. This implies that environmental quality is a luxury good at the initial stages of economic growth and development. Poor country like Nigeria is facing a trade-off between protecting the environment and improving material living standards.

Table 4: Diagnostic Indicators

Breusch-Godfrey Serial Corre. LM Test:	R-squared	0.988661
F-statistic -6.789151 (PV = 0.1284)	Adjusted R-squared	0.912122
Heteroskedasticity Test: ARCH	F-statistic	12.91715
F-statistic 0.574457(PV= 0.8298)	Prob(F-statistic)	0.011451
Normality Test:	Durbin-Watson stat	2.018
Jargue-Bera 0.0973953 (PV=0.973953)		

Table 5 also showed the diagnostic indicator of the model estimated. The model explains about 91.2% of variations in the level of air quality in Nigeria. The F-statistic is significant and shows the overall power of the model. Our model also passes the normality test, correlation test and Heteroskedasticity Test. Figure 1 on CUSUM and 2 on CUSUM of square also show the stability test of the parameters used in the model. It shows that all the parameters are stable in the long run.

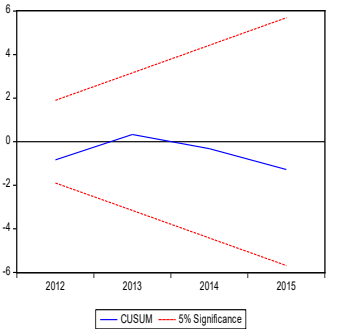

Figure 1: CUSUM

Figure 2; CUSUM of Squares

Robustness Checks

We perform some robustness checks on the estimated model by considering other institutional variables such as corruption perception index (Corp) in conjunction with Bureaucratic quality (BQ) and democratic accountability (PI). We also conduct the robustness check using PM_{10} as a proxy for air pollutant and use different alternating cointegrating regression techniques such as Dynamic OLS (DOLS) and Fully Modified OLS (FMOLS).

Table 5: Effect of Other Institution variables on Air Quality

	DOLS	FMOLS	FMOLS
PI	**-0.754735* (0.0006)**	**-0.190310* (0.0513)**	**-0.238018** (0.0179)**
TO	-0.343365** (0.0181)	-0.035059 (0.6397)	-0.120683*** (0.0507)
IN	0.000474 (0.7636)	-0.003943* (0.0044)	-0.004216* (0.0017)
AT	-14.23041* (0.0002)	-2.628263** (0.0160)	-3.192013** (0.0033)
Corp	**0.592528*** (0.0627)**	**0.373022*** (0.0727)**	
BQ			**0.075547 (0.4887)**
C	486.8928* (0.0001)	135.4311* (0.0001)	164.0487* (0.0000)
R-sq	0.917019	0.601527	0.572151

*1%, **5%,***10% Significance level

The result showed that democratic accountability (PI) is negatively influenced by air quality in Nigeria. This implies that a democratic political institution can improve the level of air quality (proxied by PM_{10}). As the level of democratic accountability improves, air particles reduce and the environmental quality is guaranteed. This submission is consistent with our earlier results. Furthermore, the coefficient of corruption index is positive and significant. This implies that corruption is bad for air quality. As the level of corruption increases the air quality reduces. In another words, the results indicate a significant negative relationship between the control of corruption and the quantities of PM_{10} in the atmosphere. For any increase in the level of control of corruption by a point reduces the quantities of PM_{10} by a point between 0.37-0.59 point. This is explained by the fact that the increase in the level of control of corruption, expressed by a regulatory policy and imposition of the tax laws, obliges the polluters to reduce their emissions and meet the standards of the country. In addition, corruption has the effect of weakening the environmental regulations by introducing a bias, not only in the adoption process but also in the process of implementation or implementation of these regulations (Wilson and Damania, 2005).

CONCLUSION

We examined how institutions affect air quality in Nigeria using ARDL and Fully Modified OLS for a period of 1980-2015. The study finds that democracy reduces air pollution. The results showed that there is negative effect of democracy on air pollution in Nigeria. The short run and long run democracy effect on air quality (proxy by $S0_2$ and PM_{10}) is negative and statistically significant. This means that Nigerian citizens can express their preferences and put pressures on the governments. With democracy, citizens are more aware of environmental problems. They can express their preferences for environment and create lobbying groups. Political leaders are prompted to implement environmental policies at national and international levels which will lead to improvement in the quality of the environment. This confirms the view that democracy is beneficial to environmental protection efforts. The close association of freedom with democracy provides compelling reasons why democracies may be able to better protect their environments. Payne (1995) summarized a range of social science research over the last several decades suggests five reasons why democracies do a better job of protecting the environment: individual rights and the open marketplace of ideas; regime responsiveness; political learning (from environmental policy experiences); internationalism (and increased participation in international environmental treaties and organizations); and open markets (which facilitate everything from green consumerism to market-based environmental regulatory mechanisms).

The study also considers other institutional variables such as corruption and bureaucratic quality. We discover that corruption reduces air quality in Nigeria, while poor bureaucratic quality reduces the level of air quality. This means that environment suffers significant economic harm from corruption and has a negative effect on environmental policymaking and outcomes. In conclusion, our study confirms that environmental quality is negatively influenced by both corruption and non-democratic system of governance. Hence, the government needs to strengthen its institutional environment. While the main limitation of the study relies on the use of only Nigeria as a case study, future studies can consider the use of other African countries.

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