

Corruption and Economic Growth: A Comparative Analysis of the Case of African Commonwealth and Franc Zone Countries

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Abstract: The aim of this paper is to evaluate the impact of corruption on economic growth by considering two groups of African countries for comparison: the Franc zone countries on the one hand and the 19 Commonwealth countries on the other. The analysis shows that the Franc zone countries, which are more corrupt than the Commonwealth countries, have lower economic growth than the countries in the second group. In the Franc zone, the level of corruption of CEMAC countries is most often 3 times higher than that of the WAEMU and 1.5 times higher than that of the Franc zone as a whole. It is therefore the CEMAC zone that widens the large corruption gap between the Franc zone and the Commonwealth. The econometric estimation of a static panel specified growth model revealed that corruption is negatively and significantly correlated with real Gross Domestic Product (GDP) per capita growth in the Franc zone while this impact is insignificant for the Commonwealth countries. For example, a decrease in corruption (increase of one unit in the corruption index) leads to an increase of 3.38 units in the growth rate. This impact comes before the effects of inflation (0.58%), public expenditure (-0.56), trade openness (0.068) and private investment (0.066). The reduction of corruption thus has a very important impact on economic growth in the Franc zone. In this direction, Franc zone countries should seek to copy and apply the experience of African Commonwealth countries, especially in governance and more particularly in the fight against corruption. Rather than looking to Asia experience, let us first look to our closest neighbours who are ahead of us in terms of economic growth.

Keywords: Corruption, Economic Growth, Franc Zone, Commonwealth, Real GDP

1. Introduction

Defined since François Perroux as the sustained increase over a long period of a dimensional indicator, notably GDP, economic growth, which is of concern to all nations, has been at the heart of economic debates from the classical economies to the present day. Several questions can thus be asked about growth. The first is why growth, which had increased 14-fold since 1820 in the most developed countries, has slowed down [1]? Another question is why Japan, then China, South Korea, and more generally the newly industrialised countries have made a great leap forward in terms of sustainable growth, with rates reaching double digits. The third question that can be asked today is the case of India, which is already leading the way in terms of growth despite its large population and previous poverty. Finally, the real

problem is the lack of take-off in terms of growth in sub-Saharan Africa (SSA), despite the richness of these countries in terms of natural resources (high endowment of arable land, minerals including oil, forestry resources) and human resources (consisting of great intellectuals who unfortunately work outside).

All these questions have led economists to examine theories of growth in order to identify new sources of growth. The theories were thus profoundly renewed. Thus, the classical theories [2-6] have been deepened to arrive today at the new theories of growth which are the theories of endogenous growth [7-9].

In addition to analysing the sources of growth, it would also be interesting to look at the obstacles to economic growth. This way of thinking about the reasons for the failure of certain countries to take off seems to us to be more appropriate for the

countries of sub-Saharan Africa. Corruption, which is a scourge and strongly present in most of these economies, may seem to be one of the most important brakes on economic growth. Corruption occurs when bribes are paid to public officials in order to obtain preferential treatment or to circumvent existing regulations [10, 11].

Several authors have analysed the effects of corruption on economic growth. This literature can be divided into two groups: for the first authors [12, 13] corruption has a positive impact on growth because it improves economic efficiency. It allows firms to bypass inefficient regulations and institutions, thus enabling the private sector to correct the errors and weaknesses of the public sector.

Most authors consider that corruption is a scourge that has a negative impact on growth and development, in that it leads to a misallocation of resources, distorts the incentives of economic actors and market forces, and is akin to an inefficient tax on business that increases production costs [14].

The objective of this paper is to analyse the impact of corruption on economic growth in selected SSA countries. In order to make a comparative analysis, we have chosen two groups of countries, namely the Franc zone and the Commonwealth countries. The Franc zone comprises 15 African countries, including 6 from the CEMAC, 8 from the WAEMU and the Comoros. There are 19 African countries in the Commonwealth. Cameroon has been classified only in the Franc zone countries although it belongs to both groups in order to avoid double counting.

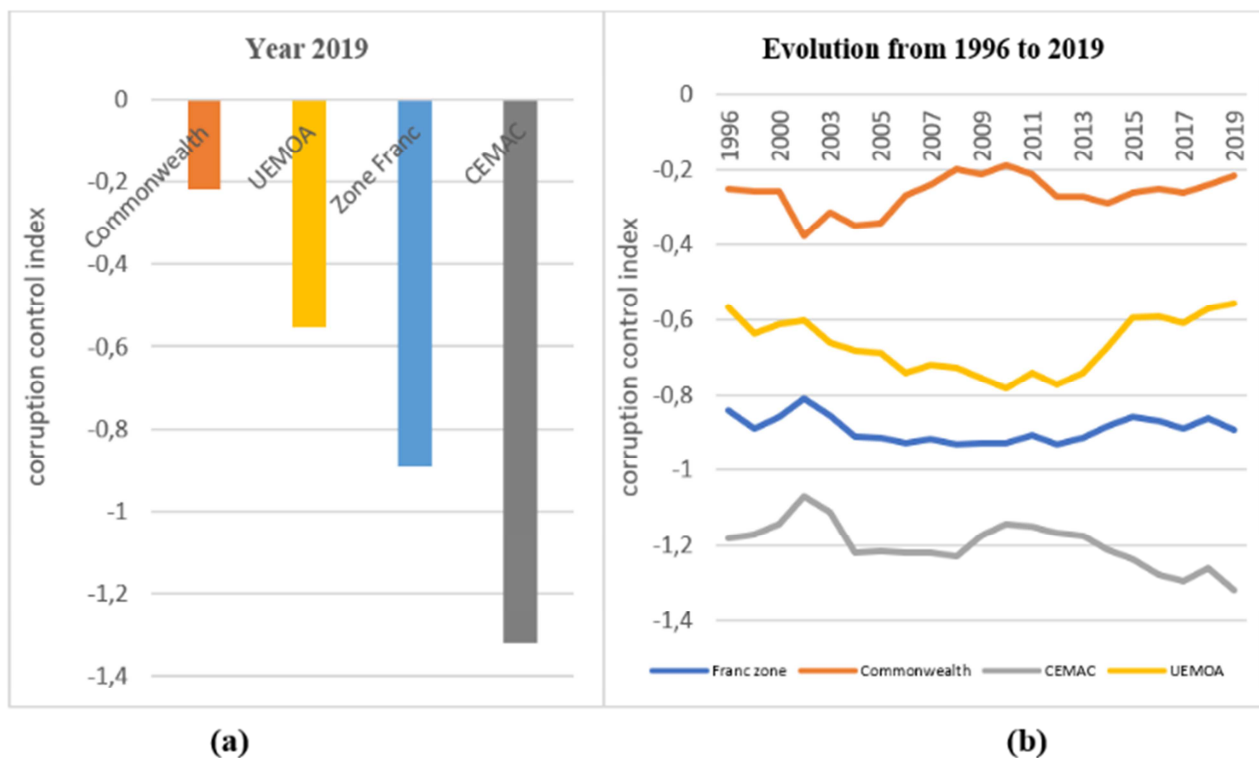
This objective leads us to ask the following research question: What is the impact of corruption on economic

growth in selected SSA countries?

In order to answer this question, it would be interesting to conduct a state of the art study to examine the situation of corruption as well as economic growth in the two groups of countries defined above (2). A review of the literature is necessary to provide a modest added value to the analyses so far carried out (3). From this review, the most suitable methodology for this work will be derived (4). The econometric regression will lead to a discussion of the results and to policy recommendations, thus concluding the analysis (5).

2. Corruption and Growth in Selected African Countries: A Review

Corruption is perceived as a major obstacle to growth and development worldwide. In Africa, despite the large-scale reform efforts undertaken since the 1990s to fight corruption and improve governance, the levels recorded remain high in most countries [15]. In the same sense, the World Health Organisation (WHO) shows that corruption is very high in countries with the highest child mortality rates [16]. The health and education sectors are the most frequently cited by anti-corruption agencies. Corruption in these two sectors significantly reduces, in the long term, the quality and quantity of an important factor for growth: human resources. For example, corruption in the education sector, characterized by academic fraud, is a major threat to the integrity and reliability of diplomas. Young people leave school with few skills, which negatively impacts economic growth [17].



Data source: World Governance Indicators (2019).

Figure 1. Corruption Control Index in African Franc Zone and Commonwealth Countries.

2.1. Corruption and Growth Trends in Selected African Countries

In order to provide an overview of the state of corruption in our field of study, we have a diagram (Figure 1), which gives the control of corruption index for the year 1999 (1a) and its evolution from 1996 to 2019 (1b) in the African countries of the Franc zone as well as in the African countries of the Commonwealth. The data are from the KAUFMANN Corruption Control Index, which assesses the quality of services provided by the public administration. This index asks whether public power is exercised for private gain by including both petty and grand forms of corruption, and how the state has been captured by elites and private interests [18]. It takes values ranging from -2.5 (very high level of corruption) to 2.5 (non-existent corrupt practices).

Figure (1a) shows that corruption is most prevalent in African Franc zone and Commonwealth countries (average index for both groups below 0 in 2019). Franc zone countries are almost 4 times more corrupt than African Commonwealth countries. The corruption control index in the first group of countries varies between -0.2 and 0, while it varies between -0.9 and 0 for the second group.

Within the Franc zone group, we have distinguished between the two sub-regions CEMAC and WAEMU. Figure (1a) shows that the CEMAC countries have a very high level of corruption, whereas the WAEMU countries have relatively more integrity (the index varies between -0.5 and 0 in the WAEMU countries, whereas it varies between -1.3 and 0 for the CEMAC countries). The CEMAC corruption control index is thus about 3 times

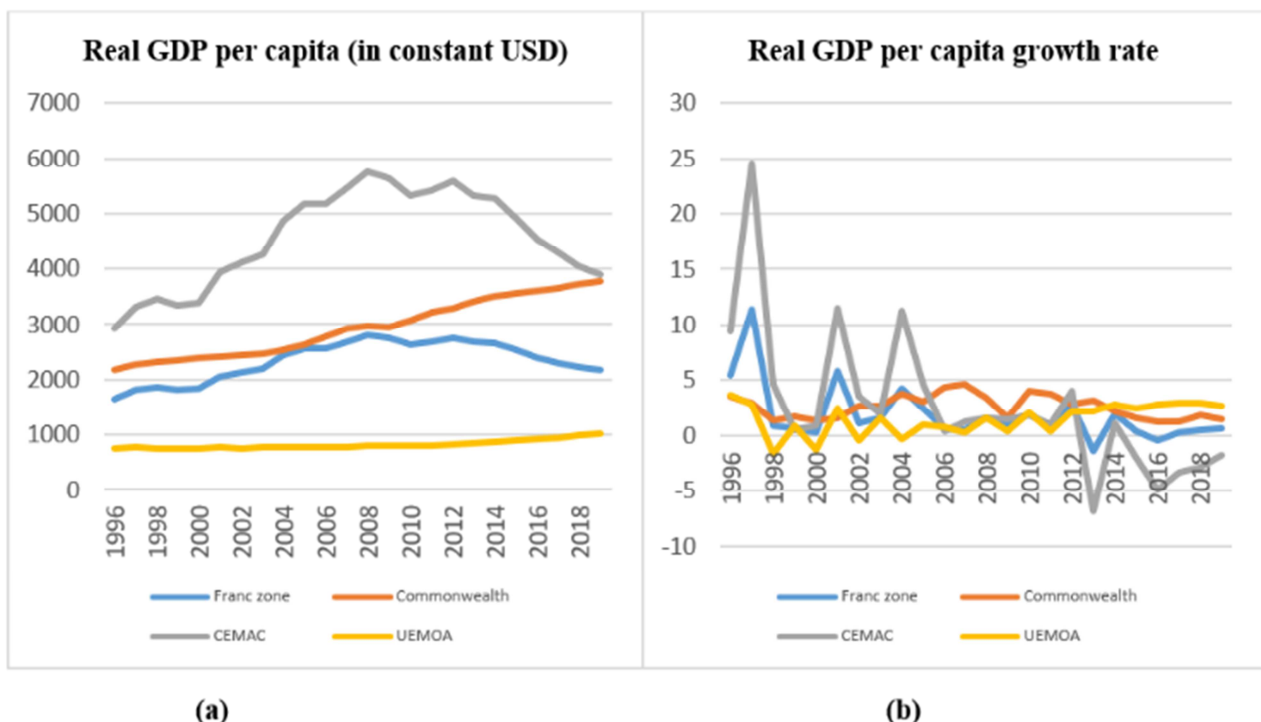
lower than that of the WAEMU and 1.5 times lower than that of the Franc zone as a whole for the year 2019. It is therefore the CEMAC zone that widens the large corruption gap between the Franc zone and the Commonwealth.

According to Figure (1b), corruption tends to decrease in African Commonwealth countries while it tends to increase in Franc zone countries. Thus, it can be deduced that anti-corruption policies are successful in African Commonwealth countries while they fail in Franc zone countries. This observation may help to answer, at least in part, the question that is often asked in the literature: if a country like Cameroon has a choice, should it become a member of the Franc zone or the Commonwealth?

Thus, it can be seen that the African countries of the Franc zone are countries where corruption is rife in almost all areas of economic activity. This scourge exists in this zone with greater acuity than in the African Commonwealth countries. More seriously, the phenomenon tends to be reduced in the African countries of the Commonwealth, whereas it tends to increase in the countries of the Franc zone. This raises the question of whether the phenomenon of corruption has an impact on economic growth in the two groups of African countries mentioned above.

The indicator that generally allows us to evaluate economic growth in a country is the GDP. We take it here in real terms and per capita.

Figure 2 below shows the comparative evolution of real GDP per capita in the African countries of the Franc zone and those of the Commonwealth.



Source of raw data: World Development Indicators (2020).

Figure 2. Comparative evolution of real GDP per capita of African countries in the Franc zone and African countries in the Commonwealth.

According to Figure (2a), the real GDP per capita of Franc zone countries is consistently lower than the real GDP per capita of African Commonwealth countries during the study period (1996-2018). Thus, the real GDP per capita curve of African Commonwealth countries is above that of Franc zone countries.

If we break down the Franc zone into its two sub-regions, CEMAC and WAEMU, we can see that the curve representing real GDP per capita for the CEMAC sub-region is above those for the Franc zone and even for the African countries that are members of the Commonwealth; the one representing the WAEMU zone is the lowest.

Such a score for the CEMAC sub-region can be explained by both the high level of oil revenues and the low level of population, especially for the period 1996-2009 which corresponds to the period of post-discovery and production of oil fields in countries like Chad and Equatorial Guinea. This is clearly evident when comparing the evolution of the level of real GDP per capita in the CAEMC and the WAEMU. It can be seen that the level of real GDP per capita of the WAEMU grows slowly without ever decreasing (which is also the case for the Commonwealth), while that of the CEMAC decreases from 2009 onwards, probably because of the drop in oil production in Gabon and Congo, to such an extent that 10

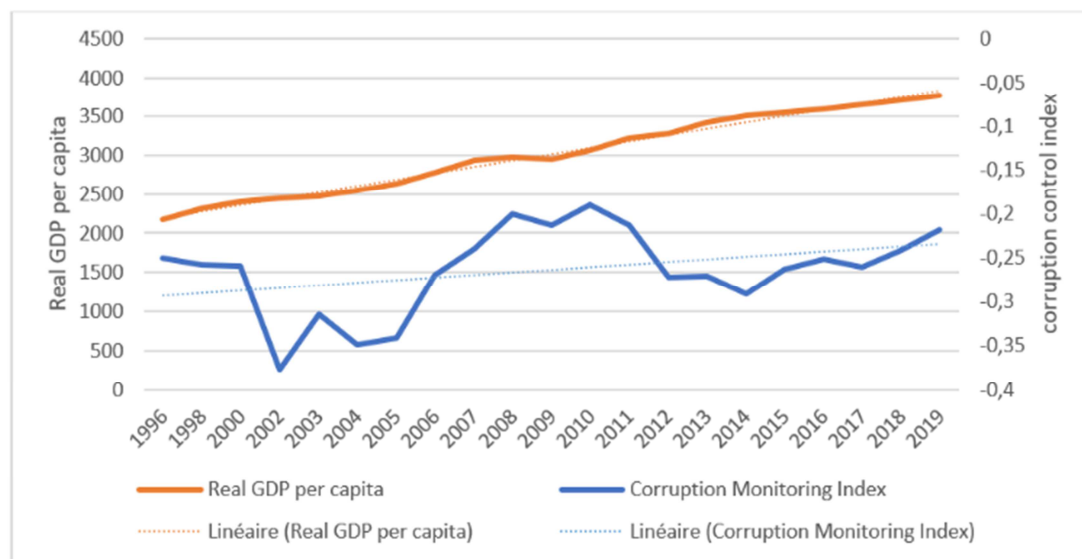
years later (in 2019), the real GDP per capita of the CEMAC is caught up with that of the African countries that are members of the Commonwealth. The Franc zone as a whole is falling further behind the African Commonwealth countries from 2009.

Figure (2b) shows that the growth rate of real GDP per capita is decreasing for all countries in our study. However, the magnitude of the decline in the real GDP per capita growth rate is greater in the Franc zone and its two sub-regions than in the Commonwealth countries. Indeed, while the African Commonwealth countries lost just 2 percentage points over the period 1996-2019, the Franc zone recorded a decline of over 10 percentage points on average.

2.2. Impact of Corruption on Growth in Selected African Countries

In order to see the effect of corruption on the evolution of real GDP per capita, it would be better to put the corruption control index and real GDP per capita on the same graph. This is what we do in Figures 3, 4 and 5.

Figure 3 below shows the comparative evolution of real GDP per capita and the corruption control index in African Commonwealth countries.



Source of raw data: World Development Indicators (2020), World Governance Indicators (2019).

Figure 3. Comparative evolution of the corruption control index and real GDP per capita of African Commonwealth countries.

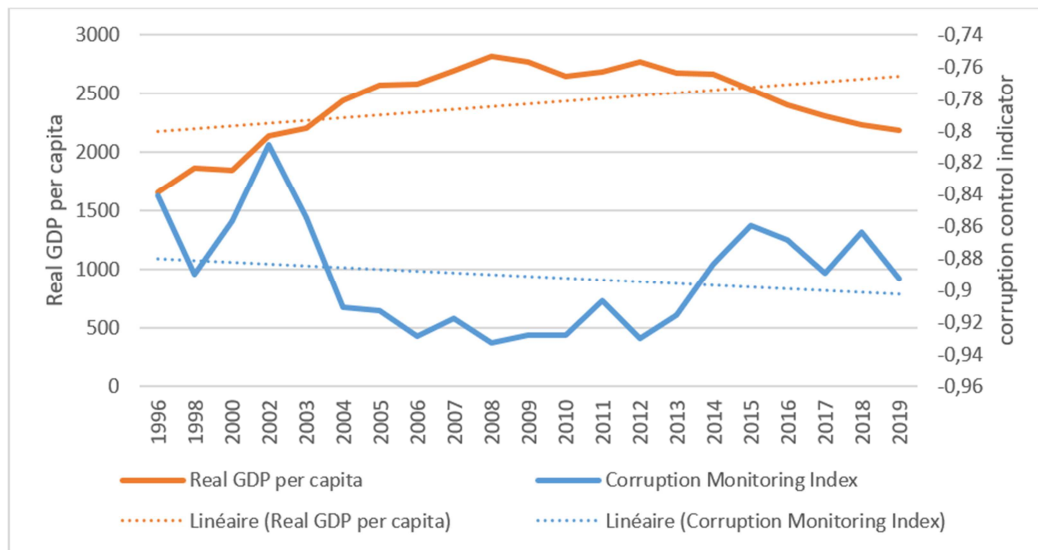
Figure 3 shows that there is an inverse correlation between corruption and real GDP per capita in African Commonwealth countries. The increase in the corruption control index, reflecting a decline in the magnitude of corruption, is accompanied by an increase in real GDP per capita.

Thus, it can be concluded that successful anti-corruption policies have a positive impact on real GDP per capita growth in African Commonwealth countries.

For the Franc zone, Figure 4 shows the comparative evolution of real GDP per capita and the corruption control

index in this zone.

According to Figure 4, over the whole period, corruption seems to be increasing in the Franc zone while real GDP per capita is increasing. There is therefore a positive correlation between the two variables. This observation seems to be confirmed over two main periods. The period from 1996 to 2010, where we observe an increase in corruption at the same time as an increase in real GDP per capita. The 2012-2019 period, where there is a concomitant decrease in both indicators.

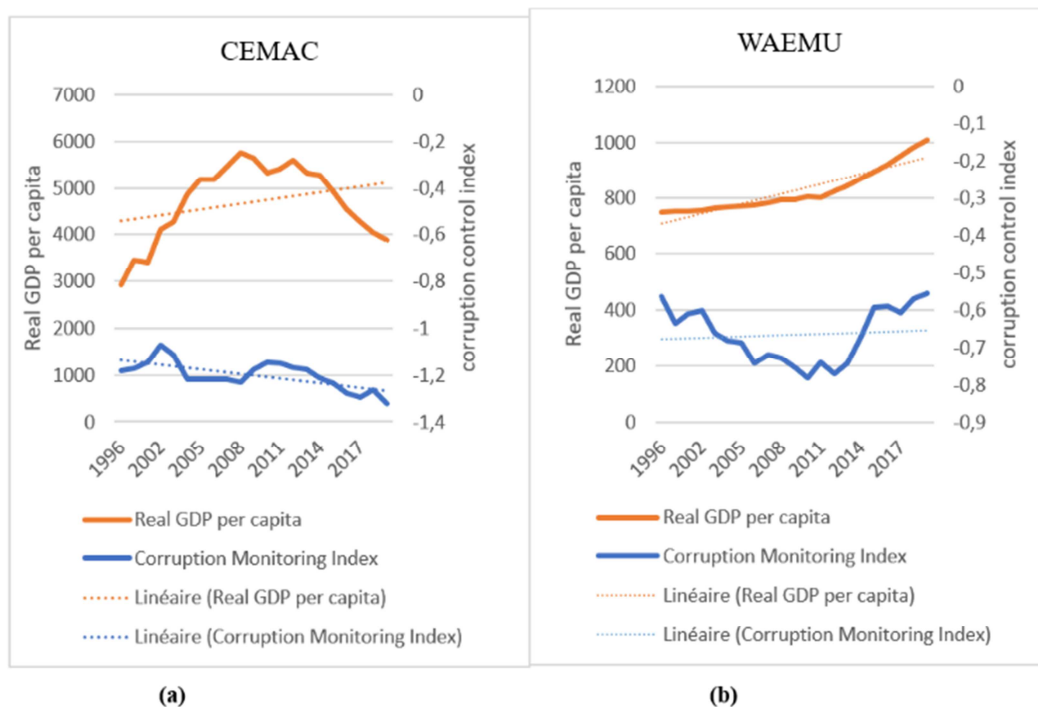


Source of raw data: World Development Indicators (2020), World Governance Indicators (2019).

Figure 4. Comparative evolution of the corruption index and real GDP per capita in the Franc zone.

Thus, it can be concluded that in the Franc zone, where corruption is rampant and especially because governance is often poor, corruption would be favourable to growth, as some authors have demonstrated in certain regions.

Figure 5 shows the comparative evolution of real GDP per capita and the corruption control index in the two Franc zone sub-regions.



Source of raw data: World Development Indicators (2020), World Governance Indicators (2019).

Figure 5. Comparative evolution of the corruption control index and real GDP per capita in the two sub-regions of the Franc zone.

Looking more closely at the two Franc zone sub-regions, Figure 5 shows that for the CEMAC sub-region, there is a positive correlation between corruption and real GDP per capita growth just as in the Franc zone (Figure 5a). In contrast, the WAEMU sub-region behaves exactly like the

Commonwealth area. In this sub-region, a slight decrease in the extent of corruption is accompanied by a strong increase in real GDP per capita. Thus, it can be concluded once again that it is the CEMAC's underperformance that weighs on the Franc zone.

It appears in general that the scourge of corruption seems to be correlated with economic growth either negatively (which is desired) in the case of the African Commonwealth and WAEMU countries, or positively (which is not desired) in the case of the African countries of the Franc zone and CEMAC. A review of the literature will allow us to highlight the results for other regions by taking stock of the issue.

3. Review of the Literature

Many authors have analysed the relationship between corruption and economic growth in different parts of the world. These analyses are both theoretical and empirical.

3.1. Theoretical Analyses

The relationship between corruption and economic growth has been the subject of controversy. Two schools of thought can be distinguished in this regard:

- 1) For some (early) authors, corruption could accelerate economic growth in countries where institutions do not play their full role [19-22, 1, 12]. It is a source of efficiency that eliminates state-imposed rigidities that hinder investment and disrupt growth-enhancing economic decisions [23]. In other words, corruption is a means of 'oiling the wheels' of economic life in countries characterized by a slow and fussy bureaucracy [24-27, 11].

The thesis of corruption stimulating economic activity and consequently growth is, however, highly contested by a significant number of authors. It is based on a questionable assumption that regulations and administrative procedures are exogenous and unrelated to corruption [23]. [28] shows, for example, that if corruption allows for faster procedures, then officials will have an incentive to create more rigidities and maintain slow administrative procedures in order to obtain more payments that will ultimately be harmful to growth. This thesis therefore assumes that there are rigidities and inefficiencies in the economy, that there are many blockages to economic activity in the public administration, in short that the system is rusty. Corruption thus acts as a kind of 'unlocking oil'. It allows businesses to open the "closed doors", as it were. Without this opening, companies cannot implement their projects. But is it the only solution? Is it the right solution? There are a multitude of unlocking solutions that would cause less damage to the economy than corruption. One of the best solutions seems to be to clean up public morals in order to put in place a rigorous management of the public administration by systematically condemning crooked officials without exception.

- 2) For the second stream, many authors have highlighted the negative effect of corruption on economic growth [14, 29-31]). Corruption tends to discourage investment when local and foreign entrepreneurs are often forced to pay bribes before starting or expanding their businesses, or when transaction costs increase due to the distortions and delays created. This increases uncertainty about the return on investment and raises the costs of producing businesses [30]. Potential investors will thus prefer less

productive short-term activities to more productive long-term investments.

Corruption also leads to misallocation of resources, especially when the investment of public funds and the approval of private investments are decided not on the basis of the economic or social value of the projects, but rather on the potential revenues that officials expect to receive from their decisions [27]. Public officials will choose more lucrative, or non-productive, projects and activities that may not be conducive to economic growth, or may be weakly conducive [32]. In this sense, Shleifer and Vishny [31] argue, for example, that high-tech or defence infrastructure projects whose exact market value is difficult to determine will be favoured because it is certainly easier to collect substantial bribes on such projects than on teachers' salaries [33]. The efficiency of public spending is thus undermined by corruption, which also has a negative impact on the volume of public spending.

In this sense, Barro [34] reveals that in the case of corruption, tax revenue mobilization is not optimal. Corruption causes a considerable loss of tax revenue because the informational advantage held by public officials in charge of tax collection gives them discretionary power to abuse for personal gain. The amount of tax to be paid by the taxpayer to the treasury is usually underestimated through bribes to the tax officer. This will consequently lead to a decrease in public expenditure in countries where the majority of expenditure is financed by tax revenues.

3.2. Empirical Analyses

Since Mauro's [13] pioneering study that showed a negative and significant correlation between the corruption index and the growth rate, many authors have investigated the relationship between corruption and economic growth, focusing on transmission channels.

For example, some authors have shown empirically that corruption reduces the productivity of capital and is an important element in the decision-making process of investors. In this sense, he has shown that an increase in corruption by one point (and thus a decrease in the corruption index by one point on a scale of 0 (highly corrupt) to 10 (highly honest)) reduces productivity by 4 GDP points and net capital inflows by 0.5% of GDP [35].

Furthermore, for African economies, corruption has been shown to reduce productivity by 0.87% and investment by 4.69% [36]. Guetat [1] and Gymiah-Brempong [32] find that corruption negatively impacts investment and consequently slows down growth in MENA countries.

Wei [37] pointed out that for every 1% increase in the tax rate on foreign investment, foreign investment will only decrease by about 3.3% while for every 1 point increase in the corruption perception index, foreign direct investment will decrease by about 11%. Higher levels of corruption appear as unpredictable random taxes.

The impact of corruption on economic growth has been assessed through public investment and human capital. For example, Tanzi and Davoodi [6] show that corruption is likely to

increase public investment while reducing its productivity. They show that high levels of corruption are associated with reduced maintenance and infrastructure spending, which will have a negative impact on economic growth. This result is shared by Balamoune-lutz and Ndikumana [38] who shows from a sample of 33 African countries that corruption has a positive effect on public investment and a negative effect on private investment. The positive effect on public investment is related to rent-seeking, while private investment is affected by uncertainty and high production and transaction costs in the presence of corruption. In the same vein, Ndikey Njoya [39], finds in the context of Cameroon that corruption has a negative and insignificant effect on private investment while it has a positive and significant effect on public expenditure and human capital. Seka [40], studied the effect of corruption on growth and human capital accumulation. He finds, however, that corruption has a negative impact on human capital accumulation and therefore acts as a brake on economic growth.

In addition, empirical studies have been conducted to test the direct link between corruption and economic growth. Most follow the methods of Barro [34] and Levine and Renelt [41] and use cross-sectional or panel regression to study the impact of corruption on the average economic growth rate by including a set of control variables. El Jabri and El Khider [1] study the impact of corruption on growth and human development in Africa using panel data for a sample of 41 African countries for the period 2000-2017. They find that increasing the corruption index by 1% reduces GDP per capita by 0.14%, decreases life expectancy at birth by 0.004 years and the education index by 0.03%. Obad and Outséki [42] empirically analyzed the effects of corruption on economic growth in 6 North African countries along two axes: growth rate and expenditure composition. They find that there is a negative and significant relationship between corruption and economic growth.

In overall, the current theoretical and empirical analyses have not been able to close the debate on the relationship between corruption and economic growth. We will try to carry out an empirical analysis of this relationship on two different groups, namely the Franc zone countries and the Commonwealth countries.

3.3. Formalization

Most of the studies that have been formalized in the analysis of the impact of corruption on growth have been done on the taxation sector. Corruption is thus supposed to be paid for by companies to reduce the amount of taxes paid to the state. However, we have seen above that in sub-Saharan African countries, corruption is present in all areas of activity. It considerably reduces the amount of investment by companies, but also the quality and quantity of the workforce (various forms of academic fraud).

In our study, we consider the “AK” [43] which considers as a factor of production, capital composed of both physical capital and human capital which is also subject to accumulation. The other factors are considered as fixed (land, raw materials) and play no role in growth.

Following [44] we will take into account the existence of a financial system as well as corruption in economic growth, using Rebelo’s model.

The theoretical analyses provided two important insights:

- 1) Corruption increases the cost of capital. It has thus been considered for firms as a tax on capital [26, 45]. Thus, in a country with integrity, if K_t denotes the capital needed for a firm’s level of production (absence of corruption), the firm operating in a corrupt country and paying various bribes will only use a fraction a of the capital K_t to actually produce the good and service. The part $(1-a)K_t$ is used in corruption (with $a < 1$).
- 2) Similarly, it was noted above that according [46] corruption in education leads to young people graduating with few skills; contributing very little to economic growth. The human capital (skill) actually used by the firm is therefore in a corrupt country equal to a fraction b of the same capital in a clean country i.e. $L'_t = bL_t$ with $b < 1$.

The coefficients a , and b can be taken as the corruption rates in the areas of finance (taxation, customs) and education (training and recruitment of labour) respectively. Unfortunately, the statistics available so far do not provide corruption rates by sector of activity. Therefore, the simplifying assumption can be made that the extent of corruption is the same in all sectors, especially in a highly corrupt country. Therefore, all factors of production of the company are considered to be reduced by a coefficient $\theta < 1$.

The model of Pagano (1993) can therefore be written as follows:

$$Q_t = AK_t \quad (1)$$

$$\dot{K}_t = I_t \quad (2)$$

$$I_t = \theta \lambda S_t \quad (3)$$

$$\text{Gold: } S_t = sQ_t \quad (4)$$

Therefore,

$$\dot{K}_t = I_t = \theta \lambda S_t = \theta \lambda s Q_t \quad (5)$$

The growth rate of the economy is deduced from this

$$\frac{\dot{Q}}{Q} = \frac{\dot{K}}{K} = \frac{\theta \lambda s Q_t A}{Q_t} = A \theta \lambda s \quad (6)$$

Output Q is proportional to capital K which grows at the rate of investment I (equations 1 and 2). Investment is equal to a fraction λ of savings, the fraction $1 - \lambda$ is consumed by the financial system in the savings allocation process. Investment is also a fraction θ of the amount made available to firms by the financial system. The fraction $1 - \theta$ being used in corruption to unlock the stalled public sector. The growth rate is therefore given by the following formula:

$$\frac{\dot{Q}}{Q} = A \theta \lambda s \quad (7)$$

Equation (7) shows that there is self-sustaining growth in the sense of Rebelo [42]. It depends on the degree of

corruption in the country (θ), of the marginal productivity of physical capital but also on the marginal productivity of human capital that has been integrated into physical capital (A). It also depends on the efficiency of the financial system (λ) and finally the consumption behavior of agents measured by their marginal propensity to save (s). The relationship (7) can be tested empirically.

4. Methodology and Data

4.1. Methodology

Switching to logarithms, relationship 7 can be written as:

$$TCE_{it} = C + \alpha_1 Cor_{it} + \alpha_2 INV_{it} + \alpha_3 Ftrav_{it} + \alpha_4 Dpse_{it} + \alpha_5 OUV_{it} + \alpha_6 lnIPC_{it} + \varepsilon_{it} \quad (9)$$

Equation in which:

- 1) TCE is the growth rate of real GDP per capita;
- 2) C is the constant;
- 3) Cor is the indicator of corruption given by the Corruption Monitoring Index;
- 4) Inv is the indicator of private investment measured by private sector gross fixed capital formation as a % of GDP;
- 5) $Ftrav$ is the labour force (measure of active labour force), given by the adult working population;
- 6) Ouv refers to the degree of trade openness which is given by the sum of imports and exports in relation to GDP;
- 7) $Dpse$ is public consumption expenditure as a % of GDP;
- 8) CPI is the consumer price index in base 100 in 2010;
- 9) ε_{it} is the error term.

The regression of equation (9) is carried out using the

Physical capital is represented by private sector fixed capital formation. Labour is given by the adult working population. Household 94rganize can be captured by the consumer price index since the savings rate is strictly related to the marginal propensity to consume ($s = 1 - c$).

These explanatory variables given by equation (8) can be completed by two control variables, namely the opening rate and public expenditure. We thus obtain the econometric specification of the model to be estimated, which is written as follows

specific effects panel method. This consists of first estimating the fixed effects model, then the random effects model and finally performing the Hausman test in order to choose the best adapted model.

4.2. Data

The statistics used in the estimates are taken from two World Bank databases: [47] for the corruption index; and the [48] for the other variables. Equation (1) is estimated with data from the 15 African countries of the Franc zone on the one hand and 18 African countries of the Commonwealth (excluding Cameroon) on the other. These data cover the period 1996-2019. Descriptive statistics for all variables are reported in Tables 1 and 2 below.

Table 1. Descriptive statistics of the variables of the model related to the Franc zone countries.

Variable	Obs	Mean	Std. Dev.	Min	Max
TCE	315	1.287739	6.417406	-36.55682	60.41704
Cor	315	-.8913303	.4118905	-1.826384	.176479
INV	315	23.47545	20.34488	5.885067	219.0694
Ftrav	315	67.53694	11.22117	42.381	83.89
Dpse	315	12.88717	3.984395	2.736065	26.04902
OUV	315	71.55238	51.38389	30.36824	531.7374
lnIPC	315	4.728508	1.150486	3.823388	14.77617

Table 2. Descriptive statistics for variables in the Commonwealth country model.

Variable	Obs	Mean	Std. Dev.	Min	Max
TCE	378	2.671129	3.392039	-22.31225	21.02806
Cor	378	-.2641423	.5976388	-1.431231	1.216737
INV	352	21.35152	7.527475	1.09681	41.53801
Ftrav	357	69.33764	10.2703	52.175	89.654
Dpse	359	16.03754	7.738877	.9112346	41.88798
OUV	370	76.32148	40.15139	20.72252	225.0231
lnIPC	366	4.492303	.5569844	2.264892	6.036305

These tables show that dispersion is high for some variables (growth rate, corruption, private investment, trade openness) while it is relatively low for other variables (inflation, labour force, public expenditure). This dispersion is more marked in the Franc zone countries.

5. Result and Discussion

The Fisher test shows that both estimated models are globally significant. The Hausman test allows us to retain the fixed effects model for the sample of Franc zone countries.

The results of this regression are given in Table 3 below:

Table 3. Regression results for African Franc zone countries.

Variable explained: TCE	Coefficient	Student's T	Probability	Significance level
Cor	3.387	1.80	0,073	10 %
INV	0.066	1.70	0.090	10 %
Ftrav	-0.0509	-0.36	0.722	/
Dpse	-0.569	-5.62	0,000	1 %
OUV	0.068	3.76	0,000	1 %
lnIPC	0,580	1,85	0,065	10 %
Constant	5.858	0.58	0.560	/
Hausman test (P> Chi2)	0,0181			

Table 3 shows that the coefficient on the corruption index is positive and significant. An increase in the corruption index of one unit leads to an increase in the economic growth rate of 3.38 units. This indicates that the reduction of corruption stimulates economic growth in African Franc zone countries. This result is consistent with those found by Mauro [11], Lambsdorff [49], El Jabri and El Khider [1] and Obad and Outséki [43].

Trade openness, private investment and inflation have a positive and significant impact on the growth rate of real GDP per capita. From Table 3, the following findings can be made:

- 1) An increase in openness of one unit leads to an increase in real GDP per capita of 0.068 units.
- 2) An increase in the private sector investment rate of one unit leads to an increase in the real growth rate per capita of 0.066 units.

- 3) An increase in the price index of 10% leads to an increase in real GDP per capita of 0.58 units.

These results are consistent with those of Dollar [50], King and Levine [27], Dotsey and Sarte [4], Chang and He [51] and Asteriou and Spanos [52]. They are contrary to those of Sarel [9], Bruno and Easterly [53] and Yabu and Kessy [14].

On the other hand, public consumption expenditure has a negative impact on economic growth. An increase in the share of government expenditure in GDP by one unit leads to a decrease in the growth rate by 0.56 units. This result is consistent with Gupta et al [54], Yovo [35] and Nembot Ndeffo et al [38]. It is contrary to that of Devarajan et al. [55].

For the regression done for the African Commonwealth countries, the Hausman test allows us to retain the random effects model. The results of this second regression are organized in Table 4 below:

Table 4. Regression results for African Commonwealth countries.

Explained variable: economic growth rate	Coefficient	Student's T	Probability	Significance level
Cor	0.467	1.00	0,316	/
INV	-0.0032	-0.11	0.915	/
Ftrav	0.079	3.00	0.003	1 %
Dpse	-0.102	-2.51	0,012	5 %
OUV	0.021	2.21	0,027	5 %
lnIPC	-0.568	-1.75	0,085	10 %
Constant	-0.066	-0.03	0.979	/
Hausman test (P> Chi2)	0,8843			

Table 4 shows that the coefficient of the corruption control index is positive and insignificant, indicating that corruption does not significantly affect economic growth in African Commonwealth countries.

In these countries, labour force and trade openness positively and significantly affect economic growth. An increase in the labour force by one unit leads to an increase in the growth rate by 0.79 units. Similarly, an increase in the degree of openness by one unit leads to an increase in the economic growth rate by 0.021 units.

Public expenditure and inflation have a significant negative impact on growth in African Commonwealth countries. An increase in the share of government expenditure in GDP by one unit leads to a decrease in the growth rate by 0.102 units. Similarly, an increase in the consumer price index of 10% leads to a decrease in the

growth rate of 0.56 points.

Overall, the econometric analysis shows that corruption is a significant drag on economic growth in the Franc zone, while it does not have a significant impact on economic growth in the Commonwealth countries.

6. Conclusion and Recommendations

The objective of this paper was to analyse the impact of corruption on economic growth in African Franc zone countries and African Commonwealth countries. A comparative analysis showed that African Franc zone countries are more corrupt than Commonwealth countries. The consequence of this situation is that economic growth, as measured by real GDP per capita, is much stronger and continuously increasing in African Commonwealth countries

than in African Franc zone countries where this curve has been falling sharply since 2008. However, within the Franc zone, the CEMAC, where corruption is higher, appears to have a higher level of real GDP per capita than the WAEMU.

Empirically, we have attempted to estimate the econometric effect of corruption on real GDP per capita growth in African Franc zone countries on the one hand and African Commonwealth countries on the other. The results show that corruption is negatively and significantly correlated with real GDP per capita growth in Franc zone countries. Thus, a reduction in corruption and thus an increase in the corruption index of one unit leads to an increase in real GDP per capita of 3.38 units. This impact comes before the effects of inflation (0.58%), public expenditure (-0.56), trade openness (0.068) and private investment (0.066). The reduction of corruption thus has a very important impact on economic growth in the Franc zone. In contrast, the impact of corruption on economic growth is insignificant in African Commonwealth countries. In these countries, the significant variables are inflation (-0.56), public expenditure (-0.10), labour force (0.079) and trade openness (0.02). From these results, the following policy recommendations can be derived:

- 1) The same economic policies should be pursued in the 15 countries of the Franc zone. It is quite curious to note that within the same economic zone, one sub-region, WAEMU, is economically more successful than the second (CEMAC) and this in all respects. How to explain the non-convertibility of the same currency between the two sub-regions. In the same vein, how can we explain the fact that the IMF wanted to devalue the Central African CFA franc and leave the West African one intact? France, which controls the Franc zone, should play an important role in this respect.
- 2) Franc zone countries should seek to copy and apply the experience of African Commonwealth countries, especially in governance and more particularly in the fight against corruption. Rather than looking to Asia for experience, let us first look to our closest neighbours who are ahead of us in terms of economic growth.
- 3) The fight against corruption and misappropriation of public funds must become a priority not only for countries but also for regional and sub-regional organisations such as the AU, ECOWAS, CEMAC, SADC...
- 4) African countries in the Franc zone need to invest more in education and health. In order to provide quality education to young people in line with the needs of business. Equipping research laboratories and training workshops must become a priority for states. With the creation of private universities in Africa, recruitment in state universities must be limited in order to improve certain ratios that are currently catastrophic, such as the number of students per seat, the number of students per teacher, the number of students per laboratory workstation... An education fund paid for by companies and possibly development partners would allow the financing of these actions.

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