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Beneficial Grease Hypothesis of Public Sector Corruption in Economic Development: The Nigerian Experience

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Abstract
The objective of the paper was to empirically investigate the validity of the beneficial grease hypothesis of public sector corruption with particular reference to Nigeria over the period 1981-2012. The study employed a multiple regression Ordinary Least Square methodology and the Johansen framework on secondary data to examine the nature of relationships between public sector corruption and five developmental explanatory variables. The empirical results confirm the existence of cointegration between public sector corruption and the identified variables. The results of causality tests indicate that public sector corruption does not Granger cause Gross Domestic Product and consequently Nigeria's development. There is bidirectional causality from total expenditure to public sector corruption, while capital expenditure and foreign private investment Granger cause public sector corruption. The estimated regression results indicate that unemployment is positively related to public sector corruption while public sector corruption and GDP are inversely related; there is a strong inverse relationship between public sector corruption and foreign debt; capital expenditure and public sector corruption are positively related. The CUSUM and CUSUMQ results show the constancy of estimated parameters in the study period**.** The policy implication is that unless and until corruption is stamped out in Nigeria's public life, promoting the country's economic development, reducing unemployment and achieving a high standard of living among the people are not likely to be achieved. The conclusion is that the beneficial grease theory is not applicable to Nigeria and public sector corruption must be seriously addressed with the aim of eradicating it.
Keywords: Cointegration, Corruption, Economic Development, Poverty, Public Sector.
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1. Introduction

Public sector corruption has spanned many centuries of human history. As nations became established and civilized, it became obvious that the rulers, the powerful and the wealthy maintained and increased their power and wealth using the labour and resources of the less powerful. Massive exploitation, denial of rights, enslavement, extortion and many other forms of public sector malpractices characterized the early civilizations of ancient Egypt, Sumer in the Middle East, and the Indus valley of what is now India (Encarta, 2004). Despite this development, the nations of the world generally developed to the present globalised world, while ample evidence suggests that in both the long and short run, corruption is detrimental to economic development.

Two popular socio-economic schools of thoughts on public sector corruption have evolved over the years. One school argues that public sector corruption does not harm economic growth and development but rather serves as lubricating grease that oils the wheels of the economy and commerce, and the socio-political setup. This school believes corruption greases the rusty and squeaky wheels of growth and development. Contrariwise, the other school insists that corruption is inimical to growth and development; and as a norm, does not develop a nation but harms its growth and development.

This study concentrates on Nigeria, a country blessed with numerous natural resources and abundant manpower but which is yet noted for massive poverty and very high public sector corruption. Corruption has moved from the simple stealing of the 1970s to the embezzlement of public funds of the 1980s, the grand corruption of the 1990s and the present day looting of the 2000s (Akinlabi et al, 2011). Nigeria has been vulnerable to official venality. Ranked by Transparency International (TI) as the most corrupt nation on planet earth in 1995, 1996 and 1997, for close to two decades from then till now, the country has been among the 10 most corrupt nations in the world.

The paper empiricaly tests the validity and veracity of the beneficial grease hypothesis of public sector corruption in economic development. The paper is organized into 5 sections. Following the introduction, Section 2 deals with conceptual and empirical literature. Section 3 encompasses the methodology employed in the study. Results and discussion are covered in Section 4. The paper is concluded in Section 5.

2. Literature Review

2.1 The Concept of Public Sector Corruption

There is no universally accepted definition of corruption. This is so because what is regarded as corruption

depends on the nations, the actors, the profiteers and the initiators. It also depends on the existing laws and regulations guiding certain actions. Some countries define corruption in the broadest form while others legislate on the narrow definition of the term. The social and cultural context and the time dimensions also make a generally accepted definition difficult.

Perhaps, because public sector corruption occurs most often in the government bureaucratic structure, Barro (1991) refers to public sector corruption as bureaucratic inefficiency. Of course, bureaucratic corruption may be very high and predominant in many developing countries; it is not the only area where corruption thrives in the public sector. Other areas like the judiciary may equally be very corrupt. It is in realization of this shortcoming that North (1990) posits that public sector corruption is synonymous to a general malfunctioning of government institutions.

Obuah (2010) opines that any action of a public figure that is morally reprehensible is corruption. According to the World Bank (1997), corruption is "the abuse of public power for private benefit". The Transparency International (1996) agrees with this and asserts that corruption is "the abuse of entrusted power for private gain". Both organizations are specific on public sector corruption, i.e. the activities of those in government and other positions held in trust for the people that deviate from expectations. The problem here is that of identification of acts of corruption in a dynamic world.

To specify acts that can clearly identify (public sector) corruption, the United Nations (2002) has adopted a descriptive approach that clearly highlighted bribery, embezzlement, illicit enrichment, abuse of office, laundering of proceeds of corruption, obstruction of justice, etc as corrupt acts. The specificity of corrupt acts in the United Nation's definition is, however diverse, is still limited in scope and hence the Independent Corrupt Practices Commission (ICPC) Act (Federal Republic of Nigeria, 2000) just illustrates what corruption is by naming two acts and giving room for more of such actions, that is " bribery, fraud and other related offences". There is still the danger of being vague and illimitable, and this can be abused.

To avoid the problem of erroneous limitation of obviously corrupt acts and yet granting clear description of what corruption is, the Vision 2010 Committee defines corruption as "all those improper actions or transactions aimed at changing the normal course of events, judgments and position of trust".

In this paper therefore, the term 'corruption' and 'public sector corruption' are used synonymously. An act is public sector corrupt when the motivation for it is to take undue advantage of the position of trust and is limited to pecuniary issues in this study. This is because one is interested in positive and a metric approach to public sector corruption. To make the analysis traceable in Nigerian context, public sector corruption is perceived broadly as the use of a local government, state government or federal government position or office for personal or private pecuniary gain.

2.2 Theories of Public Sector Corruption and Development

There are many theories that relate to corruption and economic growth and development in the literature. For simplicity, they are divided into three variants: the beneficial grease hypothesis, the anti-beneficial grease theories and the corruption-poverty nexus theory.

2.2.1 The beneficial grease hypothesis

This hypothesis is also called the 'virtuous bribery story' (Wei, 1998). Kaufmann and Pablo (1999) nick-name it 'speed money argument' and call its proponents 'corruption apologists'. The hypothesis postulates that corruption is not inconsistent with development but can even foster it. It asserts that corruption of all types and forms can make positive contributions to economic and political development of an economy. The theory asserts that bribes often work as 'grease' on the wheels of commerce when bureaucratic bottlenecks constitute a stumbling block to efficiency in commerce and industry.

Some of the pioneering works on this theory come from Myrdal (1968), Leff (1970) and Becker and Maher (1986). In support of the grease theory, Leff (1970) asserts that "corruption can be like grease, speeding up the wheels of commerce". Citing practical example, he asserts that "if corruption does slow down economic development, East Asia must be an exception because while the region seems corrupt, it is able to attract lots of foreign investment and generate growth".

Mydal (1968) argues that corruption can make positive contributions to the development of an economy especially when it serves as a deliberate tool against administrative delay (which attracts more bribes) and so a lubricant to a sluggish economy. Agreeing with this viewpoint, Liu (1985) points out that corruption minimizes average time costs of waiting for public sector services that may come, but usually very late.

Merton (1958) opines that "corruption in the form of nepotism, spoils and graft serve political functions of unification and stability" especially to developing countries, where powerful and influential individuals can be bribed to avoid catastrophes like inter-tribal and regional wars and sectional militancy like the Boko-Haram in North Eastern Nigeria and the Movement for the Emancipation of Niger Delta (MEND) in South-South Nigeria. He argues further that corruption could facilitate efficient allocation of scarce resources because it could be a cheap way of distributing national resources among politicians and across regions within the country.

Viewing corruption through the eyes of a perfect competitive market, Becker and Maher (1986) maintain that corruption could be used as a tool for competitive bidding for the allocation of licenses to entrepreneurs who offer the highest amount of bribes. With sectors like petroleum where the optimum value is not known and corruption has beleaguered so much that the net value of the sector is not exactly known, bidding based on corruption could achieve market optimum. Shleifer and Vishny (1993) strongly support this argument and contend that the grease theory in practice would allow the private sector to buy their way out of the inefficiencies that public political officers would have introduced.

Closely linked to the above is the Revisionist School of Corruption which argues that though corruption may appear evil and bad, it is an integral epoch in development and inevitable in developing countries because it is part of their social norms, values and practices of pre-colonial societies (Burns, 1960; Scott, 1965). According to Bayley (1966), "the man who in many non-Western countries is corrupt is not condemned at all by his own society ..." By implication, the revisionist school accepts the unavoidable episode of corruption at certain stages of development, and acknowledges the contributions of the practice and process to modernization and development.

2.3 Anti-Grease Theories

Contrary to the grease hypothesis, there are many theories that demonstrate that public sector corruption does not lead to growth and development. The Moralist Approach of the Western Liberal Perspective recognizes corruption and indiscipline as an immoral activity which is inimical to health, survival and progress of the society (Diwivedi, 1967). This school attributes the causes of corruption to factors like moral laxity, lack of common standard of morality, and growing cultural and religious decay.

Closely linked to the above is the perspective that corruption is a cultural and customary activity**.** Customs that are favourably disposed to gifts fall prey to public sector corruption as the line of division between bribe and gift is often ignored or absent as the citizenry deals with the highly placed public sector officials (Wei, 1998). Osborne (1997) argues that no culture celebrates corruption or dishonesty and that throughout human history, expressions of distaste for corruption and dishonesty exist generally, and that the existence of a culture of corruption looks foreign to most human cultures. The reason for the general distaste is that it profits nobody in the long run.

Pasuk and Sungsidh (1994) in a study on Thai people agree that there may be no culture of corruption anywhere in the world but that some cultures have a higher limit on the amount of money officials may take from the private sector before it is considered as corruption. In this regard, Wei (1998) disagrees that many of these differences may not be inherently cultural but the greater "tolerance of bribes in some communities may be a result of the short horizons of the official due to uncertainty about the future in a time of rapid change".

Obuah (2010) believes the cultural corruption argument is misleading especially when daily experiences show that public sector corruption is uncommon in traditional African societies while those involved in corrupt activities in the modernized African setting are mostly the well-educated people, trained in Western tradition and strangers to the traditional African culture.

Another anti-grease theory is the Marxist School of thought which dismisses the other approaches as superficial; that corruption is determined primarily by the prevailing social relations of production; that the mode of production of material life conditions the social, political and intellectual life process in general (Marx, 1847). In Nigeria, the people in government and political offices constitute a homogenous group that controls the national resources, live above the law and are 'first among equals'. The rest of the people are left uncared for and to languish in abject penury, hence the pervasive corruption and poverty in the country. The Marxist Perspective clearly identifies a key consequence of corruption as poverty.

Corruption as an elite activity proposition is popularized by the African Centre for Economic Growth (2000). The centre clearly shows the connections and involvements of the elite in corruption, particularly in Africa. The economies of many African countries have governance institutions that are designed to be weak such as the parliament, the judiciary, the civil service and the police. With mass ignorance on the effects of corruption on the general economy, many African elites celebrate ill-gotten wealth. The proposition clearly distastes corruption and calls for a re-orientation of the educational systems in Africa.

The Rent Seeking Theory argues that too much government intervention in economic activities creates rent-seeking opportunities. According to Klitgaard (1988), rent-seeking corrupt activities occur when a public officer has monopoly over goods or services and decides who receives what, when and how much. Obuah (2010) lists rent seeking activities in Nigeria to include (but not limited) to bribe taking for issuance of licenses and business permits, taxes on documents, taking bribes to obtain import licenses, and taking bribes to influence bids for privatization of state-owned enterprises or government contracts. The rent seeking activities have permeated near-monopoly organizations like Joint Admissions and Matriculation Board (JAMB) and the Local Government Education Department (LGED). Obuah (2010) asserts that rent-seeking activities of public officials can hurt innovative activities and thereby slow down technological development of a country. Shleifer and Vishny (1993)

also agree that rent-seeking activities can hamper growth, even more severely than reduced production.

Finally, the institutional theory of corruption pioneered by Klitgaard (1988) and further developed by the UNDP (2004) asserts that Corruption (C) is a function of Monopoly (M), Discretion (D) and Accountability, i.e. C = M + D – A. Corruption thrives where there is monopolistic power with an agent on what to produce, when and how much to produce, and for whom to produce. If however, the system insists on accountability, then this will be a check on corruption. To the Klitgaardian model, the UNDP (2004) added Integrity (I) and Transparency (T), i.e. Corruption (C) = Monopoly (M) + Discretion (D) – Accountability (A) + Integrity (I) + Transparency (T), i.e. C = (M + D) – (A + I + T). The theory recognizes the absolute odiousness of corruption and spells out the components that necessitate it in order to ensure that the monster is ruthlessly dealt with anywhere it is found.

2.4 Theory of Corruption-Poverty Nexus

The Theory of Corruption-Poverty Nexus attempts to show the transmission channel of public sector corruption in the economy. Its origin is not very precise but Kauffmann (1999) and Mauro (2002) are some of the chief proponents of this school of thought. Others like Chetwynd (2003), Lambsdorff, (2007) and The African Centre for Economic Growth (2000) support the theory and have used it extensively.

The theory postulates that corruption affects poverty by first impacting economic growth factors, which in turn, impact poverty levels. Economic theory (Lambsdorff, 2007) and empirical evidence (Gupta et al, 1998) both demonstrate that there is a direct causal link between corruption and economic growth. The theory posits that corruption impedes economic growth in about six ways; through discouraging foreign and domestic investment, taxing and dampening entrepreneurship, lowering the quality of public infrastructure, decreasing tax revenues, diverting public talents into rent-seeking and distorting the composition of public expenditure. Through these avenues, increased public sector corruption reduces economic growth and increases inequality, thereby increasing poverty and reducing aggregate welfare (but not greasing the wheels of commerce). The figure below demonstrates this.

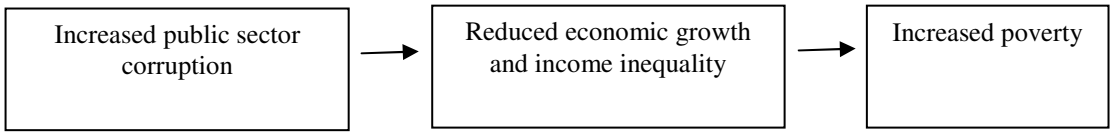

Figure 1. The Economic Transmission Theory

Source: Chetwynd (2003).

This paper adopts the economic transmission theory as its theoretical framework and utilizes the above model to test the validity of the grease theory in Nigeria.

2.5 Arguments against the Beneficial Grease Hypothesis

The argument that bribery can be an efficient way of getting round burdensome, bureaucratic rules and inefficient legalisms in corrupt systems has been considered as fallacious. Stapenhurst and Kpundeh (1999) argue that public officers in corrupt setups have near-monopolistic powers and could create, multiply and interpret new or existing regulations to profiteer; subsequently, instead of 'bribery greasing the squeaky wheels of a rigid administration, it becomes the fuel for the numerous and flexible regulations that ensure corruption feeds on itself' and hinder genuine entrepreneurial efforts .

The beneficial grease theory also asserts that bribes allow the forces of demand and supply to operate and equilibrate the economy efficiently as the highest bribe giver (who could win a bid) would be the firm with the lowest average cost. This reasoning is elegant but theoretically and practically plausible only in a close economy. In an open economy such as is operational in the modern world, this argument is defective as recipients of bribes tend to siphon the huge bribes to their foreign accounts in order to avoid anti-corruption scrutiny, thus constituting a major leakage in the system and impairing macroeconomic stability. In addition, the firm with the highest bribe and bidding capacity may not be associated with cost efficiency but poor, substandard quality of work. This explains the reasons for the numerous abandoned projects in countries with high public sector corruption indices.

The corruption apologists assert that corruption, especially the public sector type saves time, i.e. the long unprofitable time that is required to follow due process and obtain permits and licenses. Elegant in theory, this argument is often frustrated in practice as some other persons strategic in the 'process' may willingly offer to slow the approval process in favour of rival firms, thus creating a chaotic and inimical business scenario (Stapenhurst & Kpundeh, 1999).

Critical observations show that corruption in the form of bribery and rent-seeking results in misallocation of talents and resources, as persons of low acumen pursue (often corruptly) and occupy positions with potentials for lucrative graft who ordinarily would have occupied more modest financially rewarding but productive occupations (Mauro, 2002). Besides, corrupt policy makers and bureaucrats often make poor technological decisions favouring white elephant projects and programmes with high potentials for bribery (not withstanding

their low social benefits). In addition, corruption slows down investment. According to Kaufmann et al (1999), corruption is capable of reducing the flow of foreign direct investment as the numerous corrupt payments constitute an additional tax on investment.

2.6 Empirical Literature

Most literature in Economics demonstrates that public sector corruption does not grease the wheels of national commerce but translates to poverty by impacting negatively on important economic variables like investment, tax revenue, and entrepreneurship. Mauro (2002) says it occurs through negatively impacting investment and entrepreneurship, distorting existing markets and undermining productivity. By these arguments, they puncture the grease hypothesis of corruption.

The proponents of the grease theory argue that what constitutes corruption is not even clear as it varies from country to country and among cultures. What is corruption in the developed economies of the West may not be corruption in the developing and emerging economies of Africa, thus indicating the effect of the vaguely defined corruption on growth and development as ambiguous. This argument is myopic and misleading since we are interested in the effects, which undeniably exist, whether the definition is controversial or not. Like death, the definition of corruption may be controversial but the effect is certain and sure.

Akinpelu (1983) and Nnoli (1980) disagree with the foundations of this school and argue that corruption is universal and does not depend on colonial backgrounds. They also prove in their separate studies that pre-colonial societies did not encourage individualistic and materialistic tendencies and public sector corruption.

Kaufman and Wei (1998) also oppose the grease theory strongly on empirical grounds. Using data obtained from a survey of 2400 firms in 58 countries, they assert that "evidence supports the idea of tailored harassment and endogenous obstacles, and thus reject the hypothesis of exogenous obstacles and beneficial grease". They however acknowledge the truth of the growth experienced by East Asia despite the stupendous corruption that ravaged that region especially in the 1980s and 1990s when the region witnessed very high economic growth. They recommend further studies to establish the technicalities of that growth.

Tamen (2010) postulates that development is moral and ethical, and that corruption is immoral and unethical; and that 'there is no morality in immorality', and as a norm, corruption cannot result in development. It is in the light of this that Hindricks et al (1998) contend that the grease theory is true in only exceptional cases when very chaotic scenario, bad regulations and financial anarchy are taken as exogenous.

International Labour Organizaton's research conducted by Knack (1999), and in 3 separate researches by the World Bank, conducted by Kaufmann, Aart and Pablo (1999, 2000 & 2002) and Transparency International's findings as contained in their annual CPI ratings in 2004 and 2005, show negative impacts of corruption on various economic variables like investment, growth, infrastructural development and tax, thus proving empirically that in the long run, corruption does not and cannot lead to development and poverty reduction as a norm. Some specific effects of corruption on development variables are hereunder reviewed.

2.6.1 Corruption and economic growth

Generally, economic literature shows an inverse correlation between aggregate economic growth and corruption. While Eastery (1993) observes that most countries with higher corruption experience less economic growth, Mauro (2002) affirms that the relationship between corruption and economic growth in particular is complex. Following Tanzi and Davodi (1997), the World Bank (2002) and Barro (1996), it is affirmed that corruption hinders economic growth by lowering the quality of public infrastructure, discourages foreign and domestic investments, taxes entrepreneurship, decreases tax revenue through rent seeking activities of tax officials, diverts talent into rent seeking and militia activities and distorts the composition of public expenditure. The findings of Tanzi and Davodi (1997) are consistent with the above views that corruption is inversely correlated with growth in GNP.

Mauro (2002) used a composite of two corruption indices and multiple regression analyses with a sample of 106 countries to show that high levels of corruption are associated with lower levels of investment as a share of Gross Domestic Product (GDP) and with lower GDP growth per capita. Corruption discourages foreign and domestic investments. The World Bank (2000a) discovered that one out of every four businesses in Bulgaria failed because of this fact. Also in Latvia, 28% of the firms considered this factor as one of the most essential in their investment decisions.

Lambsdorff (2001) categorized investment into domestic savings and net capital inflows. Using OLS regression results, he provides evidence that corruption negatively impacts capital accumulation by deterring capital imports. To explore causation, Lambsdorff decomposed the corruption index into several sub-indicators that investigate corruption through the lens of bureaucratic quality, civil liberty, government stability, and law and order. Only the law and order sub-indicator turned out to be important for attracting capital flows.

Another World Bank (2000a) research on 22 developing nations suggests that higher levels of corruption reduce growth through decreased investment and output. These propositions support the notion that high public sector corruption is associated with low economic growth and not that corruption greases the wheels of commerce and

grow the economy.

2.6.2 Corruption and income inequality

According to Rose-Ackerman (1978) and Krueger (1974), corruption widens the gap between the opportunistic fraudulent persons and places the rest of a population on a disadvantaged lower income group. Gupta et al (1998) agree that a case where there is public sector mass corruption, the income inequality is normally highly unacceptable.

A World Bank study (2000b) using the Gini coefficients for income per capita (measures of income inequality) against the Corruption Perceptions Index (CPI) of Transparency International, discovers that lower levels of corruption were statistically associated with lower levels of income inequality (the simple correlation was 0.72). The research adds that closer examination of the links between corruption and inequality show that the cost of corruption falls particularly heavily on smaller firms.

Gupta et al (1998) conducted cross-national regression analysis of 56 countries and discover that public sector corruption produces bias in tax systems and poor targeting of social programmes, thus enhancing income inequality. Specifically, higher corruption is associated with worsening of a country's corruption index by 2.5 points on a scale of 10 and corresponds to an increase in the Gini coefficient (i.e. worsening inequality) of about 4 points. By deduction, he concludes that it is corruption that increases inequality and not the reverse; that corruption tends to increase the inequality of factor ownership and that corruption increases income inequality by reducing progressivity of the tax system.

Barro (1996) provides empirical evidence that corruption aggravates income inequality and shows that it is also associated with lower economic growth and hence poverty. In another study of 35 countries (mostly ECA countries), Karstedt (2001) hypothesizes that corruption supports, stabilizes and deepens inequality. Her two measures of corruption (Transparency International's CPI and Bribery Propensity Index) were tested against measures of income distribution (as well as measures of power distance between elites and other ranks, and general trust). The results show that societies with high income inequality have high levels of corruption. The summary is obvious, that corruption hampers economic growth and boost income inequality.

2.6.3 Corruption and foreign investment

There is a consensus that foreign direct investment (FDI) has the capacity to increase production and efficiency through spillover and multiplier effects (World Bank, 1998). The extent of the spillover however depends on the economic, institutional and technological conditions in the recipient countries (Akinlabi et al, 2001). There are inherent wealth creation and poverty reduction powers in the inflow of FDI.

A World Bank (1998) survey identifies public sector corruption (which was described as graft) as one of the main hindrances to foreign direct investment. Agreeing with this, Asideu (2006) used the Ordinary Least Squares (OLS) technique and regressed Nigeria's corruption on her foreign direct investment and discovered an inverse relationship. He explains that corruption interferes directly with the operations of foreign direct investment, hence the higher the corruption, the lower the foreign direct investment. Shleifer and Visny (1993) corroborate this conclusion through their study and conclude that corruption reduces the incentive for businesses to invest.

Wei (1998), using cross sectional data of some Asian countries tested the relationship between corruption and the volume and composition of capital inflows into emerging markets and discovers a strong negative relationship between the variables. High corruption reduces both the quantity and quality of foreign investments. Kurtzman et al (2004) arrive at a similar conclusion when they used cross sectional data via correlation models and discover that high levels of corruption strongly correlate with low levels of FDI inflows.

According to Mauro (2002), a corrupt country will achieve aggregate investment level that is about 5% less than a relatively uncorrupt country and lose about 0.5% growth in annual GDP. It is in this wise that Akinlabi et al (2011), using Granger causality test and OLS to investigate the causality and effects of corruption on FDI inflow in Nigeria between 1981 and 2010, discover an inverse relationship between FDI and corruption. Asideu (2006) arrived at the same result in a separate study.

2.6.4 Corruption and other economic development indicators

Tanzi and Davoodi (1997) carried out a systematic study on the effects of corruption on government finances and discover that corruption increases the size of public investment which is skewed away from operation and maintenance of public utilities (to new ones), and is tilted away from the socially beneficial sectors like health and education and reduces the productivity of public goods and the tax system of a country.

Ogboru and Abimiku (2010) used OLS and regressed CPI of Nigeria on some development indicators and discover a negative relationship between corruption and employment, capital expenditure and general government expenditure. With the evidence, they conclude that when corruption exists in a country, efforts to increase employment in the form of increased general expenditure by the government, increased capital expenditure on basic infrastructure and whatever minimum improvement in employment generation results in a commensurate increase in the level of corruption. This perhaps, explains the growth (with corruption and) without poverty reduction witnessed in Nigeria over the past decades.

3. Methodology

3.1 Sources of Data

Annual data covering the period 1981-2011 was utilized. The data was gathered from various issues of the Central Bank of Nigeria, Transparency International, National Bureau of Statistics, and the National Population Commission. Occasioned by the paucity of data, the corruption perception index (CPI) from 1981 to 1993 was obtained by a backward 3-year moving average. All the variables employed in the study were converted to logarithms in order to capture nonlinear properties. All the computations were carried out using Eviews7.1 package.

3.2 Model Specification and Estimation Procedure

The determinants of public sector corruption are extant in the literature. In order to evaluate the effects of public sector corruption on Nigeria's economic development, a multiple regression framework within the Ordinary Least Square (OLS) methodology is adopted in which a linear equation is formed to show the relationship between the dependent and independent variables. OLS is particularly beneficial due to its properties of BLUE (Best Linear Unbiased Estimators) among the class of unbiased estimators, thereby rendering the results efficient and consistent.

On the basis of the theoretical framework, the specification of the public sector corruption function is presented in equation 1:

$$\text{Log PSC} = \beta_0 + \beta_1 \log UNEMP + \beta_2 \log GDP + \beta_3 \log DEBT + \beta_4 \log CAPEX + \beta_5 \log TOTEXP + \beta_6 \log FPI + \varepsilon_t \quad \text{.....(1)}$$

where,

PSC = Public Sector Corruption
UNEMP = Unemployment Rate
GDP = Gross Domestic Product
DEBT = Debt Outstanding
CAPEX = Capital expenditure
TOTEXP = Total Expenditure
FPI = Foreign Private Investment

Public sector corruption was proxied by Corruption Perception Index (CPI) while the explanatory variables utilize five development indices as captured by the regressors in equation 1.

A priori, the presumptive signs of the variables are:

$\beta_1 > 0, \beta_2 < 0, \beta_3 > 0, \beta_4 > 0, \beta_5 > 0, \beta_6 < 0$

The coefficient of unemployment is expected to be positively signed, agreeing with economic theory and implying that as public sector corruption increases, unemployment rate increases. GDP and public sector corruption are expected to have an inverse relationship, in that higher levels of public sector corruption reduces the rate of growth and consequently the development of a country. The coefficients of foreign debt stock, capital expenditure and total government expenditure are expected to be positively signed, consistent with economic theory and implying that increases in the variables lead to an increase in public sector corruption as the variables can provide the conduit through which corrupt practices are perpetrated. Foreign private investment is expected to have an indirect relationship with public sector corruption in that as corruption level worsens, less of foreign private investment is expected.

In estimating equation 1, the following procedure was adopted. First the stochastic properties of the time series data used were examined to avoid the phenomenon of spurious regression. Consequently, a unit root test was carried out using three frameworks, viz the Augmented Dickey Fuller (ADF), the Philips-Perron (PP) and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS), after which a test of cointegration among the identified variables was executed following the Johansen (1988) methodology. The choice of three unit root tests is underscored by the imperatives of consistency, comparison and robustness. The choice of the Johansen cointegration test is based on its superiority over the Engle-Granger methodology in that the latter is unsuitable for more than two variables and does not report more than one cointegrating vector. The test of cointegration was followed by the Granger Causality tests, after which the regression equation was estimated. Finally, a test of coefficient stability was conducted via the cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMSQ).

4. Results and Discussion

The unit root tests are presented in Table 1.

Table 1. Unit Root Test Results

Variable	*ADF*		*PP*		*KPSS*	
	Intercept	Intercept and trend	Intercept	Intercept and trend	Intercept	Intercept and trend
LEVEL						
PSC	-0.776411	-2.773044	-0.472011	-2.651600	0.636467**	0.157047**
UNEMP	2.751697	1.064235	2.845721	1.089767	0.662836**	0.165824**
GDP	4.449758*	3.764820**	25.72148	15.64346	0.580121**	0.184019**
DEBT	1.075360	-1.904426	-1.436235	-1.593076	0.324984	0.093979
TOTEXP	3.971964	0.303879	4.246663	0.549246	0.612483**	0.183605**
CAPEX	-0.650885	-1.613737	-0.641720	-1.837582	0.686345**	0.127474***
FPI	0.188427	-1.796164	0.374342	-1.806993	0.613075**	0.161384**
FIRST DIFFERENCE						
PSC	-6.284635*	-6.259422*	-7.726060*	-10.28701*	0.255876	0.377153
UNEMP	-0.090099	-0.827858	-3.053465***	-3.966193**	0.406887	0.124100
GDP	0.712685	-1.269163	-0.300127	-6.023063*	0.692014	0.175208
DEBT	-5.415704*	-4.431125**	-3.220647**	-3.084262	0.115799	0.082487
TOTEXP	-3.337189**	-5.588463*	-3.245220**	-5.619539*	0.581667	0.089271
CAPEX	-5.506983*	-5.434836*	5.512296*	-5.442120*	0.130361	0.127967
FPI	-4.588542*	-4.636517*	-4.546604*	-6.329904*	0.215115	0.220955

Note: *, ** and *** denote order of integration at 1%, 5% and 10% respectively. For the ADF and PP tests, the null hypothesis is that the variable has a unit root, whereas for KPSS, the variable is stationary.
Source: Authors' computations.

Results in Table 1 suggest that all the variables are non-stationary in levels. All three unit root tests lead to the same conclusion and are consistent. Consequently, a proof of cointegration among the variables implies that regression can proceed using the variables at levels without running the risk of spurious regresssion. Without cointegration, regression can be executed with the variables in their first difference.

The results of the cointegraton test are presented in Table 2.

Table 2. Johansen Cointegration Test Results

Hypothesis		Eigen value	λ_{max}	5% critical value	λ_{trace}	5% critical value
Null	Alternative					
r = 0	r ≥1	0.990037	124.4407*	46.23142	321.6976*	125.6154
r ≤ 1	r ≥2	0.928859	71.36347*	40.07757	197.2569*	95.75366
r ≤ 2	r ≥3	0.853877	51.92927*	33.87687	125.8934*	69.81889
r ≤ 3	r ≥4	0.756449	38.13563*	27.58434	73.96415*	47.85613
r ≤ 4	r ≥5	0.601652	24.85160*	21.13162	35.82852*	29.79707
r ≤ 5	r ≥6	0.328025	10.73343	14.26460	10.97692	15.49471
r ≤ 6	r ≥7	0.008978	0.243493	3.841466	0.243493	3.841466

r indicates the number of cointegrating vectors. *Indicates rejection of the null hypothesis at 5% level of significance.
Source: Authors' computations

Results in Table 2 indicate that there are five cointegrating vectors among the variables of interest based on both the maximal eigenvalues and trace test statistics. Thus, the hypothesis of no cointegration among the variables is rejected at the 5% significance level. Following the proof of cointegration among the non-stationary series, the estimation of multiple regression coefficients can proceed using the OLS framework.

The results of the Granger Causality test are presented in Table 3.

Table 3. Granger Causality Test Results

Null Hypothesis	F-statistics (P-value)			
	1 Lag	2 Lags	Decision	Conclusion
(1) UNEMP & PSC				
UNEMP ↛ PSC	1.32466 (0.2598)	0.59126 (0.5615)	Accept	
PSC ↛ UNEMP	1.29027 (0.2660)	0.87123 (0.4313)	Accept	Independent
(2) GDP & PSC				
GDP ↛ PSC	7.91847 (0.0092)	3.24342 (0.0574)	Reject	
PSC ↛ GDP	0.63789 (0.4317)	0.75149 (0.4829)	Accept	Unidirectional

Granger Causality Test Results (continued)

Null Hypothesis	F-statistics (P-value)			
	1 Lag	2 Lags	Decision	Conclusion
(3) DEBT & PSC				
DEBT ↛ PSC	0.62935 (0.4348)	2.47369 (0.1064)	Accept	
PSC ↛ DEBT	0.00786 (0.9300)	0.51687 (0.6031)	Accept	Independent
(4) CAPEX & PSC				
CAPEX ↛ PSC	5.87827 (0.0223)	2.98764 (0.0694)	Reject	
PSC ↛ CAPEX	0.60772 (0.4424)	0.47780 (0.6259)	Accept	Unidirectional
(5) TOTEXP & PSC				
TOTEXP ↛ PSC	12.3157 (0.0017)	4.88377 (0.0176)	Reject	
PSC ↛ TOTEXP	3.17955 (0.0867)	3.20623 (0.0600)	Reject	Bidirectional
(6) FPI & PSC				
FPI ↛ PSC	12.0212 (0.0018)	5.51252 (0.0111)	Reject	
PSC ↛ FPI	1.83942 (0.1867)	1.88567 (0.1744)	Accept	Unidirectional
(7) GDP & UNEMP				
GDP ↛ UNEMP	7.37328 (0.0116)	3.30409 (0.0548)	Reject	
UNEMP ↛ GDP	4.73128 (0.0389)	3.57526 (0.0445)	Reject	Bidirectional
(8) DEBT & UNEMP				
DEBT ↛ UNEMP	2.59174 (0.1195)	2.86144 (0.0777)	Reject Accept	
UNEMP ↛ DEBT	0.45399 (0.5064)	0.64760 (0.5326)		Unidirectional
(9) CAPEX & UNEMP				
CAPEX ↛ UNEMP	0.00984 (0.9217)	0.00514 (0.9949)	Accept	
UNEMP ↛ CAPEX	2.54042 (0.1226)	2.39254 (0.1129)	Accept	Independent
(10) TOTEXP & UNEMP				
TOTEXP ↛ UNEMP	5.97309 (0.0219)	2.48123 (0.1067)	Accept	
UNEMP ↛ TOTEXP	2.58086 (0.1207)	2.82839 (0.0807)	Reject	Unidirectional
(11) FPI & UNEMP				
FPI ↛ UNEMP	16.5712 (0.0004)	9.19196 (0.0012)	Reject	
UNEMP ↛ FPI	0.65278 (0.4265)	1.70394 (0.2041)	Accept	Unidirectional

Granger Causality Test Results (continued)

Null Hypothesis	F-statistics (P-value)			
	1 Lag	2 Lags	Decision	Conclusion
(12) DEBT & GDP				
DEBT ↛ GDP	0.39901 (0.5331)	9.86950 (0.0008)	Reject	
GDP ↛ DEBT	0.91535 (0.3475)	0.50192 (0.6118)	Accept	Unidirectional
(13) CAPEX & GDP				
CAPEX ↛ GDP	0.01017 (0.9205)	0.57612 (0.5700)	Accept	
GDP ↛ CAPEX	0.05395 (0.8181)	0.67759 (0.5177)	Accept	Independent
(14) TOTEXP & GDP				
TOTEXP ↛ GDP	20.1207 (0.0001)	10.9275 (0.0005)	Reject	
GDP ↛ TOTEXP	0.10378 (0.7500)	0.46882 (0.6318)	Accept	Unidirectional
(15) FPI & GDP				
FPI ↛ GDP	8.88602 (0.0062)	10.2545 (0.0007)	Reject	
GDP ↛ FPI	6.52506 (0.01680)	5.45484 (0.0115)	Reject	Bidirectional
(16) CAPEX & DEBT				
CAPEX ↛ DEBT	0.42285 (0.5212)	2.29656 (0.1232)	Accept	Independent
DEBT ↛ CAPEX	0.14244 (0.7089)	0.90593 (0.4181)	Accept	
(17) TOTEXP & DEBT				
TOTEXP ↛ DEBT	0.85277 (0.3646)	0.04405 (0.9570)	Accept	
DEBT ↛ TOTEXP	1.86983 (0.1837)	1.51308 (0.2423)	Accept	Independent
(18) FPI & DEBT				
FPI ↛ DEBT	0.02779 (0.8689)	0.14044 (0.8697)	Accept	
DEBT ↛ FPI	0.53358 (0.4716)	5.77566 (0.0093)	Reject	Unidirectional
(19) TOTEXP & CAPEX				
TOTEXP ↛ CAPEX	0.01141 (0.91580)	4.36229 (0.0254)	Reject	
CAPEX ↛ TOTEXP	2.46918 (0.12870)	1.34000 (0.2824)	Accept	Unidirectional
(20) FPI & CAPEX				
FPI ↛ CAPEX	0.07606 (0.7849)	1.03816 (0.3701)	Accept	
CAPEX ↛ FPI	2.23509 (0.1469)	1.19790 (0.3200)	Accept	Independent

Granger Causality Test Results (continued)

Null Hypothesis	F-statistics (P-value)			
	1 Lag	2 Lags	Decision	Conclusion
(21) FPI & TOTEXP				
FPI ↛ TOTEXP	0.43270 (0.5167)	0.39195 (0.6804)	Accept	
TOTEXP ↛ FPI	8.14816 (0.00850)	8.34970 (0.0020)	Reject	Unidirectional

Note: ↛ denotes 'does not Granger-cause'.
Source: Authors' computations

Results in Table 3 indicate that causality flows from GDP to public sector corruption, indicating that GDP Granger causes public sector corruption at the 1% level for 1 lag and 10% level for 2 lags. Thus, higher growth promotes public sector corruption in the Nigerian economy, while increased corruption is growth-damaging. While capital expenditure Granger causes public sector corruption at the 5% level for 1 lag and 10% level for 2 lags, foreign private investment Granger causes public sector corruption at the 1% level for 1 lag and 5% level for 2 lags. The implication of these results is that capital expenditure and foreign private investments can be used to explain the level of public sector corruption in Nigeria. While debt Granger causes unemployment at the 10% level for 2 lags, there is independence of causality at 1 lag. At 1 lag, total expenditure Granger causes unemployment at the 5% level while for 2 lags, unemployment Granger causes total expenditure at the 10% level. Using both lags, it can be concluded that total debt outstanding and total government expenditure have a feedback relationship.

A unidirectional causality exists from FPI to unemployment at the 1% level for both lags, implying that the nature of foreign private investment in Nigeria can be used to explain the extent of unemployment in the country. At 1 lag, debt Granger causes GDP while there is independence of causality at 2 lags. In addition, total expenditure Granger causes GDP at the 1% level in both lags. While foreign private investment and debt show independence of causality at 1 lag, there is however a flow of causality from debt to foreign private investment at the 1% significance level at 2 lags. In the same manner, total expenditure and capital expenditure indicate independence of causality at 1 lag, and unidirectional causality from total expenditure to capital expenditure at the 5% level in the case of 2 lags. Moreover, there is flow of causality from total expenditure to foreign private investment at the 1% level for both lags.

There is bidirectional causality flowing from total expenditure to public sector corruption and vice versa. The implication of this is that the level of total expenditure by government is helpful in predicting the level of public sector corruption in Nigeria. It is thus plausible to assert that the higher the level of total government spending, the higher is the level of public sector corruption. On the other hand, corruption level can help predict the nature and extent of total government spending in Nigeria. In essence, total spending has been helped more by the need to grease official kleptomania than by patriotic zest to improve the people's living standards through employment generation, poverty reduction and the like.

There is a feedback relationship between gross domestic product and unemployment. In other words, the higher the level of GDP in Nigeria, the higher is the level of unemployment and vice versa. The result is hardly surprising given that the major source of growth in the Nigerian economy is attributable to crude oil exploitation and sale and little if any from the real sector. It is known that the real sector of the economy exemplified by agriculture and industry have remained comatose for many years while the petroleum sector, which lacks the potential for mass employment due largely to its capital intensity has remained resilient. Furthermore, foreign private investment and GDP have bidirectional causality at the 5% level, implying that each can be reliably employed to predict the nature and direction of the other.

From the causality results, there is independence of causality between unemployment and public sector corruption, debt and public sector corruption, capital expenditure and unemployment, capital expenditure and GDP, capital expenditure and debt, total expenditure and debt and between foreign private investment and capital expenditure.

The regression results of equation 1 are presented in Table 4.

Table 4. Regression Results

Dependent Variable: PSC

Variable	Coefficient	Standard Error	t-values (Prob.)	
CONSTANT		-8.501335*	2.427853	-3.501585 (0.0020)
UNEMP		0.037351	0.186284	0.200504 (0.8429)
GDP		-0.248014	0.209801	-1.182138 (0.2498)
DEBT		-0.071985***	0.036622	-1.965604 (0.0621)
CAPEX		2.060050	1.341472	1.535664 (0.1389)
TOTEXP		0.756855**	0.281672	2.687011 (0.0135)
FPI		0.064446	0.128327	0.502200 (0.6205)

Diagnostic Statistics

R^2 = 0.87; Adjusted R^2= 0.83; F-stat = 23.61098 (0.000000); DW = 2.03; SER = 0.192250; JB = 2.817034 (0.244506); ARCH [χ^2, 1] = 1.278668 (0.2581); RESET = 2.31E-06 (0.9988)

Note: *, ** and *** indicate statistically significant at 1%, 5% and 10% levels respectively. Probability values are in brackets. DW: Durbin-Watson test for autocorrelation; SER: Standard error of regression; ARCH: Engle's test for conditional heteroskedasticity; JB: Jarque-Bera test for normality of residuals; RESET: Ramsey's test for specification error.

Source: Authors' computations.

From Table 4, the intercept term is correctly signed and is statistically significant at the 1% level. The implication of this is that in the absence of the regressors, public sector corruption can drop by as much as 850%

in Nigeria. It should be noted however that the interpretation of the intercept term in the context of the present study as in many econometric analyses is not very important.

Unemployment is positively related to public sector corruption in Nigeria although it is not a statistically significant factor. The result is consistent with economic theory which posits that the higher the level of corruption, the higher will be the unemployment rate in an economy, ceteris paribus. Consequently, a decrease in the corruption level makes possible the chanelling of idle and underutilized resources into ventures that create employment. Thus, a cut in the level of corruption can be an avenue of making more resources available for investment and job creation in Nigeria. The result supports an earlier finding by Ogboru and Abimiku (2010), which indicates that for the Nigerian economy, a negative relationship exists between corruption and employment; in other words, there is a positive correlation between the level of corruption and unemployment.

The results indicate that public sector corruption and GDP are inversely related. An increment in public sector corruption results in a reduced GDP annual growth rate. The implication of the result is that higher the level of corruption, the lower is the rate of growth of GDP and consequently the productivity and resourcefulness of the economy. This result is consistent with the findings of Eastery (1993), Tanzi and Davodi (1997), the World Bank (2002) and Barro (1996). That the result is so may not be unconnected with the nature and dynamics of corruption which hinders economic growth by lowering the quality of public infrastructure, discouraging foreign and domestic investment, and generally distorting public expenditure. It is not in contention that infrastructure like roads, railway, bridges and the like, all of which are important stimulants of long-term growth are in various degrees of neglect and decay in Nigeria.

The results indicate a strong inverse relationship between public sector corruption and foreign debt. A priori, the expectation is that the coefficient of foreign debt should be positive, showing that a corrupt public sector encourages borrowing which makes money available for white elephant projects which offer opportunities for bribery and looting of public funds while leveraging other contraptions of corruption. Contrary to the a priori, the coefficient of -0.071985 which is statistically significant at the 10% level indicates that the higher the level of public sector corruption, the lower the foreign debt stock in Nigeria. The result is hardly surprising given that in the period under study and specifically in the late 1990s, a huge chunk of the country's debts was forgiven by the World Bank and IMF. This may be responsible for the negative relationship in the estimated regression. In addition, the inverse relationship between debt stock and corruption can be situated within the context of international financial dynamics and is a reflection of the reaction of the international donor organizations to the external borrowings which finance projects for which contractors were fully paid but such contracts were either abandoned or never executed. As from the early 2000s, the international community refused to grant more loans to Nigeria (as the level and rate of public sector corruption increased). Thus, it is plausible to conclude that as the dynamics of public sector corruption worsened in Nigeria, the country was able to attract less and less of foreign debts, thereby buttressing the inverse relationship in the estimated model.

The coefficient of capital expenditure of 1.341472 depicts a positive relationship between capital expenditure and public sector corruption. 1% increase in capital expenditure tends to be associated with 134% increase in the level of public sector corruption. The implication is that the higher the allocation for capital expenditure, the higher the level of public sector corruption. In Nigeria, capital investments are usually abandoned after full payments are collected by the contractor (who 'silences' the public officers by 10% kickback). Monies voted for the maintenance of existing infrastructure are diverted into personal accounts. Despite the activities of the Economic and Financial Crimes Commission (EFCC) and the Independent Corrupt Practices Commission (ICPC), the two main anti-corruption agencies in the country, the level and rate of embezzlement of monies for capital expenditures in Nigeria seems unabated.

The result of the total expenditure coefficient is particularly interesting. The coefficient of 0.756855 and which is statistically significant at the 5% level indicates that an increase in government total expenditure of 1% results in about 76% increase in public sector corruption in Nigeria. The reasons for this are not far-fetched. It is known that once annual budgets are made public with its associated total expected expenditure, this gingers corrupt public officers who set in motion complex and integrated manipulations that ensure the maximum derivable 'benefits', with the effect that the level of corruption increases commensurately with the ever increasing annual budgets. That annual budgets and corruption cases have consistently increased in Nigeria is well documented. This has been more exacerbated because the executive (constitutionally) is immune against litigation on corrupt charges while in office so that looting and bribery are officially administered and distributed. With increased contracts awarded occasioned by rising budgetary allocations, the engine of corruption is fuelled and lubricated.

Results in Table 4 indicate that foreign private investment and public sector corruption are positively related, although the coefficient of 0.128327 is not statistically significant. Thus an increase in foreign private investment of 1% is associated with an increase in public sector corruption of 13%. That there is a positive relationship between the two variables is not out of place. A look at the amount of foreign direct investment in the Nigerian economy over the years shows an upward trend, although the scale and magnitude are far below

expectations, implying that some level of foreign private investment is still witnessed in the country especially in areas where returns are high and the cost of corruption can be defrayed (e.g. in petroluem, roads, bridges and other capital projects).

The diagnostic statistics are quite satisfactory. The adjusted coefficient of determination (Adjusted R^2) of 0.83 indicates that 83% of the variation in public sector corruption in Nigeria is explained by the level of unemployment, gross domestic product, foreign debt outstanding, capital expenditure, total government expenditure and foreign private investment. The F-statistic is indicative of the joint significance of estimated coefficients. The Durbin-Watson (DW) Statistic of 2.03 signifies absence of autocorrelation in the residuals. Jaque-Bera (JB) result of 2.817034 and its associated p-value of (0.244506) which is not statistically significant shows that the residuals in the estimated model are normally distributed. The ARCH test results accept the null hypothesis of homoskedasticity. The Ramsey regression specification error test (RESET) is satisfactory and indicates that the estimated regression function does not suffer specification bias.

4.1 Stability Tests

To determine the stability of the regression coefficients, the cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMSQ) tests were conducted. To establish that the parameters of the estimated function are stable, the CUSUM and CUSUMSQ statistics are expected to stay within the 5% critical line. The choice of the CUSUM and CUSUMSQ tests is informed by their relative superiority to the Chow test, the latter of which assumes a known structural break date, whereas for the former, no known date is assumed. It would be presumptuous for example to assume a particular break date in the series employed in the study, although intuitively, one may be guided by certain events such as the introduction of the Structural Adjustment Programme (SAP) as a possible break point. In any case, the employment of the CUSUM and CUSUMSQ framework makes such assumption needless.

The CUSUM and CUSUMSQ plots are presented in Figures 2 and 3.

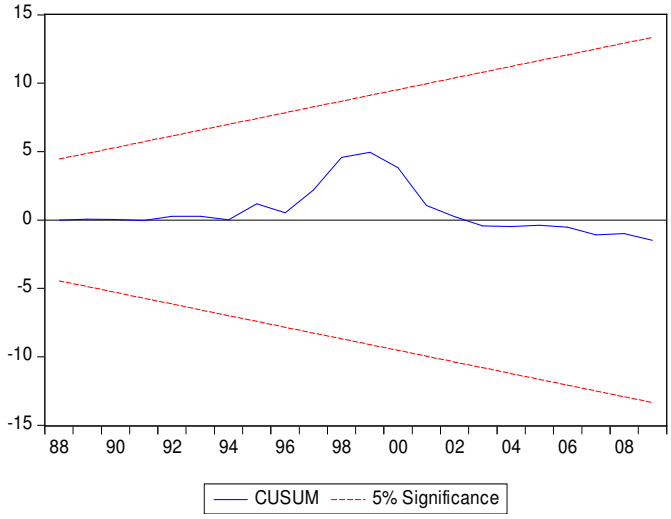

Figure 2. Plot of Cumulative Sum of Recursive Residuals

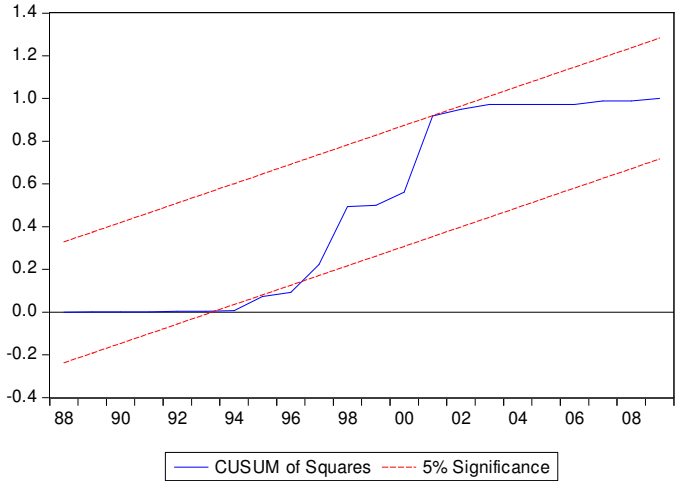

Figure 3. Plot of Cumulative Sum of Recursive Residuals

Note: The straight lines represent critical bounds at 5% significance level
Source: Authors' computations

Figures 2 and 3 indicate that except within the short range of 1994 to 1996 (for the CUSUMSQ), the CUSUM and CUSUMSQ plots do not cross the 5% critical lines. It is therefore concluded that the parameters for the estimated model are stable over the entire sample period. In other words, there is parameter constancy in the estimated model, and thus, the regression coefficients can be employed in policy recommendations.

5. Conclusion

The objective of the paper was the empirical examination and test of the validity and veracity of the beneficial grease hypothesis of public sector corruption in economic development with particular reference to Nigeria. To achieve this, the study employed the Johansen framework to examine the long-run relationships between public sector corruption (proxied by the Corruption Perception Index) and five explanatory variables. The empirical results confirm the existence of cointegration between public sector corruption and the identified variables. The estimated regression results indicate that unemployment is positively related to public sector corruption while public sector corruption and GDP are inversely related. In addition, there is a strong inverse relationship between public sector corruption and Foreign Debt. Capital expenditure and public sector corruption are positively related. A major finding is that there is a strong positive relationship between total government expenditure and public sector corruption in Nigeria. The results indicate that foreign private investment and public sector corruption are positively related.

The results of causality tests indicate that there is bidirectional causality from total expenditure to public sector corruption, the implication being that the level of total expenditure by government is helpful in predicting the level of public sector corruption in Nigeria. There is also a feedback relationship between gross domestic product and unemployment. There is unidirectional causality between total government expenditure and public sector corruption, between GDP and unemployment and between foreign private investment and GDP. While capital expenditure Granger causes public sector corruption, FPI Granger causes public sector corruption, implying that capital expenditure and foreign private investment can be used to explain the level of public sector corruption in Nigeria. Total debt outstanding and total government expenditure also show a feedback relationship. There is independent causality between unemployment and public sector corruption, debt and public sector corruption, capital expenditure and unemployment, capital expenditure and GDP, capital expenditure and debt, total expenditure and debt and between foreign private investment and capital expenditure. The parameters for the estimated model show stability over the entire sample period as indicated by the CUSUM and CUSUMSQ plots.

Although there may be examples of firms and individuals who are better off by the payment or receipt of a bribe or some other forms of corruption, it is clear from the empirical test on Nigerian data, that public sector corruption has a negative effect on Nigeria's economic growth and development. It is therefore concluded that the beneficial grease hypothesis is not a reality in Nigeria. Consequently, corruption is harmful to the country and must be tackled from all dimensions if real growth and development are to be achieved.

Based on the results of the study, it is recommended that anti-corruption agencies should be strengthened and empowered in order to carry on the fight against the pandemic. In addition, public expenditures must be streamlined towards raising productivity in the real sector of the economy in order to provide jobs and improve living standards. Furthermore, budget implementation must be given priority and adequate monitoring by the national and state assemblies should be ensured with a view to preventing non-implementation of projects which are a conduit of corruption in the country. On a final note, frivolous foreign debts should be discouraged through appropriate defence by government before the national and state assemblies on the reasons for their contraction while due monitoring is carried out to ensure that projects or programmes for which the debts are contracted are executed within reasonable time.

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