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CORRUPTION PERCEPTION INDEX (CPI) AND GOVERNMENT EXPENDITURE IN SUB SAHARAN AFRICA: THE INFLUENCE OF INFORMATION COMMUNICATION TECHNOLOGY (ICT)

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ABSTRACT

*This study introduces the moderating effects of Information Communication Technology (ICT) in the relationship between corruption perception and government expenditures in Sub Saharan Africa. Two hypotheses were developed to address the research objectives. Data were collected from secondary sources and analysed with regression model through Eview package. The results of the study shows that corruption perception index (CPI) and Mobile cellular Telephone subscription (MCTS) are positive and significantly related with general government final capital expenditure. Even though corruption perception index and fixed telephone subscription (CPI*FTS) and CPI*MCTS are positive, they are both insignificant, however, fixed telephone subscription declines final consumption expenditure. The result also shows that one can be misled when thinking that corruption perception index influences the degree at which the government makes expenditures on final consumption.*

KEY WORDS

Corruption, Government expenditure, Information and communication Technology.



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INTRODUCTION

The challenge of corruption in the region has a long-standing historical background (Mulinge and Lesetedi 2002), being one of the crimes that came with the industrial revolution of the nineteenth century and which permeated the region through colonization; and till present day, corruption had become a growing concern in the region. In fact, Bayart, Ellis and Hibou (1999) argue that corruption is a trait of the mercantilist trade system which hit Africa during the colonial period, the nationalist movement period and still continued in the post-colonial era. According to Transparency International (2019), countries in Sub-Saharan Africa are still perceived to be governed by the world's most corrupt leaders and government; this was corroborated by Awojobi, (2014) who listed former African leaders like General Sani Abacha of Nigeria, H. Boigny of Ivory Coast, Mobutu of Zaire, Denis N'gnesso of Congo and Omar Bongo of Gabon as having stolen \$20 billion, \$6 billion, \$4 billion, \$200 million and \$80 million from their countries respectively. According to the United Nations Educational, Scientific and Cultural Organisation (UNESCO)(2009), corruption had worsened in most African countries after having lost more than \$148 billion to corruption in 2004 alone. Corruption had not just remained a hindrance to the social, political, and economic development of countries in Sub-Saharan Africa; it is a major challenge in achieving good governance and freedom of speech for its citizens (Transparency International 2019). Most of the countries experience different shades of corruption.

Because of the worrisome and endemic dimension that the perception of corruption had attained in Sub-Sahara Africa (Mulinge & Lesetedi 2002), several attempts have been made, and are being made to fight the menace by various governments in the region, but these had not translated to realistic expectations (Transparency International, 2018).

In all countries in sub-Saharan Africa, corruption stems state intervention efficiency: it hampers budget equilibrium, diminishes expenditure efficiency and distorts its allocation between different budgetary functions. Several studies, using cross section analysis and utilizing the available corruption indexes, have reported important quantitative results on the effects of corruption on economic variables. These results suggest that corruption has a negative impact on the rate of growth of countries. Second, corruption reduces expenditure for education and health because public expenditure for education and health does not lend itself easily to corrupt practices on the part of those who make budgetary decisions. Corruption is found to reduce foreign direct investment because high corruption in host countries may imply high expropriation risk. Corruption substantially affects income distribution because rich have both greater motivation and more opportunity to engage in corruption, whereas the poor are more vulnerability, extortion and less able to hold the rich accountable as inequality increases.

There is now a growing interest in adopting technology, particularly Information and Communication Technology (ICT) in confronting corruption. According to Ugwu and Ogbu (2018), ICT can be a viable instrument to adopt in engendering transparency and accountability in running of government institutions thereby curtailing corruption. As noted by Adam and Fazekas (2018) technology had actually been seen as affecting the work of those involved in fighting corruption such as civil society organisations, government agencies, the media and even private institutions. The influence of technology in the fight against corruption can be seen to be ambivalent. While ICT or technology can be useful in curbing corruption, arguments also exist that some technologies can indeed aid corruption (Adam & Fazekas 2018; Ugwu & Ogbu 2018). Through

technology, digital footprints can be created to ensure transparency by publicizing government transactions and reducing human contacts and involvements which breed corruption (United Nations 2010). This study introduces the moderating effects of ICT in the relationship between corruption perception and government expenditures in Sub Saharan Africa.

Literature Review

Corruption Perception in Sub-Sahara Africa:

Africa is widely considered to be among the world's most corrupt places and this has been seen as contributing to the stunted development and impoverishment of many African countries. The Sub-Sahara Africa (SSA) is a part of the African continent and is therefore bedevilled by the same problem. Transparency International, a leading global watchdog on corruption provides evidence that of the ten countries considered most corrupt in the world, six are in Sub-Saharan Africa (Hanson 2009). The 2012 report by Transparency International on corruption in the world reveals that 89.6% of Sub-Saharan African countries received scores below 50, where a score of zero signifies that the country is highly corrupt and a score of 100 declares a country free of corruption. Similarly, AllAfrica.com (2019) in reviewing the 2018 report of Transparency International, stated that while the five least corrupt governments in sub-Saharan Africa are perceived to be those of the Seychelles (28th in the world), Botswana (34th), Cape Verde (45th), Rwanda (48th) and Namibia (52nd), five sub-Saharan African countries are among the 10 perceived to have the world's most corrupt public sectors: Somalia comes in at the bottom of the index (180th place), with South Sudan at 178th and Sudan, Guinea Bissau and Equatorial Guinea (all in 172nd place) doing only marginally better. Corruption in Africa has reached a cancerous dimension (Hope 2000); in fact, it is now so pervasive in the region that it has been labelled the 'AIDS of democracy', which now destroys the future of many countries in the region. The corruption problem in Africa reflects the more general, and now legendary, climate of unethical leadership and bad governance found throughout most of the continent. According to Robb (1992), the industrial revolution gave birth to a complex economy characterized by an increasing dependence on finance and investment and, consequently, enormous banking networks, stocks and credit and a complicated legal system. These factors, coupled with the increase in lawyers, financiers and other professionals, greatly aided the expansion and the potential for white-collar crime. For sub-Saharan Africa in particular, corruption appears to be a social phenomenon deeply rooted in the historical process of colonialism. It is believed that corruption is an offshoot of fraudulent antisocial behaviour derived from British, French, and other colonial authorities (Osoba, 1996). Such behaviour infiltrated indigenous African peoples during the colonial period and was nurtured into the post-colonial era. Interestingly, most nations in the world have cases of corruption but in Sub-Saharan Africa, institutional and official corruption, or petty and grand corruption appear more systemic and intransigent (Agbodohu & Quarmyne, 2014). There is an argument that in SSA, certain traits in the culture such as communalism, gift giving and a shame culture could in some situations influence people's perception of, and their possible openness towards, certain forms of corruption (Theron, 2013). For instance, a tradition-oriented public official in South Africa may feel that he or she is entitled to receive gifts when he or she performs his or her statutory duty, but this may be viewed as taking bribes by another official in another clime.

Government Expenditure in Sub-Sahara Africa

Government expenditure in Sub-Saharan African countries had been on the increase in the last decade and this had also accounted for the growth experienced in the economies of some of the

countries (Traore 2018). However, this growth had been lopsided and had not reflected the magnitude of government expenditures as most of the Sub-Saharan African countries face conflicting pressures and hard choices in their budget processes, which eventually result in the government expenditures. Conflicting choices have to be made between giving priority to economic infrastructure or to social services and this has left out many segments of the population in these countries (Traore 2018). According to Delavallade (2006), countries prefer to budget and spend on items where they can easily enrich themselves and their cronies than in social services such as health and education, which will alleviate the citizens from poverty. Because of this pattern of government expenditure, poverty level is very high and the inequality gap remains wide. According to Traore (2018), the percentage of those living in poverty in SSA, rose from 36% in 1970 to 50% in 2010 and there are significant trends of inequality amongst countries in the region. The widening gap in income inequality in the region has continued to put pressures on the respective governments to respond through their fiscal policies. Government fiscal policies remain the major route (Onaloet al, 2016) to direct government efforts to fight inequality and poverty by taking advantage of tax policies to promote inclusive growth in Sub-Saharan Africa. Because of the endogenous nature of government expenditures, countries with high income inequality may choose to use government expenditures to bridge the gap and engender growth in the economy (Traore, 2018).

Empirical Review

Tanzi and Davoodi (1997) carried out a systematic study on the effect of corruption on government's expenditures. There are several important findings (1) corruption tends to increase the size of public investment (at the expense of private investment) (2) corruption skews the composition of public expenditures away from needed operation and maintenance towards expenditure on new equipment. (3) corruption skews the composition of public expenditures away from needed health and education funds, because these expenditures, relative to other public projects, are less easy for officials to extract rents from. (4) corruption reduces the productivity of public investment and of a country's infrastructure. (5) corruption may reduce tax revenue because it compromises the government's ability to collect taxes and tariffs. (Tanzi & Davoodi 1997).

Mauro (1998) estimated a cross-section regression for about 100 countries worldwide, using the same perception corruption index that is used in this essay. The regressions are based on the average values of the period 1970-85 as a percentage of GDP. Initially, he divided government expenditure into four major categories: education, defense, transfer payments and social insurance and welfare payments. His estimates reveal that corruption alters the composition of government expenditure, specifically by reducing government spending on education. Therefore, it confirms that more corrupt countries chose to spend less on education, since it does not provide as many lucrative opportunities for government officials as other components of spending do (Mauro 1998).

Kumar, Yadav, and Sharma (2017) studied the effects of information and communication technology on corruption and social capital. On corruption, it posited that ICT is a veritable tool in fighting corruption by having the propensity to reduce unnecessary human intervention and interruption in the processing of government transactions. The study agrees that although there is paucity of reliable data, available evidence shows that with a good administrative reform, ICT can be of tremendous assistance in fighting the scourge of corruption. According to the study, the more a country practices e-Governance, the less corrupt activities it will record.

Ugwu and Ogbu (2018) examined the role of ICT and the challenge of anti-corruption fight in Nigeria. Adopting and exploratory research approach, the paper upholds that ICT can be very useful in fighting corruption but that this should be applied with caution. According to the study, while ICT can be used to eliminate many opportunities for corruption through increased transparency, it can also be manipulated to create new vistas for corruption, especially for those who do not properly understand the introduction of the new technology. The paper specifically recommended the automation of government business processes in the form of e-governance, as this will eliminate the application of so much discretion by public official, which creates room for corrupt practices.

Gap Identification

The literature provides evidence that prior studies had examined various dimensions of the relationship between corruption and public expenditure in different jurisdictions such as in Nigeria (Ovat& Bassey 2014; Ogunlana 2016; Nelson &Yebimodei 2018);on Arab countries (Hashem 2014); on OECD countries (Jajkowicz&Drobiszova 2015); developing countries (Delavallade2006); transmission economies (Abed & Davoodi 2000), and in Sub-Saharan Africa (Hanif & Ahmed 2018; Jahnke&Weisser2019). Similarly, studies have been conducted on how to use ICT in combating corruption (Bailard 2009; Kumar, Yadav & Sharma 2017; Ugwu & Ogbu 2018). However, there had not been an attempt at introducing the moderating effects of technology, particularly, the use of hotlines to provide tips, in the relationship between corruption and government expenditure. This remains a gap in the literature and will be filled by this study. This study is unique in many ramifications: it extends the study of the relationship between corruption and government expenditure to the sub-regional terrain of Sub-Sahara Africa; it uses new proxies for the criterion variable; it introduces the moderating effects of ICT in the relationship between corruption and government expenditure; and it adopts the dynamic model of data analysis, all of which had remained unexplored, and which makes this study a novel one.

Methodology

Empirical analysis based on panel model was used. Specifically it is the Corruption Perception Index (CPI)in a total volume of government spending. Yearly data for 10Sub-Saharan countries of Africa for period 2009 to 2020 were used. Only 10 countries from a total of 38 countries were selected because of the availability of data. The sample countries: namely, Nigeria, Botswana, Ghana, Gabon, Namibia, Rwanda, South Africa, Uganda, Kenya and Cameroun hence, purposive sampling technique is used. However, the study covers a period of 12 years from 2009 to 2020.

Results and Discussion

Pooled OLS Regression Analysis

Table 1: Pooled OLS Result

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>p-value</i>
<i>Constant</i>	16.38675	2.266440	7.230170	0.0000**
<i>CPI</i>	0.982240	0.312770	3.140451	0.0022**
<i>CPI*FTS</i>	0.034005	0.058846	0.577862	0.5645

<i>CPI*MCTS</i>	0.018093	0.051013	0.354674	0.7235
<i>DUMMY</i>	0.057268	0.222228	0.257701	0.7971
<i>FTS</i>	-0.512889	0.085615	-5.990664	0.0000**
<i>MCTS</i>	0.475821	0.095852	4.964096	0.0000**

Source: EView Output ** significant at 5%

In Table 1 we first present a pooled OLS result as it is conventional in panel data analytical method. The pooled results on corruption perception index (CPI) shows a beta of 0.982240% which is positive indicating that increase in corruption perception correspondingly influences changes in government expenditure. When corruption perception index enters fixed telephone subscription (FTS) equation the effect of corruption perception index turns insignificant given a *p*-value of 0.5645 corresponding to a coefficient of 0.034005%. When FTS is separated from CPI the coefficient of FTS becomes negative at a value of -0.512889% and is significant. Mobile cellular telephone subscription (MCTS) appears positive and significant.

Fixed Effect Regression Analysis

Table 2. Fixed Effects Estimate

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>p-value</i>
<i>Constant</i>	18.54894	1.572189	11.79816	0.0000
<i>CPI</i>	0.024218	0.089348	0.271057	0.7869
<i>CPI*FTS</i>	0.015473	0.017606	0.878867	0.3815
<i>CPI*MCTS</i>	-0.019328	-0.009261	-2.087187	0.0393
<i>FTS</i>	-0.033436	0.050290	-0.664854	0.5076
<i>MCTS</i>	0.259684	0.079912	3.249646	0.0016

Source: EView Output

Under fixed effect estimator the model allows for own intercept value, which does not vary over time. As shown in Table 2 corruption index has coefficient of 0.024218 while accounting for heterogeneity in the entities. However, when CPI entered the MCTS equation the estimate turns negative given a coefficient of -0.019328% signifying a significant decline as suggested by the *p*-value of 0.0393. But independently estimating MCTS gives a significant beta of 0.259684. Still when CPI entered the FTS equation an estimated beta of 0.015473% indicates a positive but insignificant effect.

Fixed Telephone Subscription and General Government Final Consumption Expenditure hypothesis.

The null of fixed telephone subscription hypothesis suggests that there is no significant relationship between fixed telephone subscription and general government final consumption expenditure of Sub-Saharan African countries. In the Table 2 the p -value of FTS is 50.76% which is greater than 5% significance level. Considering the decision criterion, the null hypothesis is not rejected. Inferentially, there is no significant relationship between fixed telephone subscription and general government final consumption expenditure.

Mobile-Cellular Telephone Subscription and General Government Final Consumption Expenditure to GDP

The MCTS probability is 0.4677(46.77%), which is comparatively greater than 5%, therefore the null hypothesis is accepted. The conclusive inference is there is no significant relationship between mobile-cellular telephone subscription and general government final consumption expenditure.

We have used empirical means to link corruption perception and government expenditure moderated by ICT. Table 1 reports the descriptive statistics on the general government final consumption expenditures for the period 2009-2020. The result on the final consumption expenditure for each country shows minimum variance but the probability statistics show all the values are sampled from a normally distributed population.

Table 2 presents the pooled regression result among all the variables. Reported statistics show that CPI and MCTS are positive and significantly related with general government final capital expenditure. However, even though $CPI*FTS$ and $CPI*MCTS$ are positive, they are insignificant. This indicates that a unit percent increase in corruption index and mobile cellular telephone subscription increases GGFCE contemporaneously. Conversely FTS is negative and perfectly significant. When the pooled findings are subjected to joint significance, we could not accept the null the of the F statistics even at 1%. It confirms the relevance of the regressors in the model.

Table 2 reports FE regression shows $CPI*MCTS$ to be negative and significant. However, FTS is negative but not statistically different from zero. The estimated coefficient of MCTS is positive and significant. Without CPI entering any of the ICT equations its estimated coefficient is positive and insignificant. Generally, the variables of corruption index and the moderators are not redundant in the FE model. When comparing the plausibility of the RE result with pooled OLS using Lagrange multiplier, Breusch-Pagan cross-section alternate hypothesis identified the RE model to be robust in explaining the relationship in place of the pooled OLS.

In Table2, the RE regression, the estimated parameter of MCTS is positive and significant. This indicates that a unit change in MCTS would lead to approximately 0.259684% increase GGFCE. MCTS strengthens the relationship between CPI and government expenditure. The coefficients of CPI and $CPI*FTS$ are positive and insignificant. The positive coefficient of CPI contradicts findings of Nelson and Yebimodei (2018), but conforms to the findings of Jajkowicz and Drobiszova (2015). Negative and significant relationship is found in $CPI*MCTS$, but only negative relationship is reported in FTS. The entry of CPI into MCTS equation (as $CPI*MCTS$) leads to a decline in GGFCE by a significant magnitude. This could be the case that mobile cellular telephone subscription reduces government final consumption expenditure only if CPI jointly considered.

CONCLUSION

Tanzi and Davoodi (2000) argues that corruption negatively affects government expenditure. On the contrary, between FTS and GGFCEGDP the relationship is positive and insignificant as estimated in the fixed effect.

Summarily, the effect of CPI and the moderating variables do not significantly influence any of the GGFCE or GGFCEGDP, resultantly showing that the way people perceive their countries as being corrupt does not dictate government expenditure or contribution of gross domestic product to final consumption expenditure. This could be due to the influence of ICT.

Recommendation

The use of ICT to either diminish or strengthen the relationship between corruption perception index and government expenditure has limitations, rather public office fraud cases should be deployed. At the same time national communication commissions should support and promote the installation of fixed telephone lines.

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