

# Corruption and Growth in the Economic and Monetary Community of Central Africa (EMCCA): The Role of Democracy

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## Abstract

The objective of this paper is to analyze the role of democracy in the relationship between corruption and economic growth in EMCCA member countries over the period 2002-2020. The results obtained from this study, using the dynamic panel of the generalized method of moments (GMM), confirm the “grain of sand in the economy’s wheels” hypothesis in the EMCCA countries. Furthermore, taking into account the interactive influence of democracy in the corruption-growth relationship reveals that democracy could reduce the negative effects of corruption on economic growth. The results of the study suggest that the promotion of democratic norms is crucial to limiting the level of corruption and stimulating economic growth in the EMCCA sub-region.

## Keywords

Corruption, Democracy, Economic Growth, Generalized Method of Moments

## 1. Introduction

After several years of economic research, economic growth issues remain at the heart of economic and institutional concerns. According to the [United Nations report \(2021\)](#), the world economy recorded a contraction of 3.5% in 2020, the largest decline since the great recession of 2009. This global reality has not spared the EMCCA countries, with average growth rates of 2% in 2019, compared with -2.9% in 2020, ([IMF, 2021](#)). This being the case, the identification of factors likely to promote or slow down growth remains the main focus of studies on growth. If for [Solow \(1956\)](#) growth comes from the accumulation of the capital stock, the quantity of labor and technical progress, [Lucas \(1988\)](#) and [Barro](#)

(1990) believe that it emanates from human capital and public capital. However, special attention is beginning to be paid to institutional issues, including corruption<sup>1</sup> and democracy<sup>2</sup>, which appear to be major variables in explaining differences between countries in terms of economic growth (North, 1990; Mauro, 1998).

Theoretically, the relationship between corruption and economic growth divides economists into two approaches: optimists and pessimists. Optimists see corruption as “oil in the bureaucracy’s wheels” and improves economic growth in countries with weak institutions (Leff, 1964; Leys, 1965; Huntington, 1968); while pessimists (Kaufmann & Wei, 1999; Seka, 2013) see corruption as a barrier to growth, i.e., corruption is a “grain of sand in the economy’s wheels”.

However, these two approaches find empirical support in several works, on the one hand Aidt et al. (2008) suggest that the effect of corruption on growth is conditioned by the type of governance. In regimes characterized by good quality institutional, corruption has a significant and negative impact on growth. In contrast, in political and economic regimes with low quality institutional, growth is not affected by corruption. On the other hand, Shera et al. (2014) analyzed the effects of corruption on economic growth in a panel of developing countries for the period 2001-2012. The results, obtained from a fixed-effects model, reveal that there is a statistically significant negative relationship between corruption and economic growth.

A few empirical studies on the relationship between corruption and growth in EMCCA have not taken into account the role of the political system to which the economies are subject (Ondo, 2017). The interest of this study is to revisit the corruption-growth relationship by incorporating the interactive issue of the type of democratic regime (Cooper Drury et al., 2006; Amira, 2014). This paper aims to capture the role of democracy in the corruption-growth relationship over the period from 2002 to 2020 and defends the grain-of-sand hypothesis.

In addition to the introduction and conclusion, the rest of this paper is structured as follows: point II, the literature review, point III, the methodology and finally point IV, the results and interpretations.

## 2. Review of the Literature

This section includes both theoretical and empirical reviews.

### 2.1. Theoretical Review

The theoretical literature is based on the “oil in the wheels” and “sand in the wheels” approaches to economic growth.

<sup>1</sup>Corruption is an abuse of public office that violates formal and informal norms, which directly or indirectly brings a gain to a public official who provides a third party with services or resources that would otherwise be more difficult or impossible to obtain. The examples all involve not only the behavior of public officials, but also “private employees” and independent agents LaFree and Morris (2004).

<sup>2</sup>Democracy acts as a counterweight to corruption-related behavior. It has both political and economic benefits (Wittman, 1989; Przeworski & Limongi, 1993; Saha et al., 2014).

### 2.1.1. The “Oil in the Wheels” Approach

Until the early 1990s, several authors presented corruption as an effective way to bypass regulations or slow bureaucratic procedures, thus enabling economic development (Leff, 1964; Huntington, 1968).

Indeed, corruption has long been presented as a means of compensating for the deficient functioning of public institutions. Leff (1964) and Huntington (1968) argue that corruption promotes economic efficiency by overcoming the rigidities imposed by governments. According to these authors, corruption would generally facilitate economic life by “oiling the wheels”. This idea was later taken up and developed by Bardhan (1997) and many theoretical works show that corruption is a vector of efficiency.

Beck and Maher (1986) show, in the context of government contract allocation that awarding a contract to the firm that offers the largest bribe leads to the selection of the most efficient firm. Indeed, they show that in an imperfect information game, the firm with the lowest costs can offer the highest bribe.

On the other hand, the positive effects of corruption on economic growth in environments marked by inefficient public action have been refuted by Méon and Sekkat (2005).

### 2.1.2. The “Grain of Sand in the Wheels” Approach

Regarding the second approach “grain of sand”, according to Bardhan (1997), public officials may deliberately create slowness and red tape in order to collect bribes. Kaufman and Wei (2000) corroborate this theoretical conjecture.

Schleifer and Vishny (1993) show that the ability of public officials to speed up an administrative procedure may be very low. This fundamentally challenges the idea that bribing is sufficient to speed up procedures or overcome administrative obstacles.

Furthermore, Méon and Sekkat (2005) show that corruption acts as a “grain of sand” in the gears of economic growth. Indeed, they point out that the effects of corruption depend on other aspects of governance (regulatory burden, rule of law, government effectiveness, etc.) and that the weaker the quality of governance, the more detrimental they are. In the same vein, two other views underlying the “oil in the wheels” approach are seriously challenged. First, the argument that corruption can help improve the choice of good decisions is strongly challenged by Rose-Ackerman (1997). Indeed, in his contribution, the private agents who pay the highest bribes are not always the most efficient. Second, the positive effect of corruption on the quality of public servants at the aggregate level is strongly disputed. For example, Kurer (1993) shows that corrupt officials have incentives to distort the economy to secure their illegal source of income.

The second set of works, mainly empirical in nature, challenges the idea that corruption improves investment and economic growth. According to the “oil in the wheels” approach, corruption can improve both the quality and quantity of investment. However, this does not seem to be true for public investment, for

example. [Tanzi and Davoodi \(2002\)](#) show that higher corruption is associated with higher but inefficient public investment. They argue that this results from the diversion of public expenditure to less efficient uses. In other words, corruption results from more public investment in unproductive sectors.

## 2.2. The Empirical Review

Few studies have addressed the question of the nature of the political regime (democracy versus autocracy) and its role in the corruption-growth relationship. Conventional wisdom articulates that corruption is lower in democratic regimes where checks and balances are more prevalent, but there is no conclusive empirical evidence of a trilogy relationship between these three variables. [Cooper Drury et al. \(2006\)](#) show, following a dynamic analysis of a cross-sectional time series data set of 100 countries over the period 1982 to 1997, that democracy moderates the harm of corruption on growth through elections. As a result, only non-corrupt politicians should be re-elected. The authors conclude that corruption has no effect on economic growth in democratic countries. Nevertheless, it has a significant and negative impact in non-democracies. Similarly, [Amira \(2014\)](#), using a dynamic approach (GMM) of panel data for more than 40 countries over the period 2000-2011, found that in democratic countries corruption has no significant effect on growth, while non-democratic countries are negatively impacted by corruption and retard economic growth. Furthermore [Ghulam \(2017\)](#) indicates that democracy plays a key role in determining the corruption-growth relationship, and suggests the promotion of democratic norms very essential in limiting the level of corruption and stimulates the economic performance of the nation.

Two major lessons emerge from this empirical review: first, the relationship between corruption and growth is conditioned by the type of political regime. This being the case, corruption can only have negative effects on growth in countries with low levels of democracy. On the other hand, in countries with a high level of democracy, corruption does not have significant effects on growth. This is what we will verify in the case of the EMCCA countries.

Second, it is apparent that all studies addressing the question of the role of democracy in the relationship between corruption and economic growth have relied on a dynamic method called the generalized method of moments. Thus, for this paper we make use of the same method as did [Cooper Drury et al. \(2006\)](#) and [Ghulam \(2017\)](#).

## 3. Methodology

### 3.1. Model Specification

We start from the idea that corruption is one of the negative determinants of growth. It is seen as a barrier to this measure of wealth. This is consistent with the literature ([Mauro, 1995](#)). On the other hand, democracy is likely to reduce

corruption and thus stimulate growth. The estimates in this research first address the corruption-growth relationship. Second, we insert the democracy variable into the model as a control variable, in order to analyze simultaneously the effect of democracy and corruption on growth.

Third, the question of the interactive influence of democracy in the corruption-growth relationship. This relationship can be verified by the sign and significance of the interactive coefficient between democracy and corruption, as done by Cooper Drury et al. (2006). If this coefficient is positive and significant, democracy reduces corruption and therefore stimulates growth. Drawing on the study by Cooper Drury et al. (2006) which used the dynamic panel of generalized method of the moments (GMM), our models are as follows:

$$LPIB_{it} = \alpha lpib_{it-1} + \beta X_{it} + \gamma (Corr)_{it} + \mu_{it} + \varepsilon_{it} \quad (1)$$

$$LPIB_{it} = \alpha lpib_{it-1} + \beta X_{it} + \gamma (Corr)_{it} + \delta (Demo)_{it} + \mu_{it} + \theta_{it} + \varepsilon_{it} \quad (2)$$

$$LPIB_{it} = \alpha lpib_{it-1} + \beta X_{it} + \gamma (Corr)_{it} + \delta (Demo)_{it} + \delta' [(Demo)_{it} * corr_{it}] + \mu_{it} + \theta_{it} + \varepsilon_{it} \quad (3)$$

With  $LPIB_{it}$  the logarithm of the GDP growth rate of year  $t$ . the variable  $(corr)_{it}$  represents the direct effect of corruption on growth. Similarly, the variable  $(demo)_{it}$  represents the effect of the latter on growth, while the variable  $[(demo)_{it} * (corr)_{it}]$  represents the interactive variable between democracy and corruption,  $X$  is the matrix of control variables,  $(\alpha, \beta, \gamma, \delta)$  are coefficients to be estimated, and then,  $\mu, \theta$  represent respectively the individual specific effects, the temporal specific effects and finally  $\varepsilon$  the error term.

### 3.2. Data and Variable Definitions

This study mobilized two types of data of macroeconomic and institutional nature. The economic variables are exclusively from the World Bank database (WDI, 2020), and the institutional variables are extracted from (WDI, 2020) and Freedom House<sup>3</sup> (2020).

Variables	Definition	Sources
<b>Macroeconomic</b>		
<b>LPIB</b>	the logarithm of the annual growth rate of GDP	World Bank database, 2020
<b>Lpop</b>	the logarithm of the rate of population	World Bank database, 2020
<b>LFBCF</b>	the logarithm of gross fixed capital formation as a percentage of GDP	World Bank database, 2020

<sup>3</sup>Freedom House is an independent watchdog organization dedicated to the expansion of freedom and democracy around the world. Freedom House analyze the challenges to freedom, advocate for greater political rights and civil liberties, and support frontline activists to defend human rights and promote democratic change. Founded in 1941, Freedom House was the first American organization to champion the advancement of freedom globally.

**Continued**

<b>LDP</b>	the share of public expenditure allocated at each expenditure sector taken in logarithm: education, health, social protection, defense, public order and services, housing, culture, energy and fuel, other economic activities	World Bank database, 2020
<b>FDI</b>	the nets flows of direct investment	World Bank database, 2020
<b>Institutional</b>		
<b>Demo</b>	Index of democracy: consider two components of freedom. The Political Rights Index measures the extent of free and fair elections, political pluralism, and political minority rights. The Civil Liberties Index measures civil liberties and individual freedoms such as freedom of speech, freedom to practice one's religion, and freedom to assemble peacefully. Both indices range from one to seven, where lower numbers indicate higher levels of freedom. To determine the Demo variable, we take the average of these two indices. Countries are coded from 1 to 7 in terms of political rights and civil liberties. While "1" represents the most democratic country (advanced democracies), "7" means the least democratic country (unfree, lack of democratic principles). In addition, countries with an average of political rights and civil liberties between 1.0 and 2.5 are classified as "free countries"; countries with an average between 3.0 and 5.0 are defined as "partly democratic" and countries with an average between 5.5 and 7.0 are "not free countries"	Freedom House, 2020
<b>CC</b>	the control of corruption in country (i) at time (t) (CC): this indicator measures the use of the prerogatives of power for personal gain, in particular the enrichment of individuals in positions of power. Developed by <a href="#">Kaufmann, Kraay and Mastruzzi (2010)</a> . It is evaluated according to a range that varies between -2.5 and 2.5. A value below the average of 1.25 reflects endemic corruption. While a value close to or above the average of 2.5 reflects low corruption	World Bank Governance Database (WDI, 2020).
<b>Demo*Corr. interaction</b>	the variable that captures the interactive influence of democracy in the corruption-growth relationship.	Ghulam (2017)

**3.3. Generalized Method of the Moments (GMM)**

The method of [Arellano and Bond \(1998\)](#) provides a more efficient "GMM" estimator, allowing to check the absence of first and second order autocorrelation without taking into account heterogeneity. The GMM estimator in first differences has some shortcomings, since level lagged variables are not good instruments for first differences variables. [Arellano and Bover \(1995\)](#) and [Blundell and Bond \(1998\)](#) proposed an alternative GMM estimator in system based on the initial conditions and taking into account the moment conditions, in order to combine the first difference equations with the level equations and the first difference variables as instruments.

$$\Delta Y_{it} = \beta \Delta Y_{it-1} + \varphi X_{it} + \Delta \mathcal{G}_{it} + \varepsilon_{it}$$

$$Y_{it} = \beta Y_{it-1} + \varphi X_{it} + \Delta \mathcal{G}_{it} + \varepsilon_{it}$$

The main tests associated with these estimators in dynamic panels are: the

Sargan/Hansen over-identification test, which allows us to test the validity of lagged variable as instruments.

#### 4. Results and Interpretations

Before we present the results of GMM test and in accordance with the work of Holtz-Eakin et al (1990), Arellano & Bond (1991) and Arellano & Bover (1995), a macroeconomic panel is conducted as a time-series study. Therefore, we first present the stationarity and cointegration tests. The results are presented in **Table A1** and **Table A2** respectively (see appendix).

The table above presents the results found from this research for the six EMCCA countries over the period 2002 to 2020.

At the outset, it should be noted that with regard to the Wald and Fischer statistics and the associated probabilities, all of which are significant, including the  $R^2$  of 82% and 96% respectively, the model is statistically sound for all estimates. The variables of interest (Corruption, Democracy,) all have significant negative

**Table 1.** GMM results in Blundell and Bond (1998) system.

Variables	Equation n°1	Equation n°2	Equation n°3
LPIBt-1	1.021224 (0.000) *	0.9479 (0.000) *	0.9341301 (0.000) *
Corr	-0.1290262 (0.036)**	-0.1894338 (0.003)*	-0.623943 (0.134)
Demo	-	-0.0484829 (0.01)*	0.6326532 (0.682)
Demo*corr. Interaction	-	-	0.0769878 (0.289)
FDI	-0.0007094 (0.659)	-0.0006181 (0.690)	-0.0007285 (0.0015868)
LDP	-0.2260388 (0.000)*	-0.0793639 (0.268)	-0.574149 (0.451)
LFBCF	0.1684839 (0.000)*	0.1221407 (0.000)*	0.1126598 (0.002)*
LPop	0.0768421 (0.021)**	0.03448 (0.303)	0.067415 (0.875)
Observations	81	82	83
R <sup>2</sup>	0.82	0.82	0.96
Fisher statistics	77.85 (0.0000)*	63.85 (0.0000)*	305.42 (0.000)*
Stat Wald	6.25e+06 (0.000)	77.85 (0.000)	5.97e+06 (0.000)
Sargan test	97.399 (0.0421)**	95.435 (0.0402)**	90.12 (0.0847)***

Source: authors, based on results obtained on STATA 12. \*, \*\* and \*\*\* represent the 1%, 5% and 10% probability thresholds, respectively. The variables in parentheses are the probabilities.

coefficients at the 1% and 5% thresholds respectively, except for the interaction variable (Demo/corr. interaction). Given the good statistical quality of these results, an interpretation is possible. Two major lessons emerge from these results: first, corruption is an obstacle to economic growth in EMCCA countries. Second, taking democracy into account reduces the negative impact of corruption on economic growth.

- ***Corruption, an obstacle to economic growth in CEMAC countries***

The corruption variable on the first two equations in **Table 1** displays negative and significant coefficients, suggesting that a one-point decline in the level of corruption in EMCCA, reduces economic growth. These results put into perspective those of Mauro (1995); Mo (2001); Balamoune-Lutz, Ndikumana (2009) who showed that corruption hinders growth and corroborates the hypothesis of Otusanya (2011), who conclude that corruption is a hindrance to the economies of developing countries. In the EMCCA context, these results contradict those obtained by Ondo (2017) and there is a possible explanation for this finding. Negative public spending is less profitable for the corruption market. The large budgets voted by EMCCA countries are in reality structurally congruent portions from which a multitude of public managers, often corrupt, must distribute themselves. However, the management of these funds often leads to misappropriation of funds and the financing of unproductive expenditures (white elephants) that should have been used to produce goods and services essential for economic growth. To this can be added the deviant behavior of tax officials who grant derogatory tax regimes. This results in the loss of public resources (Aidt et al., 2008). All other things being equal, this has a negative impact on economic growth.

- ***Addressing democracy reduces the impact of corruption on economic growth***

The result of the equation capturing the influence of democracy in the corruption-growth relationship shows a positive but insignificant interactive coefficient, and the coefficients associated with corruption and democracy lose their significance. This means that the corruption and democracy variables have undergone the substitution effect. However, this result reinforces the scientific intuition behind this work that democracy reduces corruption and stimulates growth in EMCCA (Cooper Drury et al., 2006). This result, which is close to the one expected, admits of an explanation. The low level of democracy in EMCCA countries. However, this democratic deficit opens the door to corruption that hinders growth. Corruption is generally observed in societies in transition to real democracy, as in the EMCCA countries. The institutional balance has not yet been achieved, and some people abuse the considerable power delegated to them by creating a number of alterations that proliferate corruption (Aidt et al., 2008).

Corruption in EMCCA remains a reflection of governance failure and a mark of a lack of capacity to manage society through balanced systems of social, judicial, political, and economic checks and balances that constitute real democracy,



which EMCCA needs to better mitigate the effects of corruption on economic growth.

## 5. Conclusion

The objective of this study was to analyze the influence of democracy on the corruption-economic growth relationship in the six EMCCA countries for the period 2002-2020. To do so, we used the [Blundell and Bond \(1998\)](#) method of generalized moments in a system. The results obtained confirm the negative effect of corruption on growth in EMCCA. Moreover, taking into account the interactive influence of democracy in the corruption-growth relationship revealed that the promotion of democratic norms could mitigate the negative effects of corruption on economic growth. This confirms our initial hypothesis (the grain of sand in the wheels).

These results allow us to formulate some policy implications:

- Organize recurrent awareness campaigns aimed at informing all segments of society about what is real corruption in its various forms of observation or manifestation.
- Initiating or adopting an anti-corruption education course in the national education programs of all EMCCA member countries from secondary school onwards would be an asset, in order to inculcate all anti-corruption values in young people.

## Limitations of the Study

[Qauh \(1996\)](#) has noted that the results of GMM model estimations, obtained from panel data, are very sensitive to the estimation methods. The consequence is that there could be measurement biases due to heterogeneity phenomena that are otherwise unobservable. The use of a more sophisticated model is useful to capture heterogeneous effects between countries (legislation, legal rules, etc.) and to take into account aspects of non-linearity. In this perspective, it would also be desirable that the study of the role of democracy on corruption and economic growth be conducted in each EMCCA country in order to capture the specificities of each country. These possible specificities could constitute a signal for political actors in the sub-region.

As another limitation, we can note the limitation of the study period, perhaps a wider period could give other results, i.e. slightly different from those presented in this paper.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## Appendix

**Table A1.** Unit root test results (LLC and IPS)

Series	LLC			IPS		
	Trend, intercept, none	Z	P value	Trend, intercept, none	Z	P value
LPIB*	Trend	-6.07585	0.0000	Trend	-2.61087	0.0045
CC**	None	-6.63983	0.0000	Trend	-2.64559	0.0041
Demo**	Trend	-2.62775	0.0043	Intercept	-4.09203	0.0000
LFBCF**	Trend	-2.72669	0.0032	Trend	-5.43462	0.0000
LD-pub**	None	-3.10181	0.0010	Trend	-4.13822	0.0000
LPopu*	Trend	-7.61599	0.0000	Trend	-6.03934	0.0000
IDEA*	Trend	-3.51530	0.0002	Trend	-2.84124	0.0022

Source: authors, (\*) and (\*\*) mean respectively stationary variables in level, stationary variables in first difference.

The results of the LLC (2002) and IPS (2003) tests applied to the series in level and first difference show that the series are all stationary at the 1% threshold.

**Table A2.** Results of pedroni cointegration test.

Alternative hypothesis: common Ar coefs: (Within-dimension)				
Test statistics	V-stat	Rho-stat	Pp-stat	ADF-stat
Value	-2.174761	2.19467	-0.482897	2.790986
P-value	0.9852	0.9860	0.3146	0.9974
Alternative hypothesis: Individual AR coef (between dimension)				
Test statistics	Group Rho-stat	Group pp-stat	Group ADF stat	
Value	3.238603	-5.117002	-2.664136	
P-value	0.9994	0.0000	0.0039	

Source: authors from eviews 7 software. Trend assumption: NO deterministic trend, Series: CC, Demo, LPib, LOuv, LIdeen, Lnpopulation

The results of the Pedroni cointegration tests presented below reveal at least one cointegrating relationship out of the 7 equations that constitute the Pedroni test. In conclusion, we accept the alternative hypothesis of the existence of a cointegration relationship in the medium and long term between economic growth and its determinants, namely corruption, democracy and the other control variables at the 1% threshold.