CORRUPTION AND ECONOMIC GROWTH IN THE COUNTRIES OF THE WEST AFRICAN ECONOMIC AND MONETARY UNION: AN ECONOMETRIC ANALYSIS

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ABSTRACT *Over a long period, the phenomenon of corruption has been viewed as a topic which does not enter the sphere of economic analysis. Today, the issue is increasingly becoming the center of the research in development economics. The goal of this article is to investigate the causal relation between corruption and growth within the countries of the West African Economic and Monetary Union (WAEMU). The Granger causality test undertaken from 1996 to 2015, suggests that, on the one hand, economic growth has no impact on corruption, while on the other hand, corruption undermines economic growth. It is argued on that basis that fighting corruption through strong institutions should the top priority which can lead to a sustainable and strong economic growth.*

1. INTRODUCTION

According to a large number of contemporary authors, institutional and political factors are the main explanatory variables for the backwardness of underdeveloped economies (Barro and Lee, 1994; Alesina and al, 1996; Easterly and Levine, 1997).

Among these, corruption is a factor that has most often attracted the attention of economists. Several studies have been devoted to studying the link between corruption and growth D'Agostino and al., 2016, Omoteso and al., 2014, Heckelman and Powell, 2008).

Alesina and Weder (2002) define corruption as the misuse of state ownership by a state official for personal profit. The act of corruption can be initiated either by a state agent or by a public service user. Corruption is generally defined as the abuse of a public power for private purposes. Corruption therefore involves the use of public fees for personal purposes. In so doing, corruption appears to be one of the most serious obstacles to the economic growth and development of most underdeveloped countries.

WAEMU has provided a green telephone number to allow all citizens, and especially companies managers, to be informed of proven cases of corruption. Companies left out in the attribution of public contracts should inform the WAEMU regional authorities of the defects of forms, procedures or any shortcomings observed when attributing public contracts. The sub-regional institution is committed to modernizing and making public procurement processes transparent. It therefore organized a seminar on the reform of public procurement and the fight against corruption in September 2011 in Lomé, Togo. WAEMU comprises eight states: Benin, Burkina Faso, Ivory Coast, Guinea Bissau, Mali, Niger, Senegal and Togo. It constitutes a vast market of 103.4 million consumers (Bank of France, 2014). The issue of growth is still acute in this area. As an example, from 1996 to 2015, the average growth rate of the union was 4.80% with even negative growth rates sometimes as was the case in 2000 when the rate was -0.1% .Meanwhile, corruption is gaining momentum in all the countries of the union. All this proves the need for an analysis of the causality between corruption and economic growth. The general objective of this study is therefore to determine the nature and degree of the causality between corruption and economic growth in the WAEMU countries. Specifically, the study aims to establish the correlation between the corruption index and economic growth.

This article is organized as follows: In Section 2, we present a review of the literature on the relationship between corruption and economic growth. In Section 3, we present the theoretical framework of the analysis. Section 4 is devoted to the analysis of the empirical results obtained and Section 5 presents the conclusion.

2. LITERATURE REVIEW

From the work of Mauro (1995) to Watson (2004), economists have constantly highlighted the dysfunctions of economic activity caused by the phenomenon of corruption. The results of Mauro (op.cit.) show that countries with a high degree of corruption also have a lower ratio of investment over GDP. The author argues that corruption reduces investment in a country; consequently, it is unfavorable to growth and development. From the same perspective, Brunetti and Weder (1998), Wei (2000) have established that corruption has a negative effect on investment. Gyimah-Brempong (2002) studies African economies and discovers that corruption reduces the rate of economic growth and increases social inequality. The negative effects of corruption on infrastructure and project achievements are also analyzed by Laffont and N'Guessan (1999) and by Laffont and N'Gbo (2000) in a model taking into account the expansion of networks for Developing countries. They argue that information asymmetry embodied in discretionary power is an essential trigger of corruption. In this same wave, Shleifer and Vishny (1993) find that when it is necessary to have the consent of several agents who each has a discretionary power, in order to carry out a project, the level of corruption will be high and growth will be weak . Ouattara (2007), using a panel of eight WAEMU countries over the period 1980-2004, finds that the level of corruption has a definite impact on the evolution of the GDP, but the reciprocal is not true. In this regard, Gbenga (2007), shows that corruption has completely ravaged the African governance system, making the continent the most corrupt in the world. It therefore advocates measures to stem this phenomenon and enable the continent to begin its development. This is not the case for D'Agostino and al (2016), who use an endogenous growth model to analyze the effect of corruption on public spending in some African countries. The results show that corruption has a negative effect on military spending but also that corruption interacts with military spending indirectly or in a complementary way so as to reinforce this negative effect. The authors conclude that the negative effects of corruption on economic growth are greater in countries with high military spending.

However, some authors show that corruption can act positively on growth. In this sense, Mo (2001) writes that the correlation is not always negative. Leff (1964) and Huntington (1968) have theoretically shown that corruption can stimulate economic growth by allowing individuals to pay bribes in order to bypass administrative slowness. Similarly, Lui (1985), shows that corruption can shorten the time wasted in long queues. Colombatto (2003) analyzes corruption on a theoretical aspect in different institutional settings and finds that in some cases corruption can be efficient in developed countries rather than in non-democratic countries. Wedeman (1997) notes that the most corrupt countries have high growth rates. Svensson (2005) finds that corruption does not affect growth

because the coefficient of the corruption variable is not significant in the studies he carried out. Omoteso and al (2014) study the impact of governance on growth in a few sub-Saharan African countries. The results show that despite anti-corruption measures, the effect of the fight against corruption on economic growth is not evident. It seems difficult to determine the real effect of corruption on growth according to these authors.

As a summary, we can say that corruption has two possible effects on the economy of a country. First, corruption can be detrimental to the economy because it reduces the rate of growth. Secondly, corruption can stimulate economic growth by allowing individuals to bypass administrative slowness. Therefore, there is a need to consider an empirical study to assess the real effect of this phenomenon on the economies of WAEMU countries.

3. THEORETICAL FRAMEWORK AND ESTIMATION STRATEGY
3.1-The theoretical framework
Granger (1969) developed the concept of causality. According to this author, the variable Y1t is the cause of Y1t, if the predictability of Y1t is improved when the information on Y2t is incorporated in the analysis. Saying that Yt causes Xt only means that it is better to predict Xt by knowing Yt than without knowing it.

Thus, to test empirically the hypothesis Xt "Granger cause" Yt, the variable Yt is regressed on the delayed values of the variable Yt and on the values of the variable Xt.

In the same way, the procedure described above is used to test the hypothesis Yt "Granger cause" Xt but this time by reversing the order of the variables.

The model used to test Granger causality between the variables of corruption and economic growth is inspired by Heo and Tan (2001), Ouattara (2007). It is thus established:

$$Y_{it} = \alpha_0 + \sum_{k=1}^{p} \alpha_{1k} \ Y_{it-k} + \sum_{k=1}^{p} \alpha_{2k} \ Corr_{it} + e_{1it} \quad (1)$$

$$Corr_{it} = \beta_0 + \sum_{k=1}^{p} \beta_{1k} \ Corr_{it-k} + \sum_{k=1}^{p} \beta_{2k} \ Y_{it} + e_{2it} \quad (2)$$

With:, Y_{it} $Corr_{it}$ Representing respectively the growth rate of GDP and the index of corruption.

3.2 - Description of variables used
• **Variable corruption (Corr)**
It should be pointed out that corruption is a hidden phenomenon, it is impossible to produce objective statistics to measure its levels due to the lack of available raw data. Relying on the number of corruption convictions handed down by the courts would not be satisfactory, since such data would in many cases be more indicative of the proper functioning of a country's justice than actual levels of corruption. Thus, in 1995, Transparency International envisioned relying on opinion polls and therefore perceptions to try to assess levels of corruption. Transparency International today publishes an index called the Corruption Perception Index (CPI). Transparency International's Corruption Perceptions Index (CPI) ranks countries according to perceived levels of corruption in public administration and among politicians. It is a composite index, a survey, using data on corruption from expert surveys conducted by various independent bodies. It reflects views from around the world, including experts residing in the assessed countries. This index focuses on corruption in the public sector and defines corruption as the abuse of a public fee for the purpose of personal enrichment. Polls used to establish the CPI raise questions about the abuse of official power in a personal interest (for example, bribery of public officials, bribes in public procurement, the embezzlement of public funds) or issues that assess the firmness of anti-corruption policies, including

consequently administrative corruption and political corruption. This index is the one used in this analysis and is rated "*Corr*".

• **Variable economic growth** *(Y)*
Economic growth is measured here by the growth rate of the gross domestic product in the different WAEMU countries. The variable growth rate is extracted from the World Bank's World Development Indicators (2016) database and is denoted here "Y".

3.3- Estimation strategy
Before estimating our model materialized by equations (1; 2) above, it is necessary to first perform the stationarity test on the different variables of the model. Thus the test of Im, Pesaran and Shin (2003) is carried out for the study of the stationarity of the variables. After studying the stationarity of the variables, we performed the correlation test between the variables to assess the degree of linkage between them.

The research covers seven countries of the West African Economic and Monetary Union (WAEMU): Benin, Burkina Faso, Ivory Coast, Mali, Niger, Senegal and Togo. Regarding the availability of statistics for each of the seven countries in the sample, the period covered is from 1996 to 2015. Data on variables come from two main sources including the World Development Indicators (2016) and the basic "index corruption perception "of Transparency International (2015).

4. EMPIRICAL RESULTS
The results to be presented relate mainly to the stationarity tests of the variables used. For reasons of mathematical coherence, we have made increasing monotonic transformations on the corruption variable. Thus, we are reassured that our model fulfills the conditions essential to the performing of the causality test. Table 1 below shows the results of the stationarity tests of Im, Peseran and Shin (2003), better known as IPS.

Table 1: Results of the stationarity IPS test

Variables	Value of Statistics	P-Value	With constant	With Trend	Decision
corr1	-1,5273	0.0633	Yes	Yes	I (0)
ly	-4.4610	0.0000	Yes	Yes	I (0)

Source: Author's estimate on Stata based on WDI (2016) data from the World Bank and Transparency International (2015).

The stationarity tests of Im, Pesaran and Shin reveal that all the variables of the model are stationary. After the stationarity tests, we calculated the correlation coefficient between the variables. The results are given in Table 2 below:

Table 2: Matrix of correlation coefficients between variables

Variables	Y	CORR1
Y	1.0000	-0.269538
CORR1	-0.269538	1.0000

Source: Calculation of author on Eviews using data from WDI (2016) and Transparency International (2015).

Correlation test results reveal interesting results. Indeed, there is a negative correlation between corruption and growth. This could mean that corruption undermines growth and undermines respect for the law.

To prove this, we perform the causality test to determine the causality between the variables. The results of the Granger causality test between corruption and economic growth are summarized in Table 3 below:

Table 3: Outcome of the Granger causality test between corruption and economic growth over the period 1996-2015.

Hypotheses	Number of observations	Probability
H$_1$: **Corruption** does not cause **growth**	133	**0.0302**
H$_2$: **Growth** does not cause **Corruption**	133	**0.5368**

Source: Author's estimate on Eviews from WDI (2016) data from the World Bank and Transparency International (2015).

Thus, the first hypothesis that we test is that corruption does not cause growth. The probability of the test (0.03) being less than 5%. The result of the test invites us to reject our hypothesis and to conclude that corruption causes growth in WAEMU countries. In other words, pre-corruption information allows for a better forecast of GDP growth in the union countries. This means that corruption has a negative and significant impact on the growth rate of GDP.

The second hypothesis we are testing is that growth does not cause corruption. Here, the probability of the test (0.53) is greater than 5%. The result of the test invites us to accept our hypothesis and to conclude that the level of economic growth recorded by a member State of the WAEMU does not justify the expansion of corruption. In other words, the earlier information on economic growth does not allow for a better forecast of corruption in the countries of the union. Thus, an improvement in GDP growth has no positive effect on corruption.

What are the lessons learned from these two hypotheses?
Economic growth does not affect corruption, but corruption reduces growth. This is the place to draw the attention of the WAEMU public authorities to the need for intensifying anti-corruption policies and strategies. No one should be above the law. Therefore, any individual or institution that engages in this practice should be held accountable to the courts. We also want judgments rendered to be exemplary and sufficiently dissuasive. Our results confirm those of D'Agostino and al (2016), Ouattara (2007), Gyimah-Brempong (2002) and Mauro (1995).

The major lesson of this analysis is that the increase in the level of corruption has negative effects on growth and, consequently, on the development of WAEMU countries. Corruption is gaining ground in several countries of the world, particularly in developing countries. Its negative effects on economic performance indicators have been analyzed by many authors such as Rivera-Batiz (2002) or Dutta and Mishra (2005). This result enriches the economic analysis in that it shows that corruption hampers growth in WAEMU. That is why anti-corruption strategies should be initiated in a coordinated way throughout the subregion in order to counteract this scourge.

What are the economic implications and the scope of these results? These results show that improving the functioning of democratic institutions has beneficial effects and helps to combat corruption. It is logical to think that the establishment of institutions of good governance through the establishment of the rule of law, which is translated into an independent judicial power, the establishment of an anti-corruption body makes it possible to fight effectively against corruption.

The results show that corruption increases when there are no sanctions and also when impunity exists. Corruption from this point of view stems from the inadequacy and weakness of democratic institutions. The WAEMU countries would benefit from an effective fight against corruption by strengthening the quality of the functioning of their judicial system and by respecting laws and regulations. In this regard, initiatives taken by the Commission of WAEMU in Lomé in Togo in September 2011 should be encouraged with a view to combating this scourge in the various countries of the Union.

5. CONCLUSION
The objective of this study was to analyze the relationship between corruption and economic growth in the countries of the West African Economic and Monetary Union. In order to achieve this objective, two tests were carried out after the analysis of the correlation between the variables. This is the stationary test of Im Peseran and Shin and the causality test in Granger's sense. The following results were obtained:
• All variables used in the analysis are stationary.
• Economic growth does not affect corruption, but corruption reduces growth.

The results above show that when corruption becomes the rule and standard in a country; its effects are paralyzing. Facing this systemic malaise, it is impossible to establish and maintain game rules applying to all. That is why we have to fight it vigorously at the national and international levels in a collegial way. The fight against corruption must begin with the improvement of systems: monopolies must be reduced or regulated carefully, as Klitgaard (1995) formalizes so well, corruption is a growing function of monopoly power and discretionary power and a decreasing function of responsibility. Thus expressed, corruption will tend to manifest itself when a natural or legal person has the monopoly of a good or a service and has, moreover, all power to decide who will get it, and how much , and is not subject to any account giving . Discretionary powers must therefore be delineated and transparency and the probability of arresting and punishing corruptors and corrupt persons must be increased. Laws and controls will prove insufficient in the absence of means of enforcement. Efforts to eradicate corruption tend to succeed when reforms carried out quickly and vigorously are supported at the top of the state. To eradicate or reduce corruption, all the centers of decision and power must be reformed; this leads to the identification of all actors to increase the effectiveness of entities and institutions in order to have strong and sustainable economic growth in the union.

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