Response of Nigerian Construction Industry to Economic Growth

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ABSTRACT

The study assessed response of Nigerian Construction Industry to economic growth of Nigeria. The research was conducted using secondary data. The secondary data used was the National Account Dataset from 1981 to 2018 as 2010 constant price year. This was gotten from the Central Bank of Nigeria (CBN) publication reports. The response was evaluated through Impact propensity (IP), Finite Distributed Lag (FDL) and the Long Run Propensity (LRP). These parameters were calculated from the time series regression analysis using ordinary Least Square Method of estimation. The results show that the impact propensity of economic growth on construction is weak with correlation coefficient of -0.012. Delayed impact of economic growth on construction was observed with finite distributed lag of two year cycle. Maximum correlation coefficient of 1.265 with the economics of the preceding year (t-1) was observed. Long run propensity of 1.333 establishes a high growth propensity for construction industry given a one percent permanent GDP growth. Therefore, the study concluded that a consistent economic growth is desirable so as to achieve improved construction industry contribution to GDP.

Keywords : Response, Nigeria, Construction Industry, Economic Growth

I. INTRODUCTION

The construction industry in Nigeria is one of the biggest employers of labour in the country. Despite the computer era we are now, the industry is still one of the few that relies a great deal on the individual skill and unskilled of workmen. Presently, there is, and always will be, the need for tradesmen such as: Bricklayers, Carpenters/Joiners, Plumbers, Electricians, Tilers among others.

The construction industry is often seen as a driver of economic growth especially in developing countries [1];[2]. Also in the United States, the industry (including design, new and renovation construction, and the manufacture and supply of building materials and equipment) is one of the largest industries [3]. [4], found a positive correlation between several measures of construction output and the level of income per capita. [5], stated that construction and the national output grow at the same rate only in a declining economy and that in a growing economy, the volume of construction typically, would not grow faster than the rest of the economy. Also, [1] affirmed that construction activities and its output are integral part of a country's national economy and industrial development.

The construction industry contributes to the nation's gross national product and creates employment for the citizenry. According to [6], building construction sector is one of the top five sectors used in measuring the National Gross Capital Formation (NGCF) and the gross domestic product (GDP) of any country and its effect on every other sector makes it a significant front for sustainable development.

The industry is the world's largest industrial employer and in most countries it accounts for more than half of capital investment and as much as ten percent of GDP [7]. [8], stated that construction industry has potential for positive impact on economic growth and it is an important component in the investment programmes in developing economics. Also, [9], noted that construction through its extensive forward and backward linkages with other sectors of the economy generates one of the highest multiplier effects in terms of social development. [10]; [11]; [12], investigated the contribution of construction sector to Nigerian economy and opined that the industry was characterized with low contribution to GDP, in spite of the growth rate between 2006 and 2007,the contribution of construction to GDP remains very low at 1.88% in 2008. However, construction has been adjudged to be one of the drivers of social and economic development of any nation [13]. The study conducted by [14], revealed the relationship between the construction sector and the national economy, that the evolution pattern of the share of construction Value Added (CVA) in GDP in the developing countries of Sub-Saharan Africa is marked differently according to the country stage of economic development, determined by Gross National Income (GNI) per capita. The discovery underscores the need for conducting research on specific behaviour of construction industry of each country to enable appropriate policy formulation and suitable economic sector [15]. [16], investigated the linkages between the construction sector and other sectors of Nigeria

economy and found that construction significantly leads many sectors. Virtually all economic sectors feedback into the construction sector, thereby mutual interdependence of construction with other sectors of the economy was established. [17], also examined the effect of fiscal policy on sectoral output growth in Nigeria. A clear disparity in the sectoral response to fiscal policy was observed which underscored the inefficacy of conducting uniform and economy wide fiscal policy in Nigeria.

These few existing empirical studies have established some strength, weakness and opportunity for the Nigeria construction industry. The more empirical studies conducted to unravel the macroeconomics behaviours of the industry, the more the potential for discovering strategies for improving the productivity of the industry for improved contribution to national economy. Therefore, this study aims at assessing the response of Nigerian Construction industry to the economic growth of Nigeria, with a view to determining the impact of the industry on Nigeria economy, In achieving this, the specific objectives are to evaluate: the impact propensity, finite distributed lag and long run propensity of construction industry on the general economic growth of Nigeria. As at the time of this study, the sizes of Nigerian construction industry were small, medium and large.

II. METHODS AND MATERIAL

The construction industry is often seen as a driver of economic growth especially in developing countries [1]; [2]. Also in the United States, the industry (including design, new and renovation construction, and the manufacture and supply of building materials and equipment) is one of the largest industries [3]. [4], found a positive correlation between several measures of construction output and the level of income per capita. [5], stated that construction and the national output grow at the same rate only in a declining

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III. RESULTS AND DISCUSSION

Table 1 shows the longitudinal data of Nigerian construction industry's output and growth together with that of Gross Domestic Product (GDP) and GDP growth over a 3 year time lag from 1981 to 2018.

TABLE I. CONSTRUCTION GROWTH AND NIGERIA ECONOMIC GROWTH AT 2010 CONSTANT-PRICE 1981 – 2018 IN BILLIONS OF NAIRA

S/N	Year (t)	Const Output (t)	Econ Output (t)	CONSTG (t) (%)	ECONG (t) (%)	EconG (t-1) (%)	EconG (t-2) (%)	EconG (t-3) (%)
1.	1981	852.00	15258.00	0.00	0.00	0.00	0.00	0.00
2.	1982	679.00	14985.00	-20.31	-1.79	0.00	0.00	0.00
3.	1983	599.00	13850.00	-11.78	-7.57	-1.79	0.00	0.00
4.	1984	488.00	13779.00	-18.53	-0.51	-7.57	-1.79	0.00
5.	1985	336.00	14954.00	-31.15	8.53	-0.51	-7.57	-1.79
6.	1986	336.00	15238.00	0.00	1.90	8.53	-0.51	-7.57
7.	1987	367.00	15264.00	9.23	0.17	1.90	8.53	-0.51
8.	1988	404.00	16215.00	10.08	6.23	0.17	1.90	8.53
9.	1989	421.00	17295.00	4.21	6.66	6.23	0.17	1.90
10.	1990	442.00	19306.00	4.99	11.63	6.66	6.23	0.17
11.	1991	460.00	19199.00	9.00	-0.55	11.63	6.66	6.23
12.	1992	478.00	19620.00	3.91	2.19	-0.55	11.63	6.66
13.	1993	502.00	19928.00	5.02	1.57	2.19	-0.55	11.63
14.	1994	517.00	19979.00	2.99	0.26	1.57	2.19	-0.55
15.	1995	531.00	20353.00	2.71	1.87	0.26	1.57	2.19
16.	1996	537.00	21178.00	1.13	4.05	1.87	0.26	1.57
17.	1997	572.00	21789.00	6.52	2.89	4.05	1.87	0.26
18.	1998	606.00	22333.00	5.94	2.50	2.89	4.05	1.87
19.	1999	629.00	22449.00	3.80	0.52	2.50	2.89	4.05
20.	2000	654.00	23688.00	3.97	5.52	0.52	2.50	2.89
21.	2001	733.00	25268.00	12.08	6.67	5.52	0.52	2.50
22.	2002	764.00	28958.00	4.23	14.60	6.67	5.52	0.52
23.	2003	831.00	31709.00	8.77	9.50	14.60	6.67	5.52
24.	2004	775.00	35021.00	-6.74	10.44	9.50	14.60	6.67
25.	2005	869.00	37475.00	12.13	7.01	10.44	9.50	14.60
26.	2006	981.00	39996.00	12.89	6.73	7.01	10.44	9.50
27.	2007	1109.00	42922.00	13.05	7.32	6.73	7.01	10.44
28.	2008	1254.00	46013.00	13.07	7.20	7.32	6.73	7.01
29.	2009	1404.00	49856.00	11.96	8.35	7.20	7.32	6.73
30.	2010	1571.00	54612.00	11.89	9.45	8.35	7.20	7.32
31.	2011	1818.00	57511.00	15.72	5.31	9.45	8.35	7.20
32.	2012	1989.00	59930.00	9.41	4.21	5.31	9.45	8.35
33.	2013	2272.00	63219.00	14.23	5.49	4.21	5.31	9.45
34.	2014	2568.00	67153.00	13.03	6.22	5.49	4.21	5.31
35.	2015	2680.00	69024.00	4.36	2.79	6.22	5.49	4.21
36.	2016	2521.00	67931.00	-5.93	-1.58	2.79	6.22	5.49
37.	2017	2546.00	68491.00	0.99	0.82	-1.58	2.79	6.22
38.	2018	2605.00	69810.00	2.32	1.46	0.82	-1.58	2.79

Table 2 shows the details of the time series regression (Model A) of construction growth at time (t) on economic growth at four different time periods; time (t) for contemporaneous relationship with the construction growth. At time *(t-1)*, *(t-2)* and *(t-3)* for one year lag, two year lag and three year lag respectively. The results showed that the maximum correlation exists between construction growth and economic growth at a year time lag *(t-1)* with regression coefficient of 0.843 and standardize coefficient of 0.367 to present the only significant independent variable at significance of 0.043. Impact propensity of construction growth on economic growth at time (t) is weak with regression coefficient of -0.012 and standardize coefficient of -0.005 which is equally significant with significance of 0.970.

TABLE III

A Three Year Lag Regression Model (A)

Variables	Unstandardized Coefficient		Standardize Coefficient			Collinearity Test	
	Coefficient	Stand error	Coefficient	T-test	Si.g	Tolerance	VIF
Constant	-4.379	2.052	-	-2.134	0.040	-	-
Econ G (t)	-0.012	0.355	-0.005	-0.035	0.970	0.683	1.463
Econ G *(t-1)*	0.843	0.401	0.367	2.105	.0.43	0.528	0.892
Econ G *(t-2)*	0.398	0.400	0.174	0.993	0.328	0.524	1.907
Econ G*(t-3)*	0.721	0.356	0.312	2.021	0.051	0.676	1.479

Table 3 shows the regression analysis of the alternative model B with construction growth at time (t) on economic growth at time (t) and *(t-1)* thus dropping the two insignificant variables of *(t-2)* and *(t-3)*. The results showed that contemporaneous effect of economic growth at time (t) is with regression coefficient of 0.068 and insignificant while economic growth at *(t-1)* is still the significant variable with improved coefficient of 1.265 and significance of 0.002. Though, collinearity is high as expected from time series regression it is still within tolerable limit.

TABLE IIIII

A Year Lag Regression Model (B)

Variables	Unstandardized Coefficient		Standardize Coefficient			Collinearity Test	
	Coefficient	Stand Error	Coefficient	T-test	Sig	Tolerance	VIF
Constant	-1.838	2.052	-	-0.895	0.377	-	-
Econ G (t)	0.068	0.388	0.030	0.176	0.861	0.689	1.452
Econ G *(t-1)*	1.265	0.385	0.551	3.286	0.002	0.689	1.452

Table 4 shows the general assessment of the two regression models A and B. Model A's statistic shows a better predictive power with regression coefficient of 0.685, R-Square of 0.469 and standard error of 7.845 compared with model B with regression coefficient of 0.568, R-Square of 0.323 and standard

error of 8.604. However the regressive power of model B is superior with a better result on practical and statistical significance of the relationship between construction growth and economic growth with regression coefficient of 1.265 and significance of 0.002. Therefore model B is the preferred regression model.

Based on model B, Finite Distributed lag of a two years cycle was accepted at (t) and *(t-1)* with regression coefficient δ_0 and δ_1 of 0.068 and 1.265 respectively. Long Run Propensity which is the sum of these finite distributed lag coefficients gives 1.333.

TABLE IVV

REGRESSION MODELS SUMMARY

S/N	Parameters	Model A	Model B
1.	R	0.685	0.568
2.	R-Square	0.469	0.323
3.	Adjusted R-Square	0.405	0.284
4.	Standard Error	7.845	8.604
5.	F-Statistics	7.290	8.333
6.	Significances	0.000	0.001

IV. CONCLUSION

The impact propensity of economic growth on Nigeria construction growth is weak and as a result, current year economic growth has insignificant influence on construction output in the current year. This has established the fact that Nigerian construction industry lags behind the general economy which has put paid to the inability of the industry to drive the economy from recession.

However, with the long run propensity of 1.333 which is the coefficient of one percent permanent growth in economy on construction, the industry has demonstrated a potential for high marginal growth rate, with the implication of an improving contribution as the economy grows. Therefore with consistent growth in economy, construction industry's contribution to the GDP would be increasing and could surpass most sectors presently leading construction in terms of contribution to GDP. A delayed effect of economic growth on construction output with a maximum impact felt a year after also reinforces the fact that construction industry is led by the general economic output. This makes the management decision making in the industry more effective with high confidence level in management decision making.

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