

## Impact Assessment of Political Administrations on the Performance of the Construction Sector: A Time series Analysis

### Abstract

**Purpose:** The complex interaction of politics and the economy is a critical factor for the sustainable growth and development of the construction sector (CNS). This study investigates the effects of type of political administration (TPA) including democracy and military on the performance of construction sector using the Nigerian Construction Sector (NCS) as a case study.

**Approach:** A forty-eight (48) year (1970-2017) time series data (TSD) on the NCS and the Gross Domestic Product (GDP) based on 2010 constant USD were extracted from the United Nations Statistical Department (UNSD) database. Analyses of Variance (ANOVA) and Analysis of Covariance (ANCOVA) models were used to analyse the TSD. The ANCOVA model includes the GDP as correlational variable or covariate.

**Findings:** The estimates of the ANOVA model indicate that democratic administration is significantly better than military administration in construction performance. However, the ANCOVA model indicates that the GDP is more important than political administration in the performance of the construction sector. The study recommends for a new national construction policy, favourable fiscal and monetary policy, local content development (LCD) policy and construction credit guaranty scheme for the rapid growth and development of the NCS.

**Originality:** Hitherto, little is known about the influence of political administration on the performance of the construction sector. This study provides empirical evidence from a developing economy perspective. It presents the relationships and highlights recommendations for driving growth in the construction industry.

**Keywords:** Nigerian Construction Sector (NCS), Gross Domestic Product (GDP), Military Administration and Democratic Administration

## INTRODUCTION

The term political economy is contentious; it might refer to a collection of issues created by the combination of economic and political activity, questions that should be investigated using theoretical and methodological tools available (Collinson, 2011). Politics and economics are inseparably linked. Numerous issues arise from the interplay of the state and the market, which serve as the embodiment of politics and economy. Some of these questions are “how the state and its associated political processes affect the production and distribution of goods and services?”, and, more specifically, “how political decisions and interests affect the location of economic activities and the distribution of benefits and costs associated with these endeavours?” (Valsamakis, 2012) Additionally, questions are raised regarding the influence of markets and economic forces on the allocation of power and welfare among the state and other political actors, with a special emphasis on how these economic factors affect economic investment (Owusu-Manu et al., 2019; Ibn-Mohammed et al., 2021).

Public awareness of the economic dimensions of political issues is growing, and individuals can more easily attribute the causes of economic discontent or abundance to specific actions by specific groups. The spread of this economic consciousness and political democracy has resulted in the nearly universal recognition that the state can be used to influence economic outcomes, most notably redistribution (Bonn, 1939; Houser, 1937; Tooze, 1984; Valsamakis, 2012). Thus, the distribution of economic activities may be seen as the consequence of human actions rather than as the effect of some supernatural forces. This implies the inevitable politicisation of economic activities. The political leaders make and implement policies and programmes that direct the course of the economy. Hence the parallel existence and mutual interaction of the political and economic systems create the political economy (Gilpin, 1987; Collinson, 2011).

Political administrations and policies may have had favourable or deleterious effects on the Nigerian construction sector (NCS) since independence in 1960. In other words, the interactions of public policy with the economy have produced the reality of the NCS. Thus, the NCS tends to oscillate with public policies and the economy (Oladinrin, Ogunsemi & Aje, 2012). The massive construction investment programme of the 1970s led to construction boom however, the harsh policies of the 1980s including the Structural Adjustment Programmes (SAPs) produced a reverse effect with crushing drop-in construction activities and near shut down of the NCS. Aside painful fiscal and monetary policies that stifles construction investment the government as a client has not been a good friend of the NCS (Saka & Olanipekun, 2020). Most public projects are likely to experience delays which may cripple contractors leading to poor quality of work as well as cost and time overruns. The government is liable to default of contract provisions. Unfortunately, the public sector is the dominant client accounting for at least 60 percent of the entire NCS output (Akinsola, 1996; Aniekwu, 1995; Baukley, Faulky & Olajide, 1993; Faruqee, 1994; Mansfield, Ugwu & Doran, 1994; Odeyinka & Yusif, 1997; Okpala & Aniekwu, 1988; Olugbekan, 1991; TradeInvest Africa, 2010; Ukwu et al., 2003 ).

Many questions are generated in the political economy. For example, did the implementation of a new economic policy improved economic performance? Did the fiscal policy of last year improved incremental capital output ratio? And did the last administration affect the construction industry's performance? Etc. Nigeria has had two broad types of political administrations since independence in the 1960 - democracy and military (Ukwu et al., 2003). Which of these administrations is the friendliest to the NCS? This study proceeds to make empirical enquiries into the realities of how the interaction of the political economy affected the performance of the NCS. Specifically, this paper makes a comparative assessment of the impact of democratic and military administrations

on the NCS performance. The paper is structured into seven broad sections including–introduction, literature review, methodology, empirical estimation, discussion of result, conclusion and finally, recommendations.

## **LITERATURE REVIEW**

### **Political administration and Construction**

The importance of the construction sector (CNS) in the economy stems from five of its characteristics according to Saka & Olanipekun (2020). Firstly, the sheer size or the magnitude of the contribution of the sector to the Gross Domestic Product (GDP); secondly, its significant backward and forward linkages to various sectors of the economy; thirdly, its contributions to the Domestic Fixed Capital (DFC) formation; fourthly, its contributions to the employment of labour especially in developing economies where construction is heavily labour intensive; and fifthly, its single largest client is the government.

The CNS is extremely susceptible to both fiscal and monetary policy changes (Omopariola et al., 2020). This is because the majority of building projects need substantial financial investment and must be financed through credit facilities (Ukwu et al., 2003). As a result, changes in the money supply and interest rates impact the cost and convenience of borrowing, and hence the production of construction. Thus, government plays a substantial role in all aspects of the CNS. The government influence demand directly by determining the level of public sector expenditure on construction projects and indirectly by its policies on taxation, money supply and interest rates that significantly influences private sector investment demand (TradeInvest Africa, 2010). The government may also utilise the CNS as a regulator of the economy, by boosting and reducing demand for the sector in order to influence the general level of economic activity. The public sector's prominence as a client of the CNS has a far-reaching influence on the sector and economy,

since government has the ability to exert direct control over the sector's demand and how it is met (Ukwu et al., 2003; Valsamakis, 2012).

The public sector is responsible for at least 60 percent of the output of the CNS and about 95 percent of all engineering works. In developing economies, the government has overriding need for improved infrastructure in the total construction output more than developed countries. Since the government institutions are responsible in most countries for the provision of physical infrastructure, the role of the public sector as a client of the CNS in developing economies is generally higher than in developed economies (Opawole & Jagboro, 2017; Oladinrin, Ogunsemi & Aje, 2012). Unfortunately, public sector clients are the most liable to default of contract provisions which put construction contractors at serious difficulties. The state of the CNS is naturally of significant national concern to the government due to factors such as contributions to the GDP, DFC and employment etc. (Abiama, 1984; Aniekwu & Okpala, 1989a, 1989b; Aniekwu, 1995; Hillebrandt, 1988, 2000; Turin, 1973; Ukwu, Obi & Ukeje, 2003).

### **Nigerian Military Administrations**

Nigerian independence in 1960 created a situation of competition for power among regional/ethnic units (Paden & Soja, 1970). The manipulation of ethno-religious factors for political ascendancy noticeably became serious centrifugal forces which threatened the corporate existence of the nation (Falola *et al.*, 1994). The incursion of the military was therefore only a matter of time as it was obvious that there was no way the post independent social, economic and technology climate could have guaranteed a stable polity (Oni & Onimode, 1975; Onimode, 1982). Thus, the military eventually took power through a coup d'état in January 1966 allegedly, to correct the misrule of the democratic administration and to check the drift towards anarchy and disintegration (Ajayi, 2013).

Unfortunately, the military got contaminated by the viruses that brought down the democratic administration and became part of our national problems (Abdulrahman, 2014; Kehinde & Onanuga, 1990). However, military are relatively more decisive in reaching certain decisions, but like democratic administrations they are also susceptible to fractionalisation, corruption, waste and the abuse of power (Ihonvbere, 1991).

The military institutions are about the least respected and are not educated or trained to manage a state (Ajagbe, 1990; Ihonvbere, 1991). Thus, military administrations may have had mixed effects on Nigerian development (Abdulrahman, 2014; George, Amujo & Cornelius, 2012; Osoba, 1996). Firstly, if it had not been for a powerful military institution with extensive coercive capabilities, the entity known as Nigeria would have dissolved a few years after independence. Secondly, while the military developed policies such as the quota system and the federal character, charges of favouritism hampered their implementation. Thirdly, rather than advancing the cause of nation building fundamentally, the military simply devised self-serving, expedient cosmetic and adventitious formulae that ended up making things more contentious and divided. Fourthly, the killing of northern leaders during the first military coup, Gen. Ironsi's policy of unitary government, and Gen. Gowon's inability to halt the tide of the pogrom against ethnic Igbos in the north resulted in a brutal civil war that lasted thirty months (1967-70) (Ajayi, 2013).

The reasons for the domination of the political economy by the military class are not far-fetched. The military officers were in control of the political economy for about 30years (1966-1979; 1983-1999), through which they acquired huge wealth and degrees that can be used to pursue successful political and corporate ambitions (Nigerian Guardian, 2008; August 8<sup>th</sup>; Welch, 1995). Nigeria's military rulers were psychotic dictators that wrongfully perceived public adulation for support; and often dominated the political process and thus a major obstacle to enduring democracy

(George, Amujo & Cornelius, 2012). Most military leaders aware of their unpopular actions always promised to hand over power to a democratic administration as soon as practicable which may be a strategy to secure public acceptance and hang on to power indefinitely (Ihonvbere, 1991). Military administrations awareness of their managerial incompetence forced them to co-opt civilian technocrats into their administration (George, Amujo & Cornelius, 2012). The assumptions that the military possess some integrating attributes are overtly exaggerated (Adekanye, 1992; Ajayi, 1999, 2007; Falola *et al.*, 1994; Kolawole, 1998). Later, the military was revealed to be corrupt, infiltrated by secret organisations and protection rackets (Dent, 1978). Furthermore, a biased institution, particularly in its treatment of ethno-religious affairs, distribution of national resources, and annulment of the presidential election on June 12, 1993, leading to calls for a Sovereign National Conference (Ajayi, 2013).

### **The Nigerian Political Economy**

Nigeria's petroleum and gas sector (PGS)-based economy, which is plagued by political insecurity, corruption, and bad macroeconomic management, is undergoing significant adjustments under the new democratic regime. Previous military governments in Nigeria failed to wean the economy off its reliance on capital-intensive PGS, which accounts for 20% of GDP, over 95% of foreign exchange profits, and around 65% of government income. Nigerian leaders all attempted to leverage the economy in order to displace the crushing poverty that affects about 60 percent of the population (Nigeria, 2008).

The Nigerian economy is yet to achieve the much-desired goal of rapid growth and transformation, improved welfare for the citizenry and the reduction in poverty. The real sectors of the economy i.e. Agriculture and manufacturing as well as an important service sector such as the NCS remain in comatose with dwindling contribution to the GDP (Oladinrin, Ogunsemi & Aje, 2012). The

causes of underdevelopment in the country may therefore be traced mainly to poor economic management, arising from ineptitude of political leadership and economic programmes. Nigeria had implemented four national development plans (1962-68; 1970-74; 1975-80 & 1981-85) and a three (3) year rolling plan (1990-92) with laudable development objectives centred on sustained economic growth and transformation (Obadan, 1997, 1998; Edo, 1998; Ayodele, 2004). Virtually all political administrations since 1960 have implemented economic programmes that have shaped the reality of the economy today. From the Balewa's 1962-68 national development plans to the present Buhari's economic recovery and growth plan (ERGP), virtually none of the economic programmes can be said to have been effective in its desired outcome. A brief description of Nigeria's past administrations now follows:

The Prime Minister Abubakar Balewa (PAB) administration implemented economic policy on agriculture, Infrastructure and Import Substitution Industrialisation (ISI). Above all PAB partly implemented the 1962-68 first National Development Plan (NDP). Gen. Aguiyi Ironsi (GAI) came into power following a military coup d'état on January 15<sup>th</sup> 1966. The six months duration of GAI was full of turbulence and was later toppled by Gen. Yakubu Gowon (GYG) on July 29<sup>th</sup> 1966 after a counter coup d'etat. The GYG managed Nigeria under its most difficult time which was the civil war (1967-70). Following the civil war, the GYG implemented the Reconciliation, Rehabilitation and Reconstruction (3Rs) programmes. Nigeria relied on agricultural products as the main sources of foreign exchange earnings, export and employment bases until the oil boom of 1973/74. The GYG implemented the 1970-74 second national development plan which encompasses the building of massive public infrastructure and ISI. Policy incentives and control encouraged import-oriented production and consumption with little incentives for non-oil products and imports such that the PGS accounted for 22percent of the GDP, above 80 percent of public



revenue and over 95percent of export earnings. These culminated in the over-valuation of the Nigerian naira (NGN), the heavy subsidization policy, expansion of the State-Owned Enterprises (SOEs), rural urban migration and the neglect of agriculture. On the 29<sup>th</sup> of July, 1975 another coup announced Gen. Murtala Mohammed (GMM) as the new head of state. GMM created seven (7) new states and moved the federal capital from Lagos to Abuja. GMM was assassinated on the 13<sup>th</sup> of February 1976 and Gen. Olusegun Obasanjo (GOO) was announced as the new head of state on the 14<sup>th</sup> of Feb. 1976. GOO continued with the same broad policy of the implementation of 1975-1980 third national development plan, indigenisation policy and ISI. The oil boom of the early 1970s had an all-encompassing effect on the growth and development of the economy. The oil boom, the resulting rapid growth of the public sector and the boom in the NCS had far reaching effects on price level and the underlying structure of the economy. By 1976, economic problems commenced when public expenditures began to outpace revenue. Meanwhile, the value of real exchange rate increased by more than 100 percent from 1973 to 1978, which significantly diminished the international competitiveness of the Nigerian economy. The government financed its external and fiscal imbalances by incurring local and foreign debt, depleting international reserves, and rescheduling of its external payments (Faruquee, 1994).

On October 1<sup>st</sup> 1979, the democratic government of President Shehu Shagari (PSS) was inaugurated ahead of the collapse of the international oil market and world economic depression in 1981 which denied PSS revenue for development programmes. The result was economic crises such as stagflation pressures, capacity utilization, economic depression, external indebtedness and budget deficit etc. The PSS partly implemented the fourth national development plan 1981-85. Nigeria's indebtedness and refusal to devalue the NGN blocked access to foreign capital. The PSS responded by introducing the austerity measure of 1981 and Economic Reconstruction Act (ERA)

or Economic Stabilisation Policy (ESP) of 1982 which later failed to manage the economic crises. PSS was eventually overthrown in a military coup on the December 31<sup>st</sup> 1983, by Gen. Muhammadu Buhari (GMB). As a response to the economic challenge GMB launched the Economic Emergency Policies (EEP) in 1985 which also fall short particularly in the manufacturing sector with a significant fall in the supply of raw material and spare parts. Real per capita income nosedived from about US\$1000 in 1980 to US\$250 in 1989.

While corruption declined in 1985 to below the 1970 level. External debt service obligations rose to about 33.02 percent of export earnings resulting in both internal and external imbalance and economic crisis. The GMB sought to control public revenue and expenditures on consumption and capital goods which had severe negative impact on manufacturing, NCS and other service sectors. Imports declined, nonoil exports declined, saving and investment declined, and inflation increased. Additionally, the NGN overvalued, budget deficit increased and the number and size of SOEs increased sharply. The main deficiency of GMB economic programme is the non-implementation the necessary fundamental structural reform in the economy (Ayodele, 2004; Faruqee, 1994; Smith, 1992; Synge, 1993; Uwechue, 1991).

GMB was overthrown by Gen. Badamasi Babangida (GBB) on the 27<sup>th</sup> of August 1985. The GBB under pressure by the Bretton Wood Institutions (BWIs) announced the adoption of the structural adjustment programmes (SAPs) in August 1986. SAPs were the most revolutionary approach to Nigeria's persistent economic challenges, and also constituted the most controversial package of economic policies in Nigerian history. SAPs focus on the deregulation of the foreign exchange market and the national financial system (NFS), adoption of tight fiscal and monetary policies, liberalization of trade, implementing policies to improve net exports, the privatization of SOEs, deregulation of the downstream subsector of the oil and gas sector, and the abolition of marketing

boards. SAPs also introduced a three-year rolling plan for public DFC formation for the period 1990-92. SAPs implementation was difficult and painful. Factors such as political pressure and the declining oil exports revenue were not helpful. However, a number of important progresses were achieved toward a market-based economy. These achievements include the deregulation of the foreign exchange market, NFS, improvement in non-oil exports, privatization programme and the economic growth rebound. Others include substantial boost in government revenue, improvement in agricultural production and exports, improvement in external payment arrangements, as well as international credit settlements. However, a number of economic problems still bedevil the economy, the free fall of the NGN, high and volatile interest rate, weak and import dependent manufacturing, low and volatile economic growth rate, crisis in the NFS, high inflation rate, high fiscal deficit and crushing external debt, high unemployment and falling standard of living. GBB stepped aside on August 26<sup>th</sup> 1993 paving way for the inauguration of an Interim National Government (ING) under the leadership of Chief Earnest Shonekan (CES). The ING was supposed to complete the transition programme and hand over power to democratically elected government. Unfortunately, the ING was toppled after only 82 days in office on November 17<sup>th</sup> 1993 by Gen. Sani Abacha (GSA) (Ayodele, 2004; Faruqee, 1994; Iwayemi, 1995; Obadan & Edo, 2004a, 2004b).

GSA scrapped the harsh SAPs in 1994 and introduced a friendlier Guided Deregulation (GDR) which recorded limited success. The political tension due to disputed June 12, 1993 presidential election, the rising tension in the oil rich Niger Delta region and execution of Ken Saro Wiwa, a civil right leader and of course the planned transformation of GSA to a democratically elected president led to the suspension of Nigeria from the commonwealth of nation and limited sanctions from some western nations making Nigeria a pariah nation. GSA died on June 8<sup>th</sup> 1998, and Gen.

Abdulsalami Abubakar (GAA) took power. GAA in a quite dramatic fashion built the infrastructure for the ultimate handover of power to a new democratically elected administration of President Olusegun Obasanjo (POO) in less than one year on May 29<sup>th</sup> 1999. POO inherited a country that was at brinks of the precipice and therefore faced enormous challenge in the implementation of political, social and economic reforms as basis for a prosperous and strong nation. POO introduced the National Economic Empowerment Development Strategy (NEEDS) in 2003 an economic blueprint developed from SAPs and GDR to consolidate the policy of macroeconomic stability, deregulation, liberalization, privatization, transparency and accountability. POO successfully reintegrated Nigeria with the international community that climaxed with the debt cancellation and buy back deal of 2005. POO handed over power to another democratically elected government under President Umaru Yaradua (PUY) on May 29<sup>th</sup> 2007. PUY came up with seven-point agenda (SPA) an economic blueprint that touches virtually every sphere of our national lives. PUY died on May 5<sup>th</sup> 2010 and President Goodluck Jonathan (PGJ) took over the leadership of Nigeria on May 6<sup>th</sup> 2010. The PGJ came out with the vision 20:2020 to launch Nigeria into the league of the world's largest economy by the year 2020. PGJ had a successful election in 2011 but lost the bid for his second term in 2015. President Muhammadu Buhari (PMB) defeated the incumbent PGJ in 2015. The PMB faced enormous challenges following the 2016 economic recession. The PMB responded with the economic recovery and growth plan (ERGP) an economic blueprint to rescue Nigeria from its debilitating economic challenges (Obadan & Edo, 2004a, 2004b; Nigeria, 2008; FGN, 2016).

**Table 1 Summary of Nigerian political administration since 1960**

**The Nigerian Construction Sector (NCS):** the NCS has significantly contributed to the growth and development of the Nigerian economy since independence in 1960 (Saka et al., 2019). The NCS contributes between 4 and 10 percent to the GDP; between 40 and 60 percent to the domestic fixed capital (DFC) formation; and up to 10 percent to employment since independence in 1960. The importance of the NCS on national life is easily discernible from the heavy annual expenditure on the provision of building/engineering infrastructure to enhance socio-economic growth and development. The annual spending of the private sector both formal and informal has also been on the steady rise. The NCS grew rapidly in the 1970s due to massive reconstruction following the civil war (1967-70) and the increasing oil revenues at the wake of the oil boom of the 1973/74. However, the decline in the 1980s due to the slump in oil export earnings had significant negative repercussions on the fortune of the NCS given that many projects were stopped. Federal and state governments funding for construction projects tailed off from 1983, and payment delays led to the accumulation of debt owed to contractors. By 1984, the labour force in the NCS dropped to just over a third of its 1980 level. The introduction of Structural Adjustment Programmes (SAPs) in 1986 made matters worse for the NCS as investments in infrastructure were all but put on hold due to the harsh reality of fundamental restructuring of the national economy and tight fiscal and monetary policy (Adekunle, 1980; Aniekwu & Okpala, 1988; Aniekwu, 1995; Anyanwu et al., 1997; Baukley et al., 1993; Faruqee, 1994; Olugbeka, 1991; Smith, 1992; Synge, 1993; Uwechue, 1991).

Nigeria expends vast resources annually on construction projects, most of the funding are provided by the public sector. The private sector is playing an increasingly important role through foreign investment and public-private partnerships, administered by the Infrastructure Concession Regulatory Commission (ICRC). Decades of neglect under past military administrations have

taken a toll on Nigeria's physical infrastructure, forcing the new democratic administration to make infrastructure development a priority. The NCS however face a lot of challenges of development which has impinged on its ability to make commensurate impact on growth and development of the Nigerian economy. Some of the challenges bedevilling the NCS includes: firstly, the NCS bias toward residential buildings instead of engineering facilities; secondly, misallocation and wastes of resources in the NCS and of course project cost and time overruns; thirdly, the growing overdependence of the NCS on foreign contractors, technology and materials; fourthly, difficult operating environment; and lastly, low, volatile and declining GDP contributions (Aboyade, 1966; Abiama, 1984; ACE, 2009; Aibinu & Jagboro, 2002; Ajanlekoko, 1987; Akinsola, 1996; Aniekwu & Okpala, 1987a, 1987b; Aniekwu & Okpala, 1988; Aniekwu & Okpala, 1989a, 1989b; Aniekwu, 1995; Baukley, Faulky & Olajide, 1993; Business Monitor International (BMI) 2009, 2010; Elinwa & Buba, 1993; Mahmud et al., 2021; Mansfield, Ugwu & Doran, 1994; Odeyinka & Yusif, 1997; Oghifo, 2009; Oguntimehin, 1986; Okpala & Aniekwu, 1988; Olomolaiye, Wahab & Price, 1987; Olugbegan, 1991 ; PTI online, 2006; TradeInvest Africa, 2010; Ukwu et al., 2003; Wahab, 1977).

Overall, there have been empirical evidence to suggest that the construction sector is a screen that reflects the economy of the nation (Saka & Olanipekun, 2020; Olanipekun & Saka, 2019) and influenced by the political economy. However, hitherto little is known about the influence of different government administration on the performance of the construction sector. Most especially in developing countries where there have been different administrative regimes of different style (military and democratic).

## **METHODOLOGY**

The research methodology encompasses the set of directions, processes and procedures for the study which includes sampling, methods, research design and analytical strategy (Collis & Hussey, 2009). This study adopted a qualitative research method which involves the use of archival data. This methodological choice takes its stance in a post-positivism research philosophy using a deductive theory development approach (Saunders, Lewis, & Thornhill, 2015). The archival data used is time series data (TSD) on the Nigeria's GDP, CNS, CGD, and CGR over a given period of time. Given that this is a time series data (TSD) and statistical model-based research, it does not involve sampling, method of data collection and research design of social research. The study thus adopts analysis of variance (ANOVA) and analysis of covariance (ANCOVA) models.

### ***Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA) Models***

The classical normal regression model normally uses quantitative data to model relationships between regressand and regressor, however, situations may arise where qualitative data such as nationality, gender, season, public policies and race etc. may be thought to affect the regressand, and thus must be incorporated into the regression model. This is achievable through the use of dummy variables that take on values of 0 or 1, with 0 or 1 indicating the absence or presence of that attribute respectively. The dummy variable allows the effect of the qualitative variable on the regressand to be assessed quantitatively. Regression models with exclusively dummy regressors are called Analysis of Variance (ANOVA) models. Whereas Analysis of Covariance (ANCOVA) models are regression models that contain an admixture of both quantitative and dummy variables. The ANCOVA models are extension of the ANOVA models in that they provide a method of statistically controlling the effects of quantitative regressors, called covariates or control variables (Gujarati, 2003; Trochim, 2000).

### *Number of dummies for the ANOVA Model*

In ANOVA model construction, for each qualitative regressor the number of dummy variables introduced must be one less than the categories of that variable. For example, if a qualitative variable has  $m$  categories, only  $m-1$  dummy variables can be introduced. Nigeria has had fifteen (15) political administrations since 1960 independence which can be broadly divided into two groups-military (MIL) and democratic (DEM) political administrations. Since the political administrations have two categories (MIL & DEM), only one dummy can be introduced using the  $m-1$  dummy variable number rule. The category for which no dummy variable is assigned is called the base, benchmark, control, comparison or reference. All references or comparisons are made in relation to the base or benchmark category. For example, in the present study military administration (MIL) is chosen as the benchmark, thus all references are made in relation to MIL category (see table 2). The intercept term  $B_0$  gives the mean performance of the base or benchmark category in each dummy variable. The slope coefficients  $B_1$  attached to the dummy variables is known as the differential intercept coefficient and they tell by how much the mean value of the intercept that receives the value of 1 differs from the intercept coefficient of the benchmark category (Gujarati, 2003). In the present study,  $B_0 + B_1$  for example reflects the mean performance of NCS, under DEM (MIL is the benchmark while DEM is coded 1). The level of significance of difference from the base NCS is given by the corresponding p-value.

### *Time Series Data (TSD)*

The study employs economic TSD on the performance of the GDP and the NCS covering a forty-eight (48) year period from 1970 through 2017. The TSD were based on 2010 constant USD and were extracted from the United Nations Statistical Department (UNSD) database. Figure 2 presents the GDP from 1970 to 2017, while Figure 3 presents the contribution of all construction related



activities which includes activities of general and special trade contractors primarily engaged in contract construction that includes complete projects and special ones such as painting, plumbing, installing, heating and air-conditioning equipment, excavating and foundation work, or repair of structure.

Insert Figure 2

Insert Figure 3

### Model Specification

**ANOVA Models 1, 2 &3:** The three ANOVA models for this study are specified as follows:

$$LCNS = \beta_0 + \beta_1 D_1 + e \dots\dots\dots(1)$$

$$LCGD = \beta_0 + \beta_1 D_1 + e \dots\dots\dots(2)$$

$$LCGR = \beta_0 + \beta_1 D_1 + e \dots\dots\dots(3)$$

**ANCOVA Models 4:** There is also one ANCOVA model specified as follows

$$LCNS = A_0 + AGDP + B_1 D_1 + e \dots\dots\dots(4)$$

For the models,  $D_1$  represents Democratic administration(DEM) ;

$D_1 = 1$ , if political administration is DEM OR  
 $= 0$  otherwise

NB: Military (MIL) administration is taken as the benchmark in this model.

### Operationalisation of Variables

1. **Gross Domestic Product (GDP):** is the monetary worth of goods and services created in an economy during a given period, regardless of the nationality of the individuals who generated the products and services, in relation to a base year of 2010. It is computed without taking into account depreciation. (CBN, 2017).

2. **Construction Sector (CNS):** this includes activities of general and special trade contractors primarily engaged in contract construction that includes complete projects and special ones such as painting, plumbing, installing, heating and air-conditioning equipment, excavating and foundation work, or repair of structure. In addition, own account construction of various forms is included (Adamu, 1996).
3. **Construction-GDP ratio (CGD):** the ratio of the CNS/GDP.
4. **Construction-growth rate (CGR):** is the annual rate of growth of the CNS.
5. **Military administration (MIL):** government that came into power through military revolution (see table 2).
6. **Democratic administration (DEM):** government that is elected to office through universal adult suffrage (see table 2)

**Table 2: Political Administrations**

## **EMPIRICAL ESTIMATION**

### **Line Graph**

The line graph of the CGD indicates a zig zag pattern with the highest point in 1981(0.057) and the lowest point was in 2004(0.021). The CGR line graph also displays a zig zag pattern with the highest point in 1976(0.24) and the lowest point in 1985 (-0.31). The CNS line graph can be divided into two compartments (1970-1985; 1986-2017). The highest point on the line graph is 2015( $1.78 \times 10^{10}$ ) and the lowest point was in 1985( $2.24 \times 10^9$ ). The GDP line graph followed a diagonal pattern from 1970 through 2017, the highest point on the graph was in 2015( $4.64 \times 10^{11}$ ) and lowest point was in 1970( $6.67 \times 10^{10}$ ) (see fig. 1).

**Figure 1 line graph of CGD, CGR, CNS and GDP.**

### **Descriptive Statistics**

**Military administration** ruled for 25 years out of 48 years (1970 through 1979; 1984 through 1998) of administration. The mean and standard deviation of the CGD under the military were 0.032617 and 0.010344 respectively. The mean and standard deviation of CGR under the military were 0.035762 and 0.113252 respectively. The mean and standard deviation of the CNS under the military were  $3.40 \times 10^9$  and  $2.60 \times 10^{10}$  respectively. Finally, the mean and standard deviation of the GDP under the military were  $1.09 \times 10^{11}$  and  $2.60 \times 10^{10}$  respectively.

**Democratic administration** had a total of 23 out of 48 years (1980 through 1983 & 1999 through 2017). The mean and standard deviation of the CGD under democracy were 0.032753 and 0.009936 respectively. The mean and standard deviation of the CGR under democracy were 0.058017 and 0.092288 respectively. The mean and standard deviation of the CNS were  $8.94 \times 10^9$  and  $4.90 \times 10^9$  respectively. Finally, the mean and standard deviation of the GDP under democracy were  $2.82 \times 10^{11}$  and  $1.30 \times 10^{11}$  respectively.

**Total Political administration (military & democracy):** For the aggregate statistics throughout the period (1970 through 2017) the mean and standard deviation of the CGD were 0.032683 and 0.103018 respectively. The mean and standard deviation of the CGR were 0.046653 and 0.103018 respectively. The mean and standard deviation of the CNS were  $6.06 \times 10^9$  and 0.103018 respectively. Finally, the mean and standard deviation of the GDP were  $1.92 \times 10^{11}$  and  $1.26 \times 10^{11}$  respectively.

### **Table 3 Descriptive statistics**

**Model 1 ANOVA Model:** The estimates of ANOVA model 1 indicates that Military administration is significant with  $t=273.4881$ ;  $p\text{-value} = 0.0000$ . However, democratic administration is significantly better than the military administration with  $t= 7.405655$ ;  $p\text{-value} = 0.0000$ . The model fit is good with an adjusted  $R^2=53.39$  percent and  $F=54.84373$  percent,  $p$

value =0.0000. In summary the model confirms that democratic administration is significantly better (positive) than military administration in term of CNS performance (see Table 4).

**Model 2 ANOVA Model:** The estimates of ANOVA model 2 indicate that the military administration had a negative but significant effect on the CGD  $t = -58.90646$ ;  $p\text{-value} = 0.0000$ . The estimates also indicate that democratic administration is positive but not significantly better than military administration in terms of the CGD  $t = 0.119759$ ;  $p\text{ value} = 0.9052$ . The model fit is abysmally low with an adjusted  $R^2 = -2.1$ percent and  $F = 0.014342$ ;  $p\text{-value} = 0.905196$ . In summary once again democratic administration is better (positive) than military administration though not significant (see table 4).

**Model 3 ANOVA Model:** The estimates of ANOVA model 3 indicates that military administration had significant effect on the CGR,  $t = 3.242606$ ;  $p\text{-value} = 0.0000$ . The democratic administration is however, significantly better than military administration in terms of the CGR  $t = 2.071141$ ;  $p\text{-value} = 0.0454$ . The model fit is very low with an adjusted  $R^2 = 7.97$ percent and  $F = 4.289623$ ;  $p\text{-value} = 0.045374$ . In summary once again democratic administration is significantly better (positive) than military administration (see table 4).

**Model 4 ANCOVA Model:** The estimates of ANCOVA model 4 indicates that the GDP is significant with a  $t = 7.505889$ ;  $p\text{ value} = 0.0000$ . The constant which represents the military administration is not significant. However, democracy is significantly better than military administration with  $t = 2.318061$ ;  $p\text{-value} = 0.0250$ . This model clearly shows that the GDP is more important to the construction sector output than the political administration (MIL or DEM). The model fit is very high with adjusted  $R^2 = 78.84$ percent and  $F = 88.57978$ ;  $p\text{-value} = 0.0000$ . In summary this model further confirms that democratic administration is significantly better than military administration in construction sector performance (see table 4).

**Table 4: estimates of Models 1 to 4**

## **DISCUSSION OF RESULTS**

The present study examines the effects of types of political administration (MIL or DEM) on the performance of the Nigerian construction sector for a forty-eight (48) year period (i.e. 1970 through 2017). Political administrations may have had significant effect on the performance of the CNS. The estimates of model 1 clearly show that military administration had significant effect on the CNS, but democratic administration was significantly better than the military administration. Similarly, the estimates of model 2 indicate military administration had significant negative effect on the CGD whereas democratic administration is positively better but not significantly different from military administration in other words the construction share of the GDP was higher under democracy than the military administration. The estimates of model 3 indicate that military administration had significant effect on the CGR but the democratic administration is however, significantly better than the military administration. In other words, the CNS grew significantly faster under democratic administration than the military. Finally, the estimates of model 4 indicate that the GDP is significant and democratic administration is significantly better than military administration.

The extant literature indicates that military administrations may have had adverse effect on the performance of the NCS up to 1999. During the period under review (1970 -2017) most of the military administrations had harsh policy on investment including construction. Thus the CNS had poor performance under the GMB's Economic Emergency Policies, the GBB's SAPs and the GSA's GDR which agrees with the extant literature that there was a negative consequences of SAPs and similar economic policies on the entire economy such as inflation, falling value of the NGN and difficulties in sourcing of foreign or imported contents (material & technology) which

are very vital for the survival and growth of the construction sector (Faruqee, 1994; Obadan & Edo, 2004a, 2004b; & Ayodele, 2004).

The CNS under military administrations witnessed a progressive plummeting fortune such that, there was a near total shutdown of the sector. This manifests in a state of complete disrepair of physical infrastructure across the country. The situation worsened with multinational construction companies (MNCCs) and Nigerian indigenous construction companies (NICCs) being owed several billions of NGN. Most of the challenges of the CNS were solved after May 1999, with the payment of the debts, by the new democratic administration which naturally brought a new lease of life to the CNS. The democratic administrations since 1999 have introduced a number of reforms such as stringent and due process in tendering for contracts, establish the Federal Roads Maintenance Agency (FERMA) and the infrastructure concession regulation commission (ICRC). In addition, the democratic administration has also been able to improve Nigeria investment climate to the extent that foreign investment is growing in the CNS. Recently the Nigerian infrastructure development benefited from Chinese involvement; the China Harbour Engineering for instance, signed an agreement in the country, with a project for the construction of USD1bn roads in the Niger Delta and deep seaport in Lagos (BMI, 2009; Oghifo, 2000).

The findings support the assertion that democratic administration is better than military administration in developing the economy. Freedom, rigorous debate, due process, transparency, lobby, politics of public projects and appeasement are factors that may give democratic administration the edge over military administration. Thus the wildly held notion that democratic administration is better than military administration may not be far from the truth (Ajagbe, 1990; Ajayi, 2013; George, Amujo & Cornelius, 2012; Kehinde & Onanuga, 1990 ). The political administration have a significant role to play in making the CNS viable and productive. The

government determines the direction of the construction sector by their fiscal (expenditure and taxation) and monetary policy. Government capital expenditure (capex) accounts for over 60percent of construction sector output and 95percent of engineering works. In addition, through monetary (money supply & interest rate) policies government is able to exert control on private sector construction. However, the estimates of model 4 clearly indicate that the state of the economy has more significant impact on construction than political administrations. The construction demand function is driven mainly by the GDP and the interest rate (Akintoye & Skitmore, 1994; Anaman, 2003; Brainard & Tobin, 1968; Dove, 1991; Hillebrandt, 1988, 2000; Killingsworth, 1990; NEDO, 1978; Newcombe *et al.*, 1990; Tan, 1989; Tobin & Brainard, 1977; Tobin, 1969; Tse & Ganesan, 1997; Tunali & Assaad, 1999; Yiu *et al.*, 2004; Vetiva, 2011). Finally, one important fact from this study is that the CGD and CGR ratios are very appalling with a mean ratio less than 5percent during the period under review this is a far cry from the 10percent for fast-growing middle-income economies (Seeley, 1992; World Bank, 1984; Vetiva, 2011).

## **CONCLUSION**

The findings from the study shows that both military and democratic administrations had significant effect on the performance of the construction sector indices (CGD and CGR). The democratic administration is however significantly better than military administration in term of construction sector performance. The political administration- military or democracy is very important for the performance of the CNS. This is in so far as administration is proactive and sensitive to the aspiration of the sector. Government fiscal and monetary policies are very

important determinants of the performance of the CNS. The study, therefore, concludes that the GDP is of greater significance on the CNS performance than the political administrations.

Additionally, the study reveals that the performance of the construction sector in Nigeria during the period under review was very appalling either in term of CGD or CGR ratios. The CGD and CGR ratios had a mean of 3.27 percent and 4.67percent respectively. This indicates an economy at the early stage of development. It can thus be concluded that Nigeria is a slow growing low-income economy. Middle income and fast-growing developing economies normally have a construction growth rate and construction-GDP ratio of up to 10percent.

## **RECOMMENDATION**

**National Housing Policy:** since the political administrations had significant impact on the CNS performance indicators, it will be most appropriate if the government come out with a national housing policy for sustainable growth and development of the sector. The study strongly recommends for the formulation of a robust housing policy to chart the roadmap for sustainable housing development for the generality of the Nigerian people. Today Nigeria has over 17million housing needs, therefore, to solve the challenges of housing the nation needs overwhelming resources of finance, manpower, technology, and materials.

**National Transport Infrastructure Policy:** Similarly, there is the urgent need for a policy on transportation construction subsector of the CNS. Transport facilities such as highway, bridges, seaports, airports and railways are in state of disrepair and thus need serious attention of government in policy. Governance must therefore formulate policies and programmes for the sustainable growth and development of the transportation construction subsector.

**Fiscal and Monetary Policy:** The growth rate of the sector has been abysmally low government must deliberately make policy that enhances the growth rate of the sector through favourable fiscal



and monetary policies. Budgeting for capital expenditure must be tailored to construction infrastructure improvement in roads, bridges, rail, ports and housing. Government should encourage private sector spending on construction facilities through favourable tax and monetary policies that enhance construction demand given that private construction investment are easily postpone-able until the availability of cheap money.

**Local Content Development:** The growing overdependence of the construction sector on foreign inputs creates balance of payments (BoPs) challenges and little linkages of the CNS to other sectors of the economy. The government must formulate and implement a proactive local content development policy for the CNS.

**Construction Loan Guaranty Scheme:** The Security and Exchange Commission (SEC), the Nigerian Stock Exchange (NSE) and the Central Bank of Nigeria (CBN) need to work out viable financing opportunities for infrastructure in the Nigerian Financial System (NFS) for the sustainable development of the Nigerian construction sector. Finally, government economic policy must also be able to control inflation and foreign exchange rates for the stability and growth of the construction sector.

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