How Does Democracy Affect Poverty Alleviation? Empirical Evidence from Africa

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Abstract

The study investigated the impact of democracy on poverty alleviation in Africa by employing panel data of 50 African countries for the period of 1996 to 2017. The study used panel data methodologies such as unit root test, correlation matrix, multivariate regression, generalized linear model, dynamic panel data estimation and granger causality test. The study found that democracy has two dimensional relationship with or impact on poverty alleviation. As the study used two proxy measures of democracy thus the rule of law and voice and accountability, the rule of law showed a positive and statistically significant impact on poverty alleviation but voice and accountability showed a negative and statistically significant impact on poverty alleviation. Corruption control has been a major headache in Africa which has been affecting the development of the continent. Perhaps, corruption has a negative and statistically significant impact on poverty alleviation. Moreover, economic growth has the prospect of reducing poverty when all the sectors of the economy are economically viable to produce goods and services to meet the demands of the economic actors. In this regard, governments' effectiveness as in the quality of policy formulation and its implementation which will gain trust and credibility from all stakeholders by ensuring quality public services and quality civil services devoid of governments or political interference to enjoy independence will positively and significant increase poverty alleviation thereby reducing poverty. The study found a bidirectional causal relationship between poverty alleviation and the following variables; economic growth, corruption control, the rule of law and government effectiveness. Also, there is an evidence of unidirectional causal relationship from poverty alleviation to voice and accountability and political stability to poverty alleviation.

Keywords: Democracy; Poverty alleviation; Africa; Rule of law; Voice and accountability

1. Introduction

Poverty is a menace or canker which threatens democracy due to its ability to suppress poor institutions in that it dispossesses people's right and will from political voice and dispensation which keeps the people from holding their governments responsible and accountable, also being pragmatic and responsive which erode public trust in the developing institutions of democracy (Nyamosor, 2013). Prior criticisms on the nexus of poverty and democracy posit that the most pressing headache of the world is poverty which usually happens as a result of political failure through power inconsistency and misuse of power. However, the ability to reduce poverty goes beyond the arena of the free and fair election but requires a broader spectrum of good governance. Bad governance has been pinpointed or established as the profound root cause of systemic developmental failure thus the inability to distribute national resources fairly and also apply the resources in an efficient way to generate public goods. Perhaps, for governance to be termed as good, it involves the commitment and capacity to act in quest of the public good through accountability, transparency, citizen participation and the rule of law in the governance process. In contrast, bad governance results in the prevention of physical, social and political capital, also a hindrance to the accumulation of capital required for accelerated development. The able function of democracy is to provide or serve as a corrective catalyst to bad governance by performing the role of watchdog and holding unresponsive, corrupt and ineffective leaders accountable and also ensuring citizens are part and parcel of the decision making process in terms of policy formulation. Previous studies have not been able to establish the right relationship between democracy and development due to ambiguity in the subject-matter. Perhaps, there is no guarantee that democracy offers good governance but the authoritarian rule also bids poor prospects for poverty alleviation in a sustainable manner (Diamond, 2004). To buttress the view of

Diamond (2004), Ashutosh (1999) studied democracy-poverty nexus and he established that some countries alleviated poverty through authoritarian rule from the period of the mid-1960s. The likes of Singapore, South Korea and Taiwan achieved such a milestone between the mid-1950s and mid-1980s until they became democratic. Also, Indonesia massively reduced poverty from the period of 1971 to 1991 under authoritarian rule.

Interestingly, the prevalent of poverty in Africa comes from its internal effort to democracy as proficient in producing economic gains. Nonetheless, the sustainability of democracy largely depends on the effective and efficient provision of economic benefits to the populace in a country (Qadir et al., 1993). Generally, the potential of democracy is weak in countries or regions with a high rate of "rentier" and "patron-client" development (Tar, 2010; Thomson, 2010; Wiseman, 1993). Robert (2003) investigated the impact of poverty and survival on democracy in Southern Africa; he concluded that poor people are not likely to be democratic or less democratic than the middle status persons. This is a result of poor countries' inability to maintain or afford the most important features of sustainable democracy. The new Keynesians theory postulates that the effort to reduce poverty lies in governments to provide public goods to bridge the inequality gap hence the effort of eradication poverty is a political course even though it can be envisaged as an economic course. This theory is in line with the modernization and democracy hypothesis proposed by Lipsett (1959). The hypothesis posits that the more a country attains developmental status, the higher the propensity that the country will be democratized and as a result, will have a stabilized environment as well as a sustainable political climate and environment. In brief, Lipsett suggests that democracy is not likely to work in developing or poor countries unlike developed countries.

The motivation of the study stems from the fact that democracy is seen as a major factor to push Africa into prosperity but the narrative is different. Africa is engulfed or wallowing in wanton poverty and corruption which it is believed the efficacy of democracy could resolve these cankers. As a matter of interest, the study would like to establish the relationship that exists between democracy and poverty alleviation in Africa and also ascertain the causal relationship of democracy variables on poverty alleviation. There is sparse literature on the democracy-poverty nexus in Africa. However, the study intends to contribute empirically to the subject-matter to cushion and support academic discussions.

The organization of the study comprises; section 2, which explains the study's data, methodology and model specification, section 3 reports the empirical findings and discussion and section 4 concludes the study.

2. Data and Methodology

2.1 Data

The study sourced its data from Worldwide Governance Indicators and World Development Indicators from 1996 to 2017. The study used panel data of 50 African countries. The study's objective is to investigate the relationship in which democracy has with poverty alleviation in Africa; hence it adopts two proxy measures for democracy, thus the rule of law and, voice and accountability. However, poverty alleviation is measured by proxy of human development index and some variables are also considered to control democracy and poverty alleviation such as corruption control, government effectiveness, political stability and economic growth which is measured by proxy of gross domestic product per capita. The details of the variables can be found below;

- Human development index **(hdi)**; is the composite measure of life expectancy at birth, education and per capita income indicators. (Dependent variable)
- Economic growth **(gdppc)**; is the measure of the total output or production of goods and services in a given period specifically a year; proxies by gross domestic product per capita thus total gross domestic capita divided by the total population. (Control variable)
- Democracy; is measured by two proxies thus the rule of law and, voice and accountability. "The rule of law **(rulelaw)** reflects perceptions of the extent to which agents have confidence in and abide by the

rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Voice and accountability **(voiceacc)** reflect perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)". (Independent variables)

- Political Stability and Absence of Violence/Terrorism **(polstab)** measures "perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)". (Control variable)

- Corruption control (**corco**) reflects "perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)". (Control variable)

- Government effectiveness **(goveff)** reflects "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)". (Control variable)

2.2 Methodology

The study used panel data methodologies to analyze its data for statistical inference. The panel data approaches used in the study are; unit root test, correlation matrix, the multivariate panel regression, panel generalized linear model, dynamic panel data (Arellano-Bond) estimation and granger causality test. In order to make a concrete conclusion, the study considered two regression methods thus multivariate regression and generalized linear model as the main regression models. The multivariate regression method or approach served as the main method and the generalized linear model was taken on board to cross check the results of the main method thus Multivariate regression. Furthermore, a dynamic panel data-generalised method of moments (Arellano-Bond), the two-step approach, was also used as a robustness check method to confirm the outcome of the findings of the two methods to make a concrete statistical inference.

In the first step, the study computed the descriptive or summary statistics of the variables to ascertain the median, mean, minimum and maximum values of the variables as well as the Skewness, Kurtosis, standard deviation and Jarque-Bera tests. Subsequently, the panel unit root test is performed to find evidence of stationary in the variables in order to avoid useless regression. There is a null hypothesis for unit root test and it posits that there is evidence of unit root in the variables; hence there is no stationary status of the variables. Perhaps, the unit root test will reveal the evidence to either accept or reject the null hypothesis. The following unit root tests were used; Maddala and Wu (1999) tests (ADF-Fisher and PP-Fisher), Levin, Lin & Chu (2002) test and Im-Pesaran & Shim (2003) test. After the confirmation of no unit root, the study proceeded to compute correlation matrix; this test is performed to check for multicollinearity in the variables because the rule of thumb for collinearity posits that no two independent variables should be highly correlated with the dependent variable with coefficients of -/+0.70 to avoid the problem of multicollinearity.

The next step after the test for multicollinearity was the application of the regression methods to find out the relationship that exists between the independent variables and the dependent variable. Multivariate regression was used due to its function for multiple independent variables. Moreover, a generalized linear model was also used because of its ability to predict responses for dependent variables with discrete or continuous distribution also linear relationship and for dependent variables which are not related linearly to the independent variables. To robust check the main methods, the study used Arellano-Bond dynamic GMM panel data methodology this approach ensures that if the dependent variable has a serial correlation, the regression with the lagged dependent variable as an independent variable can mitigate the depth of serial auto-correlation of the error term. Arellano and Bond (1991) recommended that the generalized method of moments (GMM) method has the capability to

remove the autocorrelation of the error term and mitigate the correlation between the endogenous variables and the error term in a dynamic panel model. The study used a two-step GMM method for its estimations due to the effect of less propensity of an influence by heteroskedasticity than the one-step method. Furthermore, the Sargan test was performed to examine the validity of the instruments used in the process. Again, AR (1) and AR (2) tests were also performed to check for autocorrelation of the residuals; the value of AR (2) depicts that the hypothesis of zero second order serial correlation existing among the variables cannot be rejected. Finally, the granger causality test was performed to check the direction of causality or causal relationship that exists between the independent and the dependent variables. Priori expectations of direction are in two forms thus unidirectional and bidirectional. This test is performed to either accept or reject the null hypothesis that states that none of the variables granger causes another.

2.3 Model specification

The study used econometric model or technique to analysis its data; therefore, the econometric model for the study is written as:

$$Y_{it} = \beta_0 + (\beta_1 X_1)_{it} + (\beta_2 X_2)_{it} \ldots \ldots + (\beta_k X_k)_{it} + \varepsilon_{it} \tag{1}$$

In the equation (1), Y represents the dependent variable, β_0 represents regression coefficient of the intercept, $\beta_1 X_1 \rightarrow \beta_K X_k$ represents the coefficients and the independent variables, i represents the cross-section of the 50 African countries, t represents the time period of 1996 to 2017 and ε represents the error term or disturbance that cannot be estimated for by the independent variables. Gross domestic product per capita (gdppc) proxy measure of economic growth was transformed into its natural logarithm to avoid fluctuations in the data series. This model represents the linear regression equation for multivariate regression and generalized linear model. However, the dynamic panel data estimation model can be written as follows:

$$hdi_{it} = \sum_{j=1}^{p} a_j \, hdi_{i.t-j} + \beta_1 \binom{rulelaw}{voiceacc}_{it} + \beta_2 polstab_{it} + \beta_3 corco_{it} + \beta_4 goveff_{it} + \beta_5 gdppc_{it} + v_i$$
$$+ \varepsilon_{it} \quad i = 1, \ldots \ldots, N \; t = 1, \ldots \ldots T_i$$

$$\tag{2}$$

In equation (2), i represent the 50 cross sectional countries in Africa, t represents the period of time from 1996 to 2017, v represents the panel level effect, and ε_{it} represents the independent and identically distributed (i.i.d.) over the whole data sample with variance σ_ε^2. j represents the time lag that will be determined by Arellano-Bond test for the serial correlation.

3. Empirical results and findings discussion

3.1 Summary statistics

Table 1 presents the summary statistics of the variables and from the table, it can be reported that the average human development index of Africa from the period of 1996 to 2017 was 0.461 annually whiles the minimum and the maximum values were 0.000 and 0.797 respectively. Economic growth increased annually at an average rate of 7.061% whiles the minimum growth was 4.811%; the maximum growth rate stood at 9.920 during the period of 1996 to 2017. On the scores of institutional governance indicators, the rule of law for Africa from 1996 to 2017 stood at an average score of -0.568, voice and accountability stood at -0.517, corruption control stood at -0.529, political stability stood at -0.451 and government effectiveness also stood at -0.608. On account of the institutional governance scores, Africa's score is relatively weak with regards to the range of estimate thus -2.5 signals weak and 2.5 signals strong or good performance.

Table 1 Summary statistics

	hdi	gdppc	rulelaw	voiceacc	corco	polstab	goveff
Mean	0.461	7.061	-0.568	-0.517	-0.529	-0.451	-0.608
Median	0.461	6.820	-0.534	-0.423	-0.597	-0.237	-0.623
Maximum	0.797	9.920	1.077	1.007	1.217	1.282	1.049
Minimum	0.000	4.811	-2.130	-2.226	-1.826	-2.845	-1.890
Std. Dev.	0.167	1.086	0.630	0.704	0.604	0.846	0.617
Skewness	-0.844	0.630	0.016	-0.118	0.341	-0.498	0.120
Kurtosis	4.413	2.448	2.378	2.309	2.543	2.643	2.271
Jarque-Bera	220.683	86.198	17.643	24.269	30.654	50.907	26.755
Probability	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	1092	1092	1092	1092	1092	1092	1092

3.2 Panel unit root test

To unravel the stationary status of the variables, the study performed panel unit root tests by employing the tests of Levin et al. (2002) LLC, Im et al. (2003) IPS and Maddala & Wu (1999) ADF-Fisher and PP-Fisher tests. The results of the unit root tests can be found in table 2 below. From all indications, it can be reported that there is no evidence of unit root in the variables in both level form and first difference except that at level form gdppc showed evidence of unit root in IPS and ADF-Fisher tests, rulelaw and corco also showed evidence of unit root in LLC test, but at first difference, all the variables showed evidence of stationary status at 1% significance level in all tests hence the rejection of the null hypothesis that there is unit root in the variables.

Table 2 Panel unit root test

	hdi	gdppc	rulelaw	voiceacc	corco	polstab	goveff
level form							
LLC	-9.265***	-3.206***	2.158	-2.951**	0.427	-3.566***	-2.169**
IPS	-2.780**	2.390	-2.031**	-7.741***	-3.349***	-6.901***	-4.005***
ADF-Fisher	257.518***	111.140	140.792**	276.930***	174.131***	271.701***	282.025***
PP-Fisher	163.378***	131.145**	684.288***	666.106***	571.307***	542.365***	670.037***
First difference							
LLC	-8.166***	-16.267***	-119.608***	-107.507***	-110.781***	-82.749***	-114.321***
IPS	-13.040***	-16.654***	-109.640***	-94.480***	-100.334***	-70.966***	-100.619***
ADF-Fisher	370.487***	452.546***	8511.95***	7029.32***	7896.31***	4355.34***	7771.17***
PP-Fisher	454.314***	571.754***	9295.43***	8458.63***	8398.53***	6590.34***	8449.35***

Note: *** indicates 1% significance level, ** indicates 5% significance level

3.3 Correlation matrix

It is imperative to test for collinearity in empirical studies in order to avoid the problem of multicollinearity among the independent variables, therefore, the study computed the correlation matrix to check for multicollinearity. Evidence from table 3 indicates that there is no multicollinearity as the highest value of the coefficient of the independent variables is 0.663 which is not up to the rule of thumb coefficient value of -

/+0.70. However, all the variables showed evidence of positive and statistically significant correlation with the dependent variables at 1% significance level.

Table 3 Correlation matrix

	hdi	gdppc	rulelaw	voiceacc	corco	polstab	goveff
hdi	1						
gdppc	0.663***	1					
rulelaw	0.252***	0.313***	1				
voiceacc	0.130***	0.161***	0.796***	1			
corco	0.178***	0.256***	0.890***	0.738***	1		
polstab	0.216***	0.358***	0.744***	0.636***	0.666***	1	
goveff	0.253***	0.357***	0.902***	0.718***	0.859***	0.640***	1

Note: *** indicates 1% significance level

3.4 Results from multivariate and generalized linear model regression

The study's ultimate aim is to investigate the impact that democracy has on poverty alleviation in the region of Africa. In spite of this, the study employed two main regression methods to serve as the first step method (multivariate regression) as well as cross check method (generalized linear model). In addition, the study employed a dynamic panel data estimation method to robust check the results of the two main methods. In table 4 below, evidence of the outcome of the analysis can be found. It can be reported that democracy has two dimensional impacts on poverty alleviation in Africa. As democracy was measured by two proxy variables thus rule of law and voice and accountability, the results in table 4 confirms that rule of law has positive and statistically significant impact on poverty alleviation whiles voice and accountability has negative and statistically significant impact on poverty alleviation but in model 4 where the study included macroeconomic variable thus economic growth (gdppc) to control for poverty alleviation, voice and accountability showed insignificant impact on poverty alleviation in both methods (multivariate and Generalized linear model). To account for the control variables, corruption control showed a negative and statistically significant impact on poverty alleviation in all 4 models. Political stability and government effectiveness showed a positive and statistically significant impact on poverty alleviation in models 1 to 3 but in model 4 where economic growth is considered as a control variable in the model causes a change in the relationship of political stability and poverty alleviation to negative as well as government effectiveness. Moreover, economic growth has a positive and statistically significant impact on poverty alleviation.

Table 4 Results of multivariate and generalized linear model regression

	Multivariate Regression				Generalized linear model			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Polstab	0.017	0.032	0.020	-0.026	0.017	0.032	0.020	-0.026
	(1.93)**	(3.98)***	(2.36)**	(-3.78)***	(1.93)**	(3.98)***	(2.36)**	(-3.78)***
Corco	-0.080	-0.045	-0.072	-0.031	-0.080	-0.045	-0.072	-0.031
	(-4.33)***	(-2.66)**	(-3.91)***	(-2.17)**	(-4.33)***	(-2.66)**	(-3.91)***	(-2.17)**
Goveff	0.067	0.104	0.065	-0.032	0.067	0.104	0.065	-0.033
	(3.49)***	(6.55)***	(3.42)***	(-2.14)**	(3.49)***	(6.55)***	(3.42)***	(-2.14)**
rulelaw	0.059		0.090	0.094	0.059		0.090	0.094
	(2.55)**		(3.72)***	(4.97)***	(2.55)**		(3.72)***	(4.97)***
voiceacc		-0.031	-0.045	-0.002		-0.031	-0.045	-0.002
		(-2.87)**	(-3.94)***	(-0.17)		(-2.87)**	(-3.94)***	(-0.17)
gdppc				0.104 (26.72)** *				0.104
								(26.72)***
constant	0.501	0.499	0.500	-0.267	0.501	0.499	0.500	-0.267
	(73.13)***	(72.96)***	(73.47)***	(-9.17)***	(73.13)***	(72.96)***	(73.47)***	(-9.17)***
No. of obs.	1100	1100	1100	1092	1100	1100	1100	1092
R-square	0.84	0.86	0.97	0.456				
F-statistics	25.187***	25.653***	23.523***	151.34***				
Log likelihood					454.730	455.585	462.483	734.855

Note: *** indicates 1% significance level, ** indicates 5% significance level. Z-statistics for GLM are in parentheses and T-statistics for Multivariate are in parentheses.

3.5 Robust check: Dynamic panel data estimation with Arellano-Bond GMM model

Consequently, the robust check methodology was applied thus Arellano-Bond GMM method and the outcome of the results can found in table 5. According to the results, political stability has a positive and statistically significant impact on poverty alleviation but showed a negative and statistically significant impact when economic growth was included in the model to control poverty alleviation and is in line with the results of the two main regression results. Moreover, democracy confirmed its two dimensional impact on poverty alleviation. Taking into account the rule of law showed a positive and statistically significant impact on all the models included. Voice and accountability showed a negative and statistically significant impact on poverty alleviation unlike the results of the two main regression methods where in model 4, voice and accountability showed insignificant impact when economic growth was included in the model. Corruption control confirms its impact on poverty alleviation was reported in the two main regression results thus negative and statistically significant impact. However, government effectiveness showed a positive and statistically significant impact on poverty alleviation in the entire 4 models as against the results of model 4 of the two main regression methods. Furthermore, economic growth confirmed its strong positive and statistically significant impact on poverty alleviation.

Specifically, an increase or strengthening of the rule of law in Africa will lead to the reduction in poverty; also which is widely considered as a canker to economic development has a strong presence in Africa and if governments in Africa do not intensify their effort to eradicate or mitigate it, will lead to increase in poverty.

Voice and accountability seem to retard the progress in poverty alleviation in Africa. Apparently, a further increase in voice and accountability process will lead to an increase in poverty. Economic growth and government effectiveness are the reliable efforts to solve the problem of poverty in Africa which has been postulated by the arguments of the radical theorists and Marxian economists as well as the neo-classical theorists.

Table 5 Dynamic panel data estimations: robust check

	Model 1	Model 2	Model 3	Model 4
hdi	-0.038	-0.029	-0.041	0.064
L1	(-10.57)***	(-7.76)***	(-6.97)***	(13.27)***
Polstab	0.013	0.026	0.018	-0.016
	(8.32)***	(20.92)***	(10.17)***	(-17.50)***
Corco	-0.071	-0.044	-0.061	-0.031
	(-25.14)***	(-12.04)***	(-15.29)***	(-12.61)***
Goveff	0.146	0.172	0.145	0.049
	(39.29)***	(55.81)***	(26.59)***	(26.75)***
rulelaw	0.024		0.061	0.054
	(6.24)***		(10.32)***	(35.15)***
voiceacc		-0.046	-0.055	-0.014
		(-47.40)***	(-23.67)***	(-14.12)***
gdppc				0.088
				(233.99)***
constant	0.550	0.544	0.551	-0.158
	(253.96)***	(309.13)***	(229.09)***	(-31.07)***
Wald chi2	40275.41***	73201.20***	34402.47***	360486.95***
Sargan test	21.980	21.991	21.942	21.978
Prob.	1.000	1.000	1.000	1.000
AR(1)	-4.038*	-3.972**	-3.988*	-3.402**
AR(2)	-2.910	-2.715	-2.648	-2.313
No. of Obs.	1056	1056	1056	1040

Note: *** indicates 1% significance level, ** indicates 5% significance level. Z-statistics are in parentheses

3.6 Granger causality test

Another objective of the study is to find the direction of causality between the independent variables and the dependent variable. Therefore, the granger causality test was employed to execute this objective and the outcome of the test can be found in table 6. The study can confirm evidence of both bidirectional and unidirectional granger causality. Evidence of bidirectional granger causality can be found from hdi↔gdppc, hdi↔rulelaw, hdi↔corco, hdi↔goveff, polstab↔gdppc, goveff↔gdppc, corco↔gdppc, polstab↔voiceacc, goveff↔voiceacc and goveff↔corco. The bidirectional granger causality relationship between these variables affirms that a slight or relative change in one variable granger causes the other vice versa. Moreover, there is an evidence of unidirectional granger causality relationship stemming from hdi→voiceacc, polstab→hdi, rulelaw→voiceacc, rulelaw→corco, rulelaw→polstab, rulelaw→goveff, corco→polstab and goveff→polstab. The unidirectional granger causality relationship depicts that a change in the first variable granger causes the latter but not vice versa. To conclude, there is an evidence of granger causality hence the rejection of the null hypothesis that none of the variables granger causes another.

Table 6 Granger causality test

Null Hypothesis:	Obs	F-Statistic	Prob.	Sig.
gdppc does not granger cause hdi	992	41.831	0.000	***
hdi does not granger cause gdppc		6.047	0.003	**
rulelaw does not granger cause hdi	1000	5.377	0.005	**
hdi does not granger cause rulelaw		6.964	0.001	***
voiceacc does not granger cause hdi	1000	1.772	0.171	
hdi does not granger cause voiceacc		2.504	0.082	*
corco does not granger cause hdi	1000	3.578	0.028	**
hdi does not granger cause corco		8.083	0.000	***
polstab does not granger cause hdi	1000	11.069	0.000	***
hdi does not granger cause polstab		1.191	0.304	
goveff does not granger cause hdi	1000	6.327	0.002	**
hdi does not granger cause goveff		10.037	0.000	***
rulelaw does not granger cause gdppc	992	1.436	0.238	
gdppc does not granger cause rulelaw		1.539	0.215	
voiceacc does not granger cause gdppc	992	1.614	0.200	
gdppc does not granger cause voiceacc		0.492	0.612	
corco does not granger cause gdppc	992	1.511	0.221	
gdppc does not granger cause corco		1.162	0.313	
polstab does not granger cause gdppc	992	2.341	0.097	*
gdppc does not granger cause polstab		2.585	0.076	*
goveff does not granger cause gdppc	992	2.578	0.076	*
gdppc does not granger cause goveff		2.420	0.090	*
voiceacc does not granger cause rulelaw	1000	2.139	0.118	
rulelaw does not granger cause voiceacc		15.316	0.000	***
corco does not granger cause rulelaw	1000	1.554	0.212	
rulelaw does not granger cause corco		9.067	0.000	***
polstab does not granger cause rulelaw	1000	0.641	0.527	
rulelaw does not granger cause polstab		23.069	0.000	***
goveff does not granger cause rulelaw	1000	1.901	0.150	
rulelaw does not granger cause goveff		15.775	0.000	***
corco does not granger cause voiceacc	1000	7.202	0.001	***
voiceacc does not granger cause corco		5.027	0.007	**
polstab does not granger cause voiceacc	1000	3.500	0.031	**
voiceacc does not granger cause polstab		12.897	0.000	***
goveff does not granger cause voiceacc	1000	10.393	0.000	***
voiceacc does not granger cause goveff		8.347	0.000	***
polstab does not granger cause corco	1000	1.406	0.246	
corco does not granger cause polstab		11.519	0.000	***
goveff does not granger cause corco	1000	4.768	0.009	**
corco does not granger cause goveff		5.302	0.005	**
goveff does not granger cause polstab	1000	7.680	0.001	***
polstab does not granger cause goveff		2.080	0.126	

Note: *** indicates 1% significance level, ** indicates 5% significance level, * indicates 10% significance level

4. Conclusion

The study investigated the impact of democracy on poverty alleviation in Africa by employing panel data of 50 African countries for the period of 1996 to 2017. The study used panel data methodologies such as unit root test, correlation matrix, multivariate regression, generalized linear model, dynamic panel data estimation and granger causality test.

The study found that democracy has two dimensional relationship with or impact on poverty alleviation. As the study used two proxy measures of democracy thus the rule of law and voice and accountability, the rule of law showed a positive and statistically significant impact on poverty alleviation but voice and accountability have a negative and statistically significant impact on poverty alleviation. The rule of law which measure the degree of perception of how residents or citizens have confide in and abide by the laws of the country such as contract enforcement, property right, the police and courts effectiveness, also the less likelihood of crime and violence have positive impact on poverty alleviation hence further increase in these functions will lead to poverty alleviation in Africa. However, voice and accountability which measures how citizens are allowed to take part in the selection of their leaders to govern them as well as the freedom granted them in associations, expression of opinions and free media have negative impact on poverty alleviation in Africa hence further increase or widening of the scope of voice and accountability will lead to increase in poverty or results in hindering the progress of poverty alleviation. Corruption control has been a major headache in Africa which has been affecting the development of the continent. Perhaps, corruption has a negative and statistically significant impact on poverty alleviation. Therefore, if governments in Africa do not intensify their efforts in combating this menace then the poverty gap will be widened and the efforts of poverty alleviation will be bogus. Moreover, economic growth has the prospect of reducing poverty when all the sectors of the economy are economically viable to produce goods and services to meet the demands of the economic actors. In this regard, governments' effectiveness as in the quality of policy formulation and its implementation which will gain trust and credibility from all stakeholders by ensuring quality public services and quality civil services devoid of governments or political interference to ensure the independence of these institutions will positively and significant increase poverty alleviation thereby reducing poverty.

 The study found a bidirectional causal relationship between poverty alleviation and the following variables; economic growth, corruption control, the rule of law and government effectiveness. Also, there is an evidence of unidirectional causal relationship from poverty alleviation to voice and accountability and political stability to poverty alleviation.

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