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CLIMATE CHANGE, LIVESTOCK PRODUCTION AND INCOME VULNERABILITY- BANGLADESH PERSPECTIVE

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ABSTRACT: *Climate change has a direct effect on overall livestock sector and as a result has an indirect effect on livestock rearing farmers. However, the study was conducted considering specific objectives: i) to determine the socioeconomic profile of the respondent farmers; ii) to depict the present livestock scenarios; iii) to study the climate change scenario in areas and iv) to delineate the effects of climate change on income vulnerability status of the respondents. Four districts namely Barguna, Bhola, Lalmanirhat and Kurigram of Bangladesh were selected on the basis of frequency of climate change events. Taltoli and Charfashion Upazilas were more prone to natural catastrophic of cyclone and tidal surge; and Lalmanirhat and Bhurungamari Upazilas were severely vulnerable of flood and draught. Simple random sampling method was used to collect primary data with a structured questionnaire. Total sample size was 300. Both tabular and statistical techniques were used to analyse the data. Descriptive statistics such as frequency, average, percentage, ratios were also estimated and STATA software was used to analyse the vulnerability status. The study found that 77% farmers were in age group 50 to 65 followed by 20%, 66 to 80 and 3% above 80 years old. 77% farmers had agriculture as their primary occupation followed by 15% business and 8% service. Average family size was found 5.56 which were higher than the national average 4.9 (HIES 2014) and farm size indicates small farm category which was 1.1 hectare. On average, farmers had 41 years of farming experience. Among the sampled farmers, 81% of the respondents opined that major livestock species were reducing over the last three decades. Livestock population was reducing over the years and 56% respondents stated this scenario. On the other hand, livestock rearing cost was increasing alarmingly and it was found 4.45 times compared to three decades ago. The study found a scenario of major livestock population which indicated that livestock population per household was declining over the decades. Among the studied farm household 93% and 84% were found vulnerable at present and 30 years ago, respectively. At present and 30 years ago, average vulnerability was estimated 0.93 and 0.85, respectively. Heat stroke, repeat breeding and less conception rate fall livestock production into jeopardized condition. In conclusion, we can say that to give more attention to our native genetic resource potentialities and it would be wise to adopt new technologies and to adapt with predictable and unpredictable climate change for sustainable and profitable livestock enterprise in future.*

KEYWORDS: Climate Change, Income Vulnerability, Livestock Population, Livestock Production, Diseases, Livestock Rearing Farmers

INTRODUCTION

Intergovernmental Panel on Climate Change (IPCC, 2007) identifies Bangladesh as one of the smallest countries in the world that has been experiencing severe vulnerability to the issues related to climate change. Changes in climate and extreme weather events have received increased attention in the recent years. Changing temperature and weather pattern have great influence on increasing magnitude of climate change impacts (Kimaro and Chibinga, 2013). The climate change would affect particularly the economics of the rural areas where people are more dependent on livestock, fisheries and agriculture related activities for their livelihoods (IFAD, 2009). Livestock play a vital role in the agriculture sector in developing nations, and about 12% agricultural GDP comes from the livestock sector and 10 million people are directly involved to this livestock sector for their livelihood (Karim *et al*., 2010). Global demand for foods of animal origin is growing and it is apparent that the livestock sector will need to expand (FAO, 2009). They are adversely affected by the detrimental effects of extreme weather condition. Climatic extremes and seasonal fluctuations in herbage quantity and quality will affect the well-being of livestock, and will lead to declines in production and reproduction efficiency (Sejian, 2013). It is a major threat to the sustainability of livestock systems globally. Consequently, adaptation to, and mitigation of the detrimental effects of extreme climates has played a major role in combating the climatic impact on livestock (Sejian *et al*., 2015a). Global warming is affecting agribusiness in its economic aspects. It has complex impacts on domestic animal production system affecting feed supply, challenging thermoregulatory mechanism resulting thermal stress, emerging new diseases due to change in epidemiology of diseases and causing many other indirect impacts. Animals exposed to heat stress reduce feed intake and increase water intake, and there are changes in the endocrine status which in turn increase the maintenance requirements leading to reduced performance (Gaughan and Cawsell-Smith, 2015). Environmental stressors reduce body weight, average daily gain and body condition of livestock. Declines in the milk yield are pronounced and milk quality is affected. It also negatively influences on growth, reproduction performance, milk production, wool production, animal health and welfare (Walter *et al.,* 2010). There are many rapidly emerging diseases that continue to spread over large areas. Outbreaks of diseases such as foot and mouth disease or avian influenza affect very large numbers of animals and contribute to further degradation of the environment and surrounding communities' health and livelihood. Climate change has a direct effect on overall livestock sector and as a result has an indirect effect on livestock rearing farmers. Ultimately climate change is affecting negatively the livelihood of farmers who rear various species of livestock. But research in this arena is very limited. So, the proposed study was given attention to determine the socioeconomic profile, farmers' perception towards climatic effect on livestock production and income vulnerability which have vast negative effects on livestock production and provide some policy recommendations for the betterment of sustainable livestock production. It was also given emphasis to find out the present livestock population scenario of the climate change affected livestock farmers.

Objectives of the Study:

i. To assess the farmers' socioeconomic profile in the study areas;
ii. To delineate the livestock population scenario at household level;
iii. To study the climatic change scenario in the study areas; and
iv. To assess the effects of climate change on vulnerability status of the respondents.

METHODOLOGY

Study areas were selected purposively on the basis of frequent climate change events from four districts namely Taltali under Barguna, Charfashion under Bhola, Patgram under Lalmanirhat and Bhurungamari under Kurigram district of Bangladesh. Simple random sampling technique was followed for selecting the respondent farmers. Samples were consisted of 75 livestock farmers from each Upazila and total sample size was 300. Field survey method was followed to collect primary data from November/2016 to February/2017. Data were collected from respondents by using structured interview schedule and conducting FGD (Focus Group Discussion) for group information. The structured interview schedules were developed and field-tested for necessary modifications before starting data collection. Data were collected through direct interviews making personal visits to the house of selected farmers. Secondary data and information were also collected and discuss for this research from different handouts, reports, publications, notifications, etc. Combinations of descriptive, statistical and mathematical techniques were applied to achieve the objectives.

Measurement of Vulnerability

The vulnerability to poverty was measured that was proposed by Chaudhuri (2003), Chaudhuri *et al.* (2002) and Suryahadi and Sumarto (2003), developed particularly for cross-section data. Vulnerability, in this context, is define as expected poverty, or in other words as the probability that a household's consumption will lie below the predetermined poverty line in the near future. Following Chaudhuri (2003), for a given household *h*, the vulnerability was defined as the probability of its consumption being below poverty line at time *t*+1:

$V_{ht} = \Pr (ln\ c_{h,t+1} < ln\underline{c})$

Where V_{ht} is vulnerability of household *h* at time *t*, $c_{h,t+1}$denotes the consumption of household *h* at time *t+1* and $\underline{c}$ stands for the poverty line of household consumption.

Assuming that for household *h*, the data generation process for consumption was captured by the following equation:

$$ln c_h = X_h \beta + \varepsilon_h \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

Where c_h stands for per capita consumption expenditure for household, X_h represents a vector of observable household characteristics (containing both idiosyncratic and community elements), β is a vector of parameters, and ε_h is a mean-zere disturbance term that captures household's idiosyncratic factors (shocks) contributing to differential level of per capita consumption for households that share the same characteristics.

Consumption expenditures, c_h was assumed log-normally distributed and as such the disturbance term, ε_h was distributed normally. The vulnerability to poverty of household, *h* with characteristics X_h can be calculated using the coefficient estimates of the equation (1) in the following manner:

$$\hat{v_h} = \hat{p}r\ (\ln c_h < \ln\underline{c} \mid X_h) = \Phi\ (\frac{\ln \underline{c} - Xh\hat{\beta}}{\hat{\sigma}}) \ldots\ldots\ldots\ldots (2)$$

Where $\hat{V}_h$ denote vulnerability to poverty, that is the probability that the per capita consumption level (c_h) was lower than the poverty line ($\underline{c}$) conditional on household

characteristics X_h. Meanwhile, Φ(.) denotes the cumulative density of the standard normal distribution and is the standard error of the equation (1).

Households future consumption is further assumed to be dependent upon uncertainty about some idiosyncratic and community characteristics. To get consistent estimate of parameters, it is necessary to allow heteroskadastisity, that is, variances of the disturbance term to vary. This can take the following functional form:

σ_e^2,h= Zhθ= $\sum_i\sum_{j\geq i} X_h^i X_h^j \theta_{ij} + \eta_h$…….....(3)

A three step Feasible Generalized Least Squares (FGLS) procedure was used to estimate the parameter θ. Equation (1) was estimated first using an ordinary least squares (OLS) produce. Then the estimated residuals from the equation (1) was used to estimate the following equation, again by OLS:

$\hat{e}^2_{OLS,h}$ = Zhθ + η_h = $\sum_i\sum_{j\geq i} X_h^i X_h^j \theta_{ij}$ + η_h..... (4)

The estimate from above is then used to transform the equation (4) into the following:

$\frac{\hat{e}^2_{OLS,h}}{Zh\theta OLS}$ = $(\frac{\text{Zh}}{Zh\theta OLS})\,\theta + \frac{\eta h}{Zh\theta OLS}$.....(5)

This transformed equation has estimated using OLS to obtain an asymptotically efficient FGLS estimate $\hat{\theta}$FGLS. Zh$\hat{\theta}$FGLS is a consistent estimate of σ_e^2,h which is the variance of the idiosyncratic component of household consumption. This is then used to transform the equation (1) into:

$\frac{lnch}{\sqrt{\text{Zh}\hat{\theta}\ FGLS}}$ = $(\frac{Xh}{\sqrt{\text{Zh}\hat{\theta}\ FGLS}})\,\beta + \frac{eh}{\sqrt{\text{Zh}\hat{\theta}\ FGLS}}$ ..... (6)

OLS estimation of the equation (6) yields a consistent and asymptotically efficient estimate of β. The standard error of the estimated coefficient, $\hat{\beta}$ FGLS can be obtained by dividing the reported standard error by the standard error of the regression. Finally, the estimates of β and θ obtained through this FGLS method can be used to estimate the vulnerability to poverty of household *h* through the following generalization of the equation (2):

$\hat{V_h}$ = Φ $(\frac{ln\underline{c} - \text{Xh}\beta}{\sqrt{\sum i\sum j\geq i X_h^i X_h^j \theta ij}})$..... (7)

Clearly, estimation of vulnerability to poverty depends on the following elements: the distributional assumption of normality of log consumption, the choice of poverty line $\underline{c}$, the expected level of log consumption and the expected variability of log consumption. The higher the level of expected consumption and expected consumption variability the lower the vulnerability is.

RESULTS

Farmers' Socioeconomic Profile

Study found that 77% farmers were in age group 50 to 65 followed by 20%, 66 to 80 and 3% above 80 years old indicating that farmer were well aware of the socioeconomic, climatic and sociopolitical scenario of the respective regions. 77% farmers had agriculture as their primary occupation followed by 15% business and 8% service meaning that household prime income source was agriculture. In case of education, 38% farmers had primary education followed by 35% SSC, 17% illiterate, 6% HSC and 4% above degree. Average family size was found 5.56 which were higher than the national average 4.9 (HIES 2014) and farm size indicates small farm category which was 1.1 hectare. Duration of living in same village was calculated 50% above 50 years followed by 44% from 31 to 50 years and only 6% up to 30 years. On average, farmers had 41 years of farming experience (Table 1).

Table 1. Farmers' socioeconomic profile

Particulars	Lalmonirhat	Kurigram	Bhola	Borguna	Average
From 50 to 65 (Age)	65 (87)	57 (76)	58 (77)	51 (68)	57.75 (77)
From 66 to 80 (Age)	6 (8)	16 (21)	15 (20)	22 (29)	14.75 (20)
Above 80 (Age)	4 (5)	2 (3)	2 (3)	2 (3)	2.5 (3)
Occupation (%)					
Agriculture	63 (84)	55 (73)	56 (75)	58 (77)	58 (77)
Business	10 (13)	16 (21)	9 (12)	11 (15)	11.5 (15)
Service	2 (4)	4 (5)	10 (13)	6 (8)	5.5 (7)
Education (%)					
Illiterate	31 (41)	20 (27)	0	0	12.75 (17)
Primary	22 (29)	37 (49)	32 (43)	26 (35)	29.25 (38)
SSC	17 (23)	23 (31)	30 (40)	39 (52)	27.25 (35)
HSC	2 (3)	3 (4)	7 (9)	6 (8)	4.5 (6)
Degree & above	3 (4)	1 (1)	4 (5)	4 (5)	3 (4)
Family size (No/HH)	6.04	5.44	5.8	4.96	5.56
Dependent member (No/HH)	1.53	.95	3.13	0.36	1.49
Working member (No/HH)	4.51	4.49	2.67	1.6	4.06
Dependency Ratio	0.34	0.21	1.17	0.08	0.37
Living (Year)					
Up to 30	3 (4)	3 (4)	8 (11)	4 (5)	4.5 (6)
31 to 50	27 (36)	19 (25)	37 (49)	50 (67)	33.25 (44)
Above 50	45 (60)	53 (71)	21 (28)	30 (40)	37.25 (50)
Experience (Year)	39.47	43.37	37.4	43.21	40.86
Farm size (Hectare)	0.84	0.81	1.02	1.72	1.10

Source: Field survey, 2017. (Figure in the parentheses indicated percentage).

Loan for livestock production

In the study areas, farmers had managed finance from various source alongside by own for producing livestock. Only 5% had taken loan for purchasing and managing the livestock. Loan had taken from various financial institutions by the farmer. Among the loan taker, 72% and 28% respectively, had taken loan from NGOs and Government Banks (Table 2).

Table 2. Loan taken for livestock rearing

Yes	No	Govt. Bank	NGOs
14 (5%)	286 (95%)	4 (28%)	10 (72%)

Source: Field survey, 2017. (NGOs: BRAC, ASA, RDS, Poverty Reduction Projects etc.)

Service taken from Upazila Veterinary Hospital

Farmers had taken services from the Upazila Veterinary Hospital for treatment of their livestock. The frequency of the service taken was shown in the Table 3. Among the surveyed farmers, 22 per cent had taken service 1 time followed by 18 per cent 2 times, 12 per cent 3 times 11 per cent 4 times per year. Ten per cent farmers never had gone to Upazila Veterinary Hospital for taking service (Table 3).

Table 3. Service taken frequency from Upazila Veterinary Hospital

Times	No. of farmers	Percentage (%)
0	31	10
1	67	22
2	55	18
3	37	12
4	34	11
5	20	7
6	28	9
7	15	5
8	11	4
9	2	1

Source: Field survey, 2017.

Livestock Species Reducing and the Trend

Among the sampled farmers, 81% opined that major livestock species were reducing over the last three decades at household level indicating that small farmers are very much reluctant for rearing livestock because of lack of free grazing land and for increasing rearing cost in all sphere of input cost. Though one or two livestock species were added to the farming enterprise such turkey, a newly added livestock specie to our farming activities. Livestock population was reducing over the years and 56% respondents stated that the reducing trend was moderately reduced.

Livestock Rearing Cost Compare to Past

As the grazing land are reducing day after day due to need for cereal and non-cereal crop production & urbanization and price of all the cattle feed ingredients are also increasing. Frequent outbreak of various bacterial and viral diseases to livestock and treatment cost added an incremental pressure on livestock rearing cost. Livestock rearing cost was increasing alarmingly and it was found 4.45 times compared to three decades ago (Table 4).

Table 4. Livestock rearing cost increased and its magnitude

Areas	Times
Lalmonirhut	4.11
Kurigram	3.96
Bhola	5.12
Borguna	4.59
Average	4.45

Major livestock population scenario at present and 30 years ago at HH

If we go back to one decade and a half, we could see that livestock was the driving force for ploughing lands in the rural traditional agriculture. As the modernization touches the farming system with mechanical power, the dependency on livestock has reduced. That's why cattle population per household decreased in the rural areas. But commercialization in the livestock production has made balance for livestock population. In the country, a good number of cattle and poultry farms have been producing various species of livestock for meeting the increasing demand for animal protein. The study found a scenario of major livestock population which indicated that livestock population per household was declining over the decades (Table 5).

Table 5. Major livestock population scenario at present and 30 years ago per HH

Areas	Time	Cattle	Buffalo	Goat	Sheep	Chicken	Duck	Pigeon
Lalmonirhut	Present	4	-	2.75	0.69	9.00	2.83	2.71
	30 yrs ago	9.25	0.28	5.87	1.63	16.58	5.87	4.97
Kurigram	Present	3	-	0.95	0.17	10.00	3.44	1.20
	30 yrs ago	8.37	0.21	3.96	1.11	14.68	7.28	4.28
Bhola	Present	4.44	0.75	1.49	0.60	14.00	7.25	3.92
	30 yrs ago	9.65	10.56	3.4	0.07	23.00	18.48	3.77
Borghuna	Present	6	0.81	2.69	0.03	11.00	5.29	5.57
	30 yrs ago	15.93	4.72	6.63	1.16	26.00	17.00	14.00
Average	Present	4.45	0.39	1.97	0.37	11.00	4.70	3.35
	30 yrs ago	10.81	3.94	4.96	0.99	23.79	12.18	6.63

Source: Field survey, 2017.

Major livestock availability in the study areas

From the findings, it was clear that to individual farm level livestock production in respect to all species gone down over the year than the previous. But the total livestock production was increasing because many small and medium livestock enterprises were established throughout the country and those enterprises produced a big amount of livestock and play a vital role into total amount (Table 6).

Table 6. Major livestock availability now and then (30 years ago) in the areas

Species	At present				30 years ago			
	Sufficient	Normal	Low	No idea	Sufficient	Normal	Low	No idea
Cattle	59 (20%)	149 (50%)	92 (31%)	-	231 (77%)	63 (21%)	6 (2%)	-
Buffalo	-	61 (20%)	139 (46%)	100 (33%)	119 (40%)	71 (24%)	86 (29%)	24 (8%)
Goat	11 (4%)	145 (48%)	144 (48%)	-	138 (46%)	109 (36%)	53 (18%)	-
Sheep	5 (2%)	63 (21%)	216 (72%)	16 (5%)	29 (10%)	146 (49%)	110 (37%)	15 (5%)
Chicken	126 (42%)	140 (47%)	34 (11%)	-	132 (44%)	158 (53%)	10 (3%)	-
Duck	104 (35%)	139 (46%)	57 (19%)	-	97 (32%)	178 (59%)	25 (8%)	-
Pigeon	12 (4%)	82 (27%)	174 (58%)	32 (11%)	38 (13%)	108 (36%)	149 (50%)	5 (2%)

Source: Field survey, 2017.

Natural Disasters Occurrences

The study identified some factors which had devastating effects on livestock growth and development such as extreme temperature, high humidity, less average rainfall, prolonged drought length duration, flash flood, cyclone, tornado, tidal surge and salinity in the costal belt and very recent added thunder storm with heavy lightening. It was clear from the Table 7 that Lalmonirhut and Kurigram regions are very much prone to cyclone, flood and drought, on the other hand, Bhola and Borguna are frequently affected by tidal surge.

Table 7. Natural Disasters Occurrences

Areas	Natural disaster	Occurrence (Frequency)/year
Lalmonirhut	Flood	1.37
	Drought	1.26
	Cyclone	1.98
	Tidal surge	-
Kurigram	Flood	1.69
	Drought	1.01
	Cyclone	2.00
	Tidal surge	-
Bhola	Flood	1.65
	Drought	1.15
	Cyclone	2.03
	Tidal surge	2.47
Borguna	Flood	1.68
	Drought	1.45
	Cyclone	2.27
	Tidal surge	1.37
Average	Flood	1.60
	Drought	1.22
	Cyclone	2.07
	Tidal surge	1.92

Source: Field survey, 2017.

Duration of Flood and Drought

Duration of flood and drought were different in respect to regions. As the regions are more tress prone areas of flood, drought, cyclone and tidal surge, the devastating effects of those natural calamities were presented in the table stating over months. Average flood duration was estimated 1.0 months and the drought duration was estimated 1.63 months (Table 8).

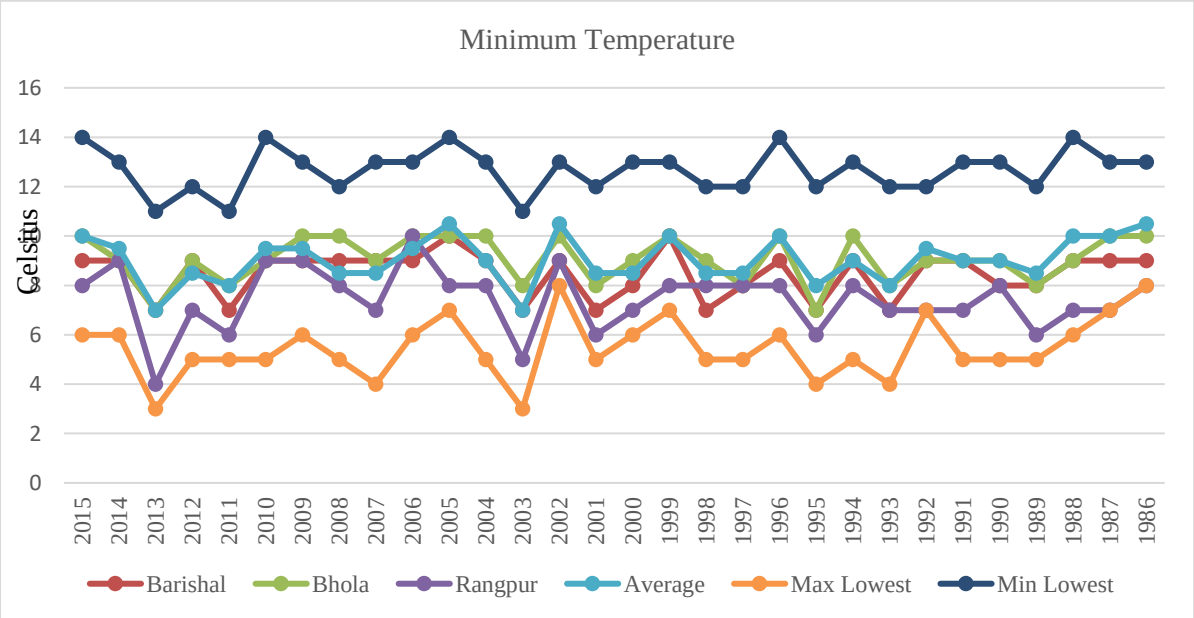
Table 8. Duration of Flood and Drought in the Areas

Areas	(Months)	
	Flood	Drought
Lalmonirhut	1.46	2.50
Kurigram	1.89	3.17
Bhola	0.50	0.25
Borguna	0.43	0.61
Average	1.07	1.63

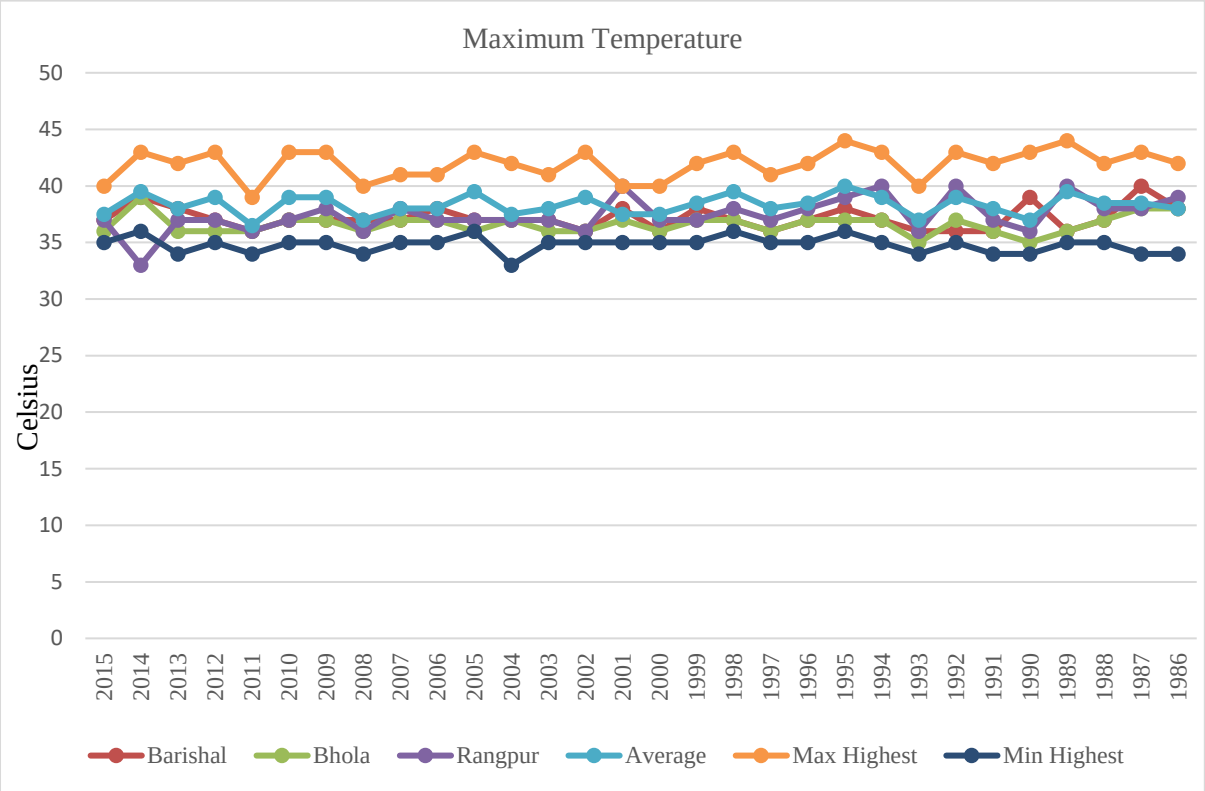
Source: Field survey, 2017.

Temperature and Rainfall

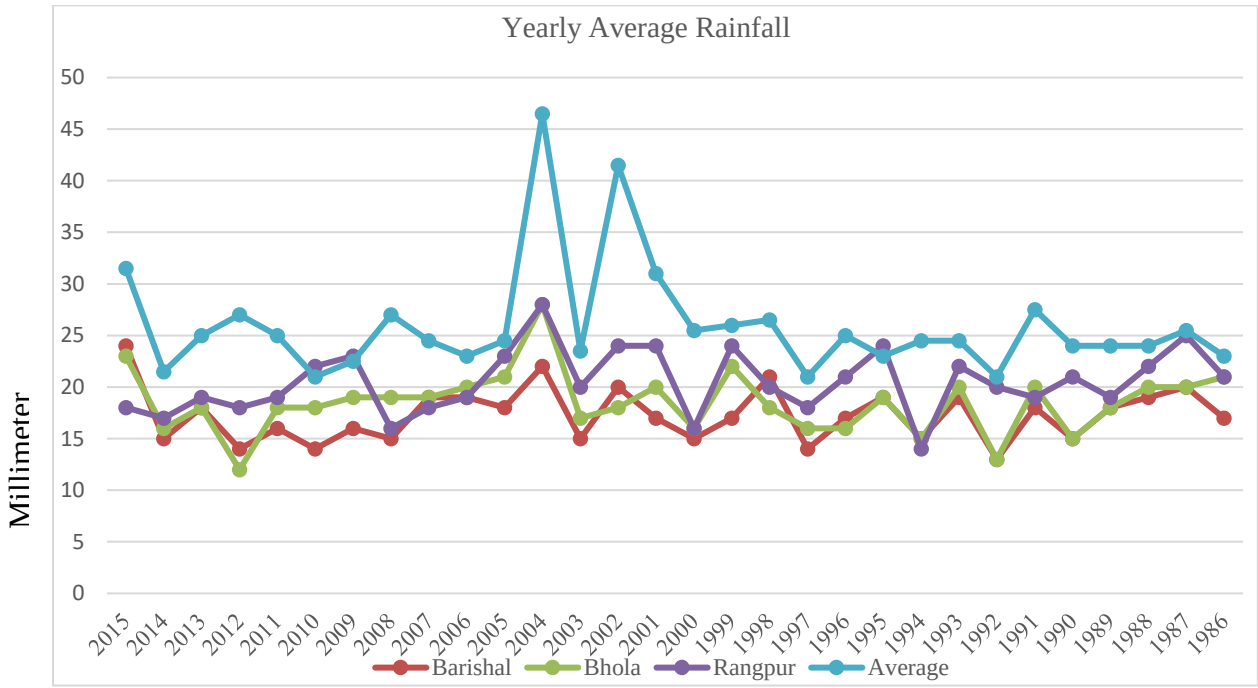
Temperature and rainfall are the most important parameters for evaluating and addressing the climate change issue. The study identified some factors which had devastating effects on livestock growth and development such as extreme temperature, high humidity, less average rainfall, prolonged drought length duration, flash flood, cyclone, tornado, tidal surge and salinity in the costal belt and very recent added thunder storm with heavy lightening. In study areas, 30 years temperature and rainfall data from Bangladesh Meteorological Department, analyzed and the pattern of temperature and rainfall were shown in the line graphs. Temperature and rainfall fluctuation were observed more in the recent year than the remote past (Graph 1, 2 & 3).



Graph 1.



Graph 2.



Graph 3.

Estimation of Income Vulnerability

Study considered household income flow of the farmers from agriculture, business and service sectors. All agricultural components are strongly influenced by climatic factors for its production behaviour, therefore, income variability occurred. Among the studied farm household 93% and 84 % were found vulnerable at present and 30 years ago, respectively. At present and 30 years ago, average vulnerability was estimated 0.93 and 0.85, respectively (Table 9).

Table 9. Estimation of income vulnerability status of the studied household farm

Areas	Score	Present	30 years ago
Lalmonirhut	1	70	67
	0	5	8
Kurigram	1	71	57
	0	4	18
Bhola	1	66	61
	0	9	14
Borghuna	1	72	68
	0	3	7
Average	1	279	253
	0	21	47
Average vulnerability		0.93	0.85

Source: Field survey, 2017.

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CONCLUSION

Although livestock production is gradually increasing by means of commercial farming but in HH level, it is declining trend. For this, reasons income vulnerability is occurring in the HH livestock production. In the light research findings and to attain the SDGs of the UN, the following recommendations should take under consideration for sustainable livestock development in the changing climatic situation-

- To give more attention to our native genetic resource potentialities, in cattle- such as RCC, Pubna Breed, Munshigonj Cattle.
- Cross breeding should not be encouraged beyond 50 % blood level.
- Encourage fodder production and provide training on scientific fodder preservation
- To develop sound marketing system for livestock product and by products so that farmers get better price.
- It would be wise to adopt new technologies and adapt with predictable and unpredictable climate change.

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EXCHANGE RATE AND INFLATION DYNAMICS: DISAGGREGATE CONSUMER PRICES

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ABSTRACT: *This empirical research intended to examine the interconnection between exchange rate and disaggregate consumer prices in Nigeria. The study used annual data within the period from 1976 to 2015. Autoregressive Distributed Lag (ARDL) technique was used in the process of estimating the empirical models. The ARDL bound test discloses that there is a long-run association among the variables in the models (oil price, exchange rate and disaggregate consumer prices). The error correction term confirms the results shown significant negative sign at 5 percent. The long-run results indicate that exchange rate is the significant factor influencing consumer prices in all the disaggregate models. The results were also estimated for robustness check with the FMOLS and DOLS estimators. The important of this finding it will serve as an alert to the policy makers that exchange rate depreciation is the main factor influencing consumer prices positively in Nigeria. The Central Bank of Nigeria to achieve the targeted inflation has to control the foreign exchange markets as prerequisite.*

KEYWORDS: Consumer Price, Inflation Dynamic, Oil Price, Exchange Rate, ARDL

INTRODUCTION

The Frequent changes in consumer prices around the world particular in countries that experienced currency depreciation are becoming a serious issue. The oil producing countries that are exporting crude oil are considering oil prices changes are the factor that influences the exchange rate movement. The world is becoming highly globalized particularly in the trade and services sectors. In the process of the international transaction, the value of home currency relatively to the others is very important. There has been various empirical research conducted on the impact of exchange rate on inflation. Moreover, the exchange rate pass-through phenomena are still a major concern in the current economic phenomena (Devereux and Yetman, 2002; Devereux, 2004; Choudhri et al., 2005). The changes in the exchange rate are regularly transmitted to various price indexes finally to aggregate inflation. In a short-run period of time depreciation in exchange rate increases domestic prices especially in developing countries. The oil price performs a major role in controlling the overall economic activities in oil exporting countries, which create an external imbalance (Rebucci and Spatafora, 2006). Theoretically, in oil exporting countries when oil price increases, exchange rate appreciate while when oil price dropped the exchange depreciates, inflationary pressure arises.

Earlier than 2014 the oil price was relatively high, while the rate of inflation in Nigeria was relatively moderate between 7 to 8 percent. In the mid of 2014, oil price dropped significantly affected the economic activities negatively. The price of goods and services were accelerated increases, in 2015 inflation hit double digit, basically due to the lower oil price and the weakening of Nigerian currency (Chuhan-Pole et al., 2015). In response to that, most of the

oil exporting countries including Nigeria has carried out measures. The Central Bank of Nigeria was adopted contractionary major to resist the shock of shorted revenue from crude oil. Among them, increasing the monetary policy rate (MPR), restricting of some imported items from abroad to reduce the demand for foreign currency in order to protect the domestic currency (Naira). The Nigerian government has also reviewed the 2015 budgets, reduced the anticipated oil price benchmark, capital spending was cut. Foreign reserves were falling, driven the exchange rate policy to adjust, devaluation and depreciation of the Nigerian currency emerged.

Figure 1 displays the trends in the exchange rate and disaggregates consumer prices in Nigeria within the period of this study 1976 to 2015. During 1976s to 1985 when Nigerian currency was relatively stable and strong the consumer prices are stable. In 1986 to 1998 exchange rate depreciated and consumer prices increase. From 1999 to 2015 exchange rate depreciate more than before while the consumer prices are still following the exchange rate trend. From 2004 to 2008 exchange rate appreciated but the consumer prices do not decrease. Observing the eight disaggregate consumer price from the graph, in 2015 when exchange rate depreciates affected accommodation prices better than other consumer prices. Followed by other prices, transport price, aggregate CPI, food prices, tobacco price, household prices and clothing are the lowest consumer commodity price increase.

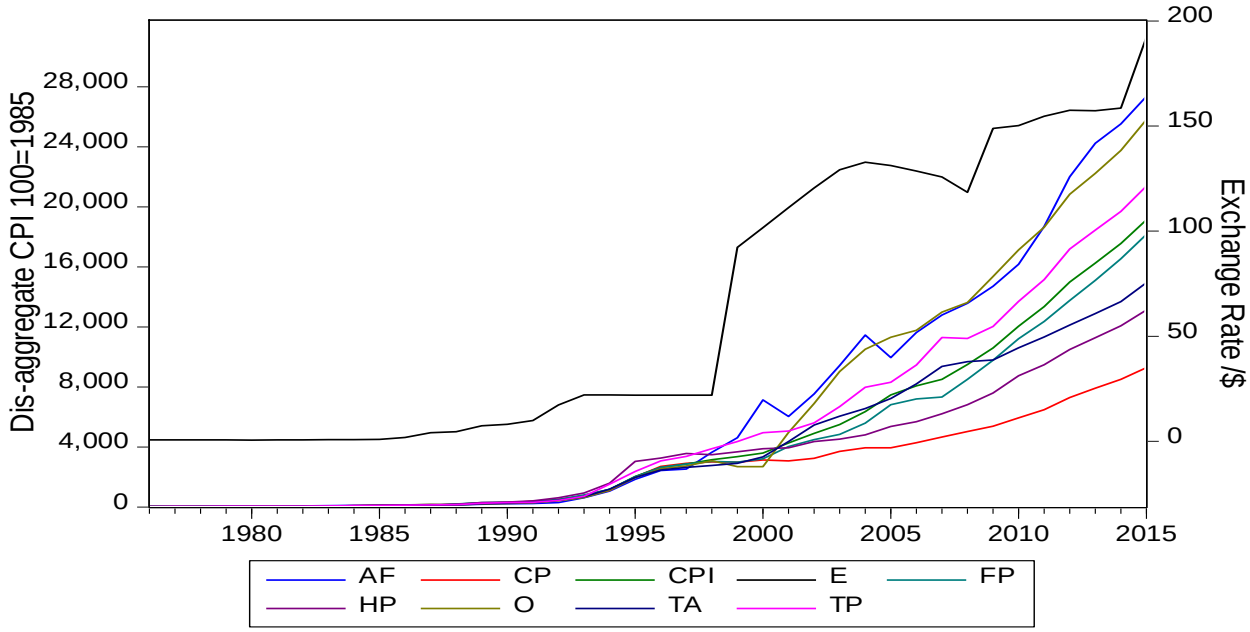


Figure 1 Dis-aggregate CPI and Exchange Rate

Source: Central Bank of Nigeria Statistical Bulletin

There are a lot of empirical research tried to investigate the factors influencing domestic prices and its connection with other economic indicators. Imimole and Enoma (2011) studies the Nigerian exchange rate depreciation and its effects on inflation between (1986 – 2008)

found that depreciation in Nigerian currency Naira relative to foreign currencies is positively affected domestic prices in Nigeria. Pala (2013) applied Johansen cointegration test to establish the connection between oil price and food price. The outcomes revealed that their coefficient sign is not constant is varies based on structural changes. Reboredo (2012) applied weekly data from 1998:1 to 2011:4 to study the determinate between oil prices and wheat price, soybean price and corn price. The study includes time differences. The results indicate that food price changes are not initiated by oil price increases. Gardebroek and Hernandez (2013) use multi-variant GARCH methods to find out the effect of oil price, ethanol and corn price, applied annual data in the period of 1997 to 2011. Found that there is no sign or indication of energy prices to influence corn price in the United States. Bala and Chin (2017) studies the effect of oil price, exchange rate on disaggregate consumer prices in Nigeria found the causality between oil price and exchange rate are indirect related to inflation mostly through the money supply.

Timilsina et al. (2011) used a global computable general equilibrium (CGE) framework focus on Oil price, biofuels and food supply in panel analysis. The results revealed that direct impacts of higher oil price reduce world food supply. Jongwanich and Park (2009) studies 9 Asian countries found that the degree of the pass-through between oil price and their domestic prices are limited. Hu et al. (2013) study selected Asia and Pacific countries by applying structural vector auto-regression procedure. The study reveals different results based on the country depend on. Chen et al. (2010) found that oil price changes absolutely affecting grain prices. Dillon and Barrett (2015) explore East Africa countries the results suggest that food price was affected indirectly via the cost of transport when oil price increase not directly by the oil price increase. The studies focus on oil price and macroeconomic indicators (Kumar, 2009; Iwayemi and Fowowe, 2011; Rafiq et al., 2009; Ahmed and Wadud, 2011; Razmi et al., 2015).

Some studies concentrate on the level of exchange pass-through (Correa and Minella, 2006; Gregorio et al., 2007; Kara and Öğünç, 2009; Jiang and Kim, 2013; Aron et al., 2014; Bala el al., 2017). Mirdala (2014) studies exchange rate changes are transmitted into the overall economic activities in Eurozone. Found that it plays a dynamic role in influencing their foreign relation with their trading partners. Ranadive (2015) applied Indian monthly data 2009:4 to 2013:5 to explore the level of exchange rate influence domestic prices. The results revealed that there is partial pass-through from exchange rate to domestic and import prices. While Oriavwote and Oyovwi (2012) investigate the determinate of Nigerian exchange rate.

The exchange rate pass-through to domestic prices occurs through the changes in domestic currency with affected the imported factors of production in the process of domestic production. Moreover, the impacts of exchange rate changes will be less, when the domestic market is highly competitive (Bacchetta and Wincoop, 2003). Moreover, the monetary policy function in stabilizes inflation rate also declines as the exchange rate pass-through (Taylor, 2000). The exchange rate pass-through measures the percentage change in domestic consumer price cause by percentage change in exchange rate. The ERPT equation has been tested and empirically proven (see Sek and Kapsalyamova, 2008 and Sek et al., 2015). The idea stated that the import prices in denominated currency of domestic importing country (P_t^{im}) would be equal to the export price (P_t^x) multiply by the exchange rate of the domestic currency (E_t). Therefore, can be illustrating as:

$$P_t^{im} = P_t^x E_t \tag{1}$$

It is assumed that P_t^x is the products of mark-up (λ_t) multiply by the marginal cost of production (C_t) can illustrate as:

$$P_t^x = \lambda_t C_t \tag{2}$$

From equation (1) then substitute $P_t^x = \lambda_t C_t$, then the import price can be obtained in denominated value in domestic as:

$$P_t^{im} = \lambda_t C_t E_t \tag{3}$$

Transformation using log function, then:

$$P_t^{im} = \alpha_1 \lambda_t + \alpha_2 C_t + \alpha_3 E_t \tag{4}$$

The pass-through is denoted by α_3 as the measure of partial elasticity of import price with respect to the exchange rate (see Sek and Kapsalyamova, 2008 and Sek *et al*., 2015).

To maintain a reasonable and low inflation in an economy is a function of every country's central bank they are controlling through the monetary policy tools. To examine how inflation originated in an economy has to study the money growth relatively to economic growth in that economy. From the exchange rate equation can be derived that changes in growth of money ΔM plus the changes in money velocity ΔV equals to the price changes ΔP plus the changes in real gross domestic products (GDP) ΔY as:

$$\Delta M + \Delta V = \Delta P + \Delta Y \tag{5}$$

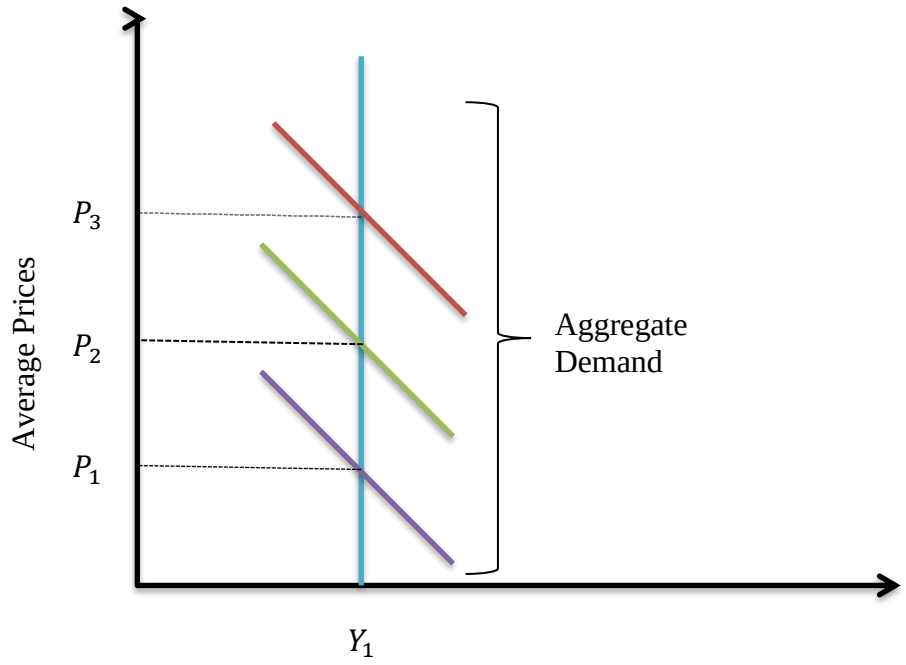
Therefore, from the equation (5) if ΔY a change in real gross domestic products is not increase the increase in prices will results from the increases in money velocity or growth of money. If money velocity is constant, then money growth is equal to growth in real gross domestic products plus inflation.

$$\text{money growth} = \text{real GDP growth} + \text{inflation} \tag{6}$$

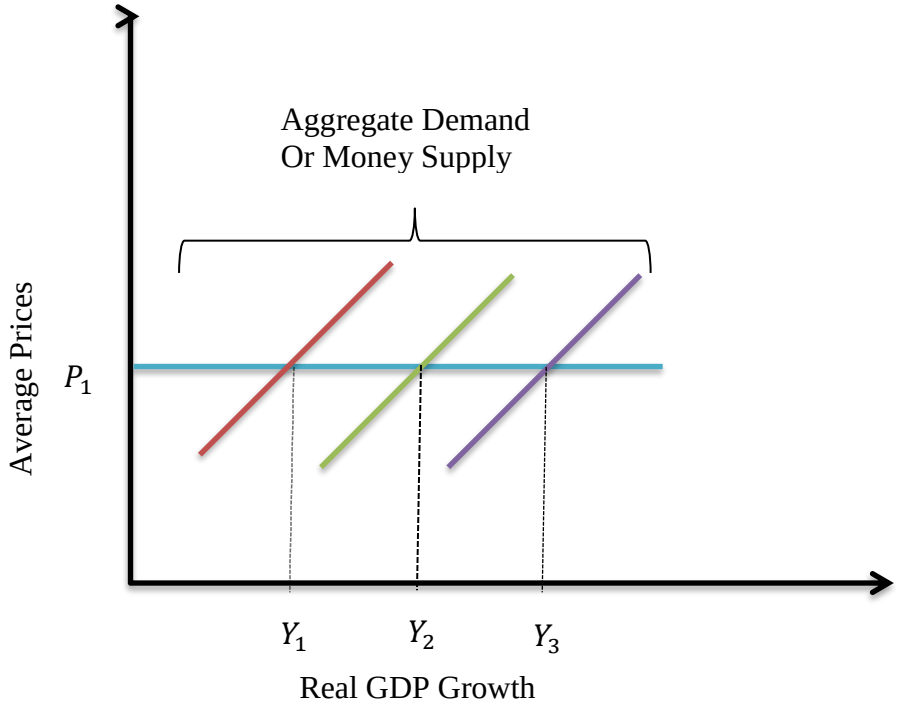
In another way reorganize as:

$$\text{inflation} = \text{money growth} - \text{real GDP growth} \tag{7}$$

From the equation (6) show that, if the money growth is greater than the real gross domestic products (GDP) growth. The inflation rate will increase based on the magnitude of the changes between money growth and real GDP.



From the equation (7) illustrate that if the money growth is equal to the growth in real gross domestic products (GDP) inflation rate will not increase.



METHODOLOGY

The Autoregressive Distributed Lag (ARDL) procedure was used to estimate the cointegration model. The methods were selected based on its dynamic facility and ability to detect the short-run and long-run coefficient with error correction term. This method has numerous advantages over other symmetric methodologies, it also suitable and applicable to estimate the I(0) variables or I(1) variables or a combination of the two. ARDL is also useful even if the sample observation were small or large (Pesaran and Smith, 1995).

Model Specification

This model is based on the previous studies of Ibrahim (2015) whose defined the food price as a function of oil price, exchange rate and GDP. While some studies have seen inflation rate is influenced by the exchange rate pass-through (Delatte and López-Villavicencio, 2012; Aron et al., 2014; Murshed and Nakibullah, 2015):

$$lP_t *= \alpha_0 + \beta_1 lop_t + \beta_2 lex_t + \beta_3 lgdp_t + \beta_2 lm2_t + \varepsilon_t \quad (8)$$

Where: $lp_t *$ is a log of dis-aggregate consumer prices consist consumer price index (CPI), food price (FP), tobacco price (TA), accommodation price (AP), household price (HP), clothing price CP), transport price (TP) and other prices (O). lop_t is a log of an oil price and lex_t is a log of exchange rate, $lgdp_t$ is a log of gross domestic products, $lm2_t$ is a log of money supply respectively. Since the models consists the properties of econometric specification, the short-run- run and the long-run dynamics could be captured through the unrestricted error correction term as ARDL equation:

$$\Delta lP_t * = \alpha_0 + \sum_{i=0}^{p} b_i \, \Delta lP *_{t-i} + \sum_{i=0}^{p} c_i \, \Delta lop_{t-i} + \sum_{i=0}^{p} d_i \, \Delta lex_{t-i} + \sum_{i=0}^{p} e_i \, \Delta lgdp_{t-i} + \sum_{i=0}^{p} f_i \, \Delta lm2_{t-i} + \delta_1 lP *_{t-1} + \delta_2 lop_{t-1} + \delta_3 lex_{t-1} + \delta_3 lgdp_{t-1} + \delta_3 lm2_{t-1} + \mu_t \quad (9)$$

From the above ARDL cointegration equation (8), the estimation of long-run and short-run-run parameters are treated separately as follows.

Estimation of the long -run equation:

$$lP_t * = \alpha_0 + \sum_{i=1}^{p} b_i \, lP *_{t-i} + \sum_{i=0}^{p} c_i \, lop_{t-i} + \sum_{i=0}^{p} d_i \, lex_{t-i} + \sum_{i=0}^{p} e_i \, lgdp_{t-i} + \sum_{i=0}^{p} f_i \, lm2_{t-i} + \mu_t \quad (10)$$

Estimation of the short-run equation:

$$\Delta lP_t * = \alpha_0 + \sum_{i=0}^{p} b_i \, \Delta lP *_{t-i} + \sum_{i=0}^{p} c_i \, \Delta lop_{t-i} + \sum_{i=0}^{p} d_i \, \Delta lex_{t-i} + \sum_{i=0}^{p} e_i \, \Delta lgdp_{t-i} + \sum_{i=0}^{p} f_i \, \Delta lm2_{t-i} + \gamma ECT_{t-1} + \mu_t \quad (11)$$

Estimation of the error correction term:

$$ECT_t = lP_t * - \alpha_0 - \sum_{i=1}^{p} b_i \, lP *_{t-i} - \sum_{i=0}^{p} c_i \, lop_{t-i} - \sum_{i=0}^{p} d_i \, lex_{t-i} - \sum_{i=0}^{p} e_i \, lgdp_{t-i} - \sum_{i=0}^{p} f_i \, lm2_{t-i} \quad (12)$$

The model in equation (12) measures the error correction term indicated the adjustment speed toward long-run equilibrium. However, the negative sign of ECT confirms the existence of cointegration among the variables in the models. To avoid spurious results, several diagnostic checks are conducted.

Data

The research applied Nigerian time series observation in annual basis ranging from 1976 to 2015. The variables consist eight disaggregate consumer price indexes namely aggregate consumer price (CPI), food prices (FP), tobacco price (TA), accommodation price (AP), household price (HP), clothing price (CP), transport price (TP) and other prices (O). The exchange rate is proxy by official exchange rate relative to US dollar (EX). The Nigerian oil price Bonny Light is used as a proxy oil price. GDP per capita constant US dollar is used as economic growth. Money and quasi-money (M2) percentage of GDP is used as a proxy money supply. The data are extracted from the Central Bank of Nigeria (CBN) Statistical bulletin and World Bank online database and converted into natural log format.

FINDINGS

Table 1 presents the testing of the unit root results from Augmented Dickey-Fuller (ADF) and Philip Perron (PP) approaches. The aggregate consumer price (CPI), food prices (FP), tobacco price (TA), accommodation price (AP), household price (HP), transport price (TP), other prices (O), oil price (OP), exchange rate (EX), GDP, and money supply (M2) were stationary after first difference at 1 and 5 percent significance level. While the clothing price (CP) is stationary at 10 percent level of significant.

Table 1 Unit Root Test

Variable		Augmented Dickey Fuller (ADF)		Philip Perron (PP)	
		Constant without trend	Constant with trend	Constant without trend	Constant with trend
lop	$I(0)$	-1.4911	-1.7998	-1.5242	-1.9049
	$I(1)$	-5.2299***	-5.1416***	-5.2299***	-5.1445***
lex	$I(0)$	-0.9528	-0.9661	-0.9462	-1.2222
	$I(1)$	-5.1726***	-5.1901***	-5.1682***	-5.1901***
$lgdp$	$I(0)$	0.0633	-1.1417	0.0130	-1.1217
	$I(1)$	-5.5971***	-5.9904***	-5.5947***	-6.0033***
$lm2$	$I(0)$	-3.4526**	-3.5814**	-2.6045	-2.5897
	$I(1)$	-5.2988***	-5.2235***	-7.0307***	-6.6604***
$lcpi$	$I(0)$	-1.2054	-0.3857	-1.1494	-0.7341
	$I(1)$	-2.3411	-2.3315	-4.0342***	-4.1762**
lfp	$I(0)$	-1.3331	-0.5489	-1.4100	-0.4037
	$I(1)$	-4.3684***	-4.5750***	-3.6601***	-3.5906**
lta	$I(0)$	-1.0037	-1.0875	-1.2504	-0.5803
	$I(1)$	-3.2379**	-3.3208*	-3.2652**	-3.3760*
laf	$I(0)$	-0.5558	-0.9325	-0.5589	-1.3545
	$I(1)$	-4.5719***	-4.5250***	-4.5727***	-4.5233***
lhp	$I(0)$	-1.4933	-0.9091	-1.4188	-0.7161
	$I(1)$	-3.5690**	-3.8197**	-3.6300***	-3.8364**
lcp	$I(0)$	-1.8220	-1.3730	-17211	-0.6285
	$I(1)$	-2.6339*	-3.0438	-2.6252*	-3.1167
ltp	$I(0)$	-0.9210	-1.4367	-0.9622	-0.9831
	$I(1)$	-3.2034**	-3.2406*	-3.2200**	-3.2059*
lo	$I(0)$	-1.1437	-1.2198	-1.2514	-0.7999
	$I(1)$	-4.2997***	-4.4006***	-42997***	-4.3944***

Note: & trend is constant with trend AIC is used to select the optimum lag order in ADF and PP test and *****, **** and ***** denote significance level at 1 percent, 5 percent and 10 percent.

Figure 2 to Figure 9 illustrate the optimal lags selection criteria in the ARDL cointegration models, based on the assumption that residuals are serially uncorrelated. The research used the most prominent procedure in order to determine the best model. Akaike Information Criterion (AIC) was used to detect the number of lags required in the model that is free from autocorrelation problem (Al-jammal, 2010). The results of lags distribution in the eight consumer prices models are: ARDL 11101 in model 10111 in model 2, 10101 in model 3, 10000 in model 4, 11001 in model 5, 11101 in model 6, 10220 in model 7, 11101 in model 8. The mixtures of lags selected are considered as the optimal number of lags needed in the models.

Table 2 presents the ARDL estimated results of cointegration between exchange rate and disaggregate consumer prices, the equation (1) was used in finding out the relationship. The followed the ARDL procedure by calculated the F-statistic and compared with the tabulated F-statistic provided by (Narayan and Smyth, 2005). In condition, cointegration can only be found, when the value of calculated F-statistics is greater than the value of Narayan tabulated

in the upper bounds F-statistic. In model 1 the calculated F-statistic was found 14.0597, model 2 calculated F-statistic 16.4106, model 3 calculated F-statistic 15.5669, model 4 calculated F-statistic 7.9798, model 5 calculated F-statistic 12.9428, model 6 calculated F-statistic 14.4140, model 7 calculated F-statistic 10.7406, model 8 calculated F-statistic 11.5295 respectively. The tabulated F-statistic provided by the Narayan is 4.428 in the lower bound and 6.250 in the upper bound in 1 percent significant level. The considering the value F-statistics in the 8 dis-aggregate consumer price models are greater than the value of upper bound in tabulated F-statistics at 1 percent significant level. The study concluded that all the 8 models are cointegrated, are moving in the same direction or they have shared a common relationship in the long-run.

Table 2 ARDL Cointegration Test

Bounds test result	F-statistics	Lag	Level of significance	Unrestricted intercept and no trend	
$lcpi_t = f(lop_t, lex_t, gdp, m2)$	14.0597	1	1%	4.428	6.250
$lfp_t = f(lop_t, lex_t, gdp, m2)$	16.4106	1	5%	3.202	4.344
$lta_t = f(lop_t, lex_t, gdp, m2)$	15.5669	1	10%	2.660	3.838
$laf_t = f(lop_t, lex_t, gdp, m2)$	7.9798	1			
$lhp_t = f(lop_t, lex_t, gdp, m2)$	12.9428	1			
$lcp_t = f(lop_t, lex_t, gdp, m2)$	14.4140	1			
$ltp_t = f(lop_t, lex_t, gdp, m2)$	10.7406	2			
$lo_t = f(lop_t, lex_t, gdp, m2)$	11.5295	1			

Note: if F-statistics is greater than the upper bound at 1% level, which indicates the existence of the long-run relationship. Also, optimal lags lengths are selected by Akaike information criterion (AIC).

The existence of cointegration among the variables provides the prospect for further estimate the short-run and the long-run coefficients. Table 3 presents the ARDL short-run and the long-run coefficients together with the significance level. In both the eight models, the long-run estimated results reveal that the entire consumer prices are positively affected by changes in exchange rate. The exchange rate increase by 1 percent, causes aggregate consumer price increase by 0.8969, food prices increase by 0.9804, tobacco price increase by 0.9442, accommodation price increase by 1.2442, household price increase by 0.6150, cloth price increase by 0.5507, transport price increase by 0.1.0428, while other prices increase by 01.0143. The other variables are insignificant in both the eight models. The ect(- in the both eight model signifies that the variable in the model will converge in the long-run as donated by negative sign and significant. The positive exchange rate means depreciation the results are also in line with the theoretical basis that depreciation of the currency will produce inflation since the purchasing power of domestic currency become less.

Table 3 ARDL ARDL Long-run Results

Variables	$ect(-1$	Constant	LOP	LE	LGDP	LM2	R^2	LM	H
LCPI	-0.1173 (-10.00)***	10.4989 (2.49)**	0.8704 (1.15)	0.8969 (6.96)***	-0.9534 (-1.40)	-0.4802 (-0.48)	0.99	0.97	0.28
LFP	-0.1210 (-10.56)***	8.6190 (2.48)**	0.4482 (0.68)	0.9804 (8.04)***	-0.6588 (-1.19)	-0.0692 (-0.07)	0.99	0.22	0.61
LTA	-0.0941 (10.15)***	11.4093 (2.08)**	0.9095 (1.02)	0.9442 (6.57)***	-0.4276 (-1.45)	-0.1750 (0.16)	0.99	0.15	0.25
LAF	-0.0758 (-6.57)***	14.3753 (1.02)	-0.2918 (-0.16)	1.2447 (2.91)***	-0.8725 (-0.50)	-0.6018 (-0.29)	0.99	0.51	0.09
LHP	-0.0923 (-8.73)***	14.5325 (2.25)**	2.7246 (1.66)	0.6150 (2.69)**	-2.3609 (-1.58)	-0.6360 (-0.45)	0.99	0.07	0.15
LCP	-0.0824 (-10.22)***	17.0356 (2.35)**	1.6698 (1.49)	0.5507 (2.56)**	-1.7016 (-1.63)	-1.5235 (-1.19)	0.99	0.00	0.56
LTP	-0.1258 (-8.75)***	13.5160 (2.69)**	0.5467 (0.75)	1.0428 (8.66)***	-0.7436 (-1.16)	-1.5581 (-1.55)	0.99	0.04	0.35
LO	-0.1316 (-8.78)***	6.7639 (1.66)	0.6258 (0.71)	1.0143 (6.20)***	-0.7523 (-1.12)	-0.4945 (0.37)	0.99	0.57	0.40

Ect(- is the error correction term, H and LM are Breusch-Pagan-Godfrey Heteroskedasticity test and Breusch-Godfrey Serial Correlation LM test up to the lag order given in the parenthesis respectively.

The long-run results are estimated with two different estimators fully modified OLS (FMOLS) and dynamic OLS (DOLS) for robustness checking of the previous results. Both the two estimators have the ability to addresses the bias caused by the endogeneity problem in the regression. Table 4 and Table 5 presents the eight disaggregate consumer prices estimated models. The long-run results reveal that all consumer prices are positively affected by changes in exchange rate. Exchange rate increase by 1 percent, causes aggregate consumer price to increase by 0.8760 and 0.7959, food prices to increase by 0.8501 and 0.7702, tobacco price to increase by 0.8736 and 0.8173, accommodation price to increase by 0.9096 and 0.8917, household price to increase by 0.8677 and 0.7245, cloth price to increase by 0.7909 and 0.6745, transport price to increase by 0.88.19 and 0.8043, while other prices to increase by 09158 and 0.8489 respectively. The other variables are insignificant in both the eight models, the positive exchange rate means depreciation the results are consistence with the first estimation by ADRL bound test.

Table 4 FMOLS Long-run Results

Variables	Constant	LOP	LE	LGDP	LM2	R^2
	4.8809	0.4719	0.8760	0.0119	-0.6524	0.97
LCPI	(3.05)***	(1.28)	(13.89)***	(0.04)	(-1.52)	
	5.2058	0.5471	0.8501	-0.0529	-0.6910	0.96
LFP	(3.31)***	(1.51)	(13.71)***	(-0.21)	(-1.63)	
	4.8071	0.4733	0.8736	-0.0457	-0.5275	0.96
LTA	(2.89)***	(1.24)	(13.35)***	(-0.17)	(-1.18)	
	2.5584	0.1031	0.9096	0.4285	-0.3175	0.96
LAF	(1.14)	(0.20)	(10.32)***	(1.23)	(-0.53)	
	7.0175	0.5895	0.8677	-0.3142	-0.8176	0.95
LHP	(4.01)***	(1.46)	(12.59)***	(-1.15)	(-1.74)	
	6.8960	0.5987	0.7909	-0.2951	-0.8128	0.95
LCP	(3.86)***	(1.46)	(11.24)***	(-1.06)	(-1.69)	
	4.7677	0.3318	0.8819	0.1211	-0.6440	0.96
LTP	(2.47)**	(0.74)	(11.60)***	(0.40)	(-1.24)	
	3.6383	0.7164	0.9158	-0.0225	-0.4625	0.96
LO	(2.01)*	(1.72)	(12.83)***	(-0.08)	(-0.95)	

Table 5 DOLS Long-run Results

Variables	Constant	LOP	LE	LGDP	LM2	R^2
	7.6048	0.8159	0.7959	-0.1932	-1.3798	0.98
LCPI	(1.99)*	(0.98)	(5.04)***	(-0.39)	(-1.20)	
	8.1763	0.9326	0.7702	-0.2810	-1.4925	0.98
LFP	(2.21)**	(1.16)	(5.04)***	(-1.59)	(-1.34)	
	6.5620	0.7462	0.8173	-0.2713	-0.8448	0.98
LTA	(1.63)**	(0.85)	(4.90)***	(-0.53)	(-0.69)	
	3.4001	0.1686	0.8917	0.3866	-0.5366	0.96
LAF	(0.54)	(0.12)	(3.47)***	(0.49)	(-0.28)	
	11.0387	1.2444	0.7245	-0.6749	-1.9277	0.98
LHP	(2.64)**	(1.37)	(4.19)***	(-1.27)	(-1.53)	
	10.4061	1.0249	0.6745	-0.5204	-1.8069	0.97
LCP	(2.44)**	(1.11)	(3.82)***	(-0.96)	(-1.40)	
	7.2805	0.6691	0.8043	-0.0842	-1.2952	0.97
LTP	(1.49)	(0.63)	(3.98)***	(-0.13)	(-0.88)	
	5.8099	1.0388	0.8489	-0.2633	-0.9193	0.98
LO	(1.33)	(1.09)	(4.69)***	(-0.47)	(-0.69)	

CONCLUSIONS AND POLICY RECOMMENDATION

The empirical research initiated to examine the interconnection relationship between exchange rate and dis-aggregate consumer prices in Nigeria. The study used annual data within the period from 1976 to 2015. Autoregressive Distributed Lag (ARDL) technique was used in the process of estimating the empirical models. The ARDL bound test discloses that there is a long-run association among the exchange rate and dis-aggregate consumer prices. 1

percent increases in exchange rate cause aggregate consumer price to increase by 0.8969, food prices to increase by 0.9804, tobacco price to increase by 0.9442, accommodation price to increase by 1.2442, household price to increase by 0.6150, cloth price to increase by 0.5507, transport price to increase by 0.1.0428, while other prices to increase by 01.0143 respectively. The error correction term confirms the results with a significant negative sign. The long-run results indicate that exchange rate is the most significant factor influencing consumer prices in all the disaggregate models. While the other control variables oil price, GDP and money supply are insignificant in all models. The results were also estimated for robustness check with the FMOLS and DOLS estimators and confirmed that the results are consistence with the ARDL methods.

The results from the disaggregate models have a positive relationship with the exchange rate. This means that depreciation in domestic currency leads to increases the domestic prices, the lesser value of domestic currency the more inflationary pressure. The results are also in line with the theoretical basis that depreciation of the currency creates inflationary pressure. Since, the purchasing power of domestic currency becomes less. The result has robust implication in policy and recommendation in Nigeria. The implication of this findings shows that the policy makers has to consider the effects of exchange rate depreciation in increases in consumer prices in Nigeria. The Central Bank of Nigeria to maintain less volatile in consumer prices has to adopt the exchange rate policy that will make the domestic currency less volatile and to achieve the inflation target.

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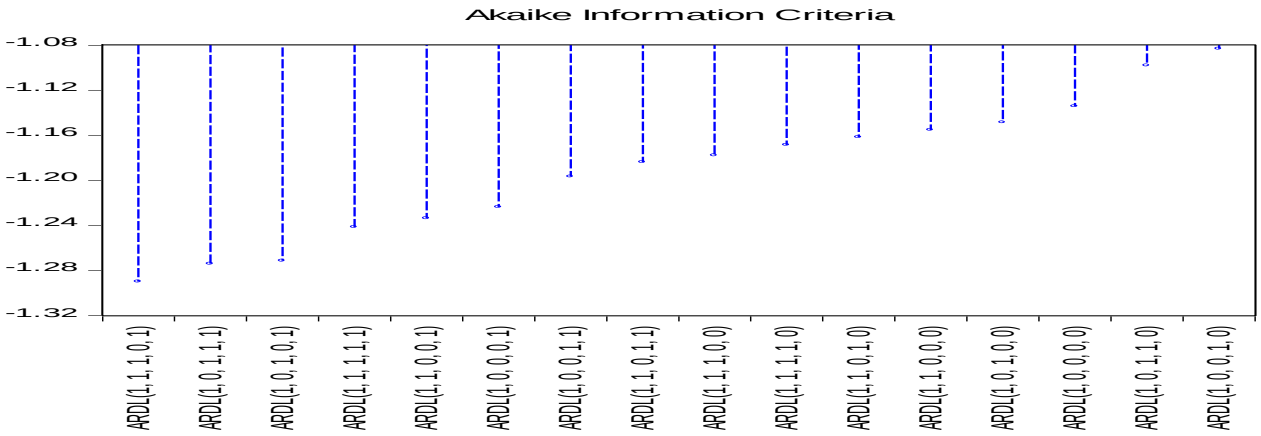
APPENDIX



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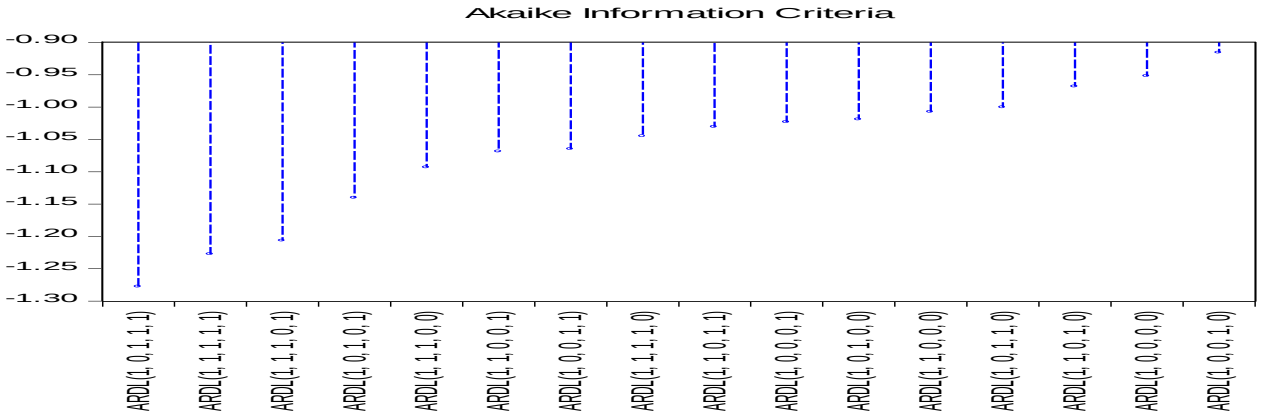
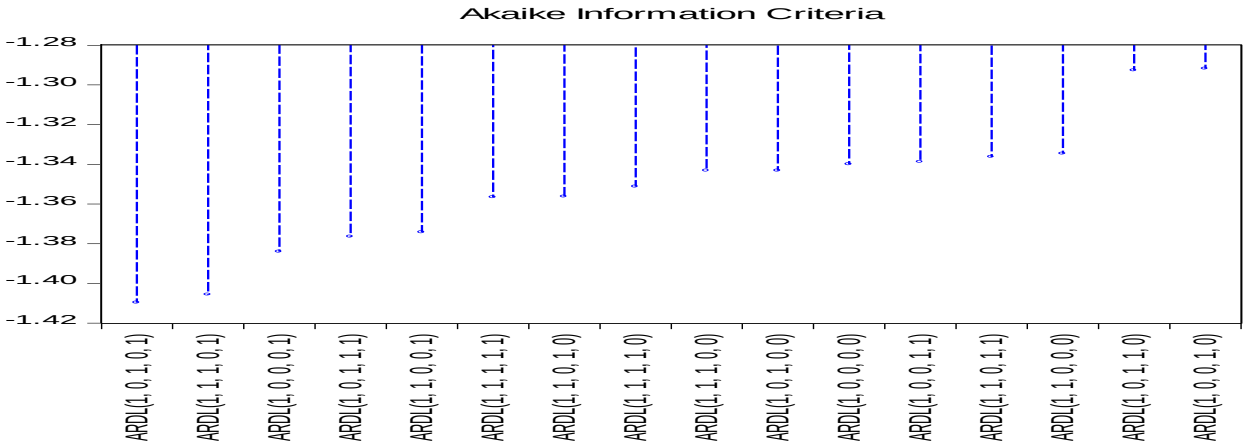


Figure 3 model 2



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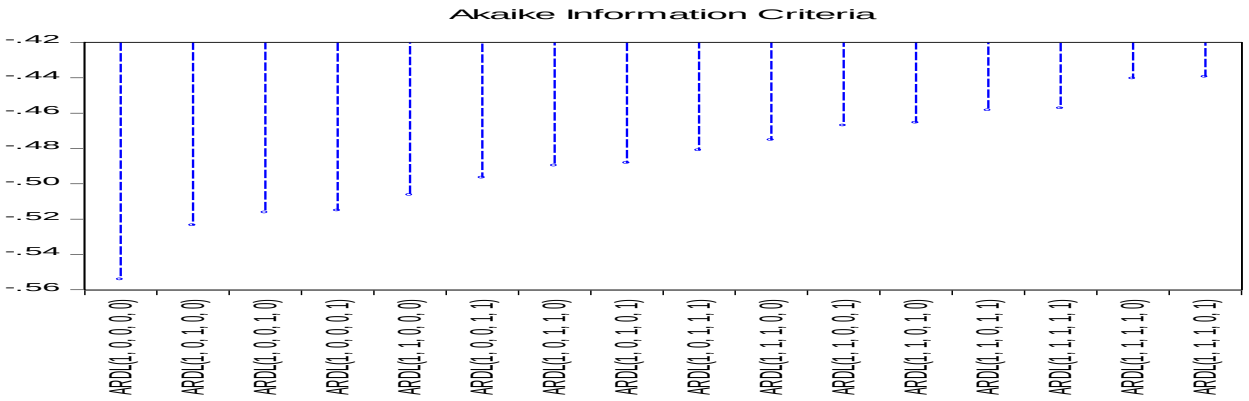

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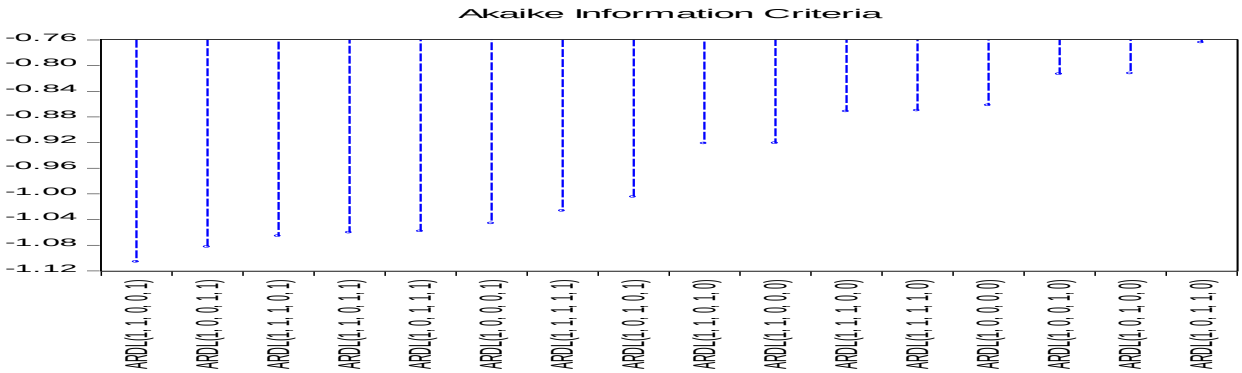

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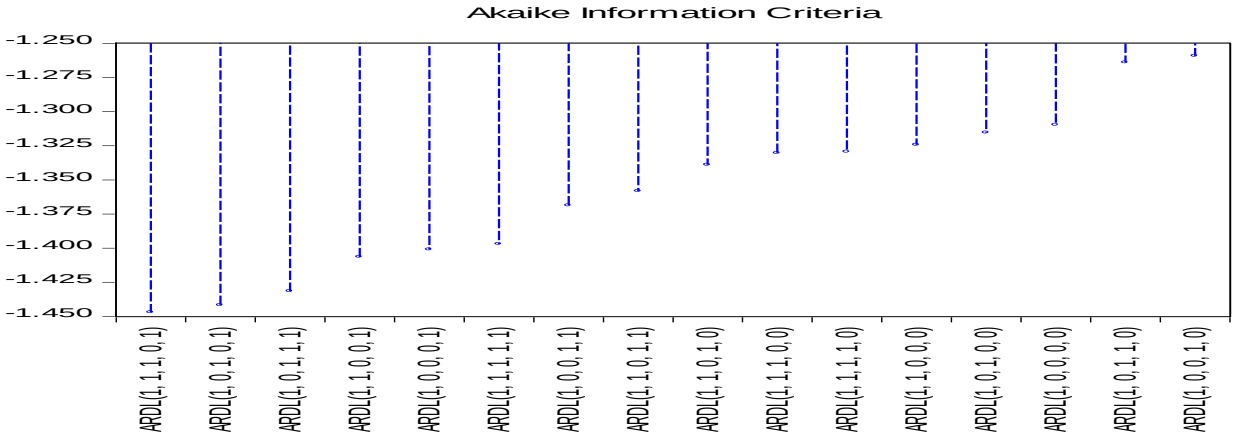

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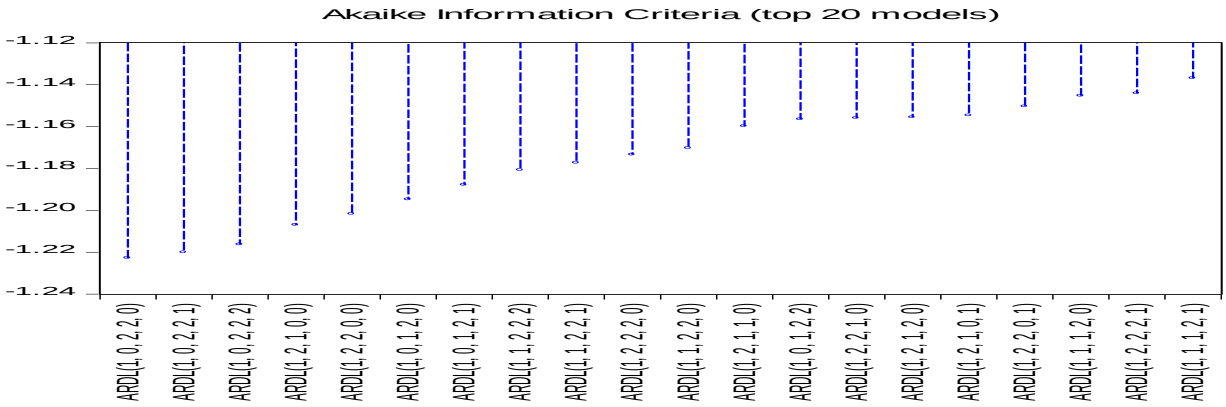

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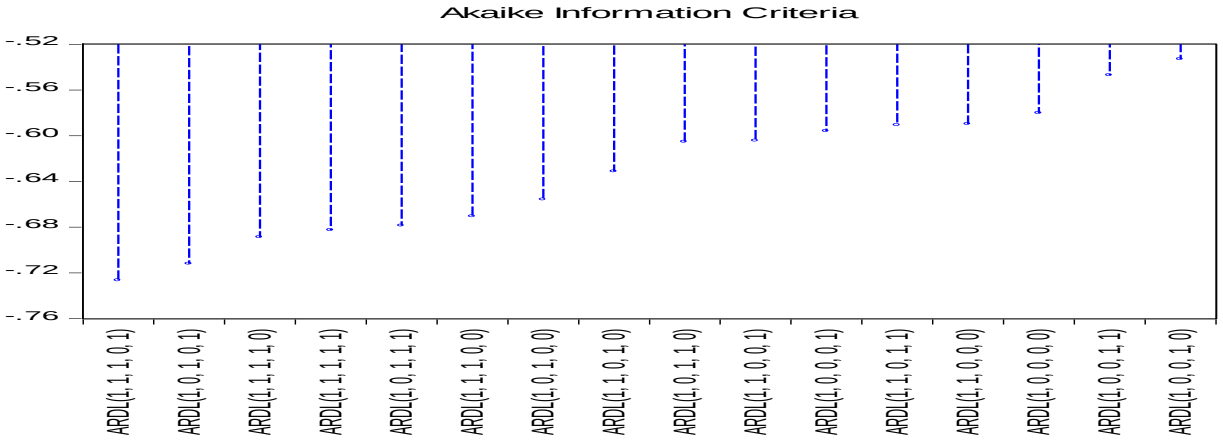

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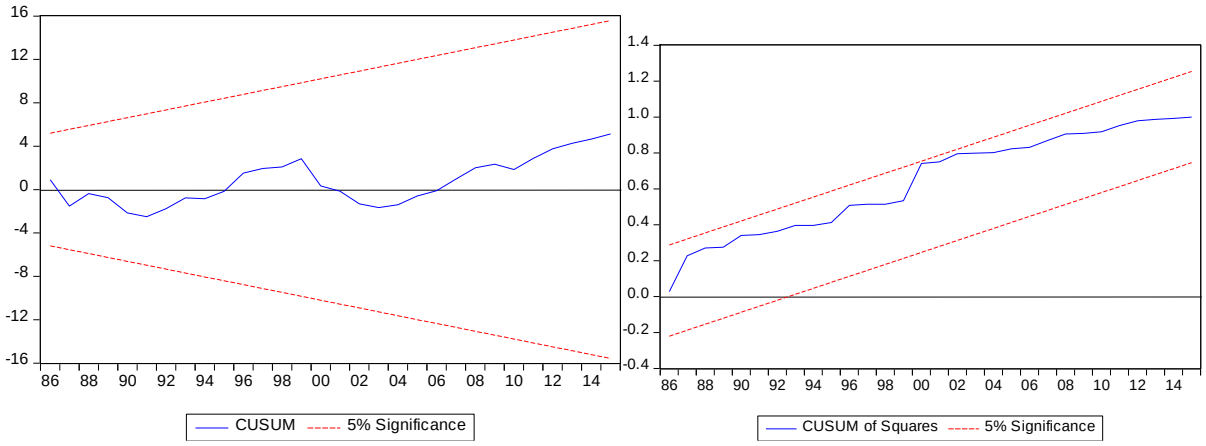

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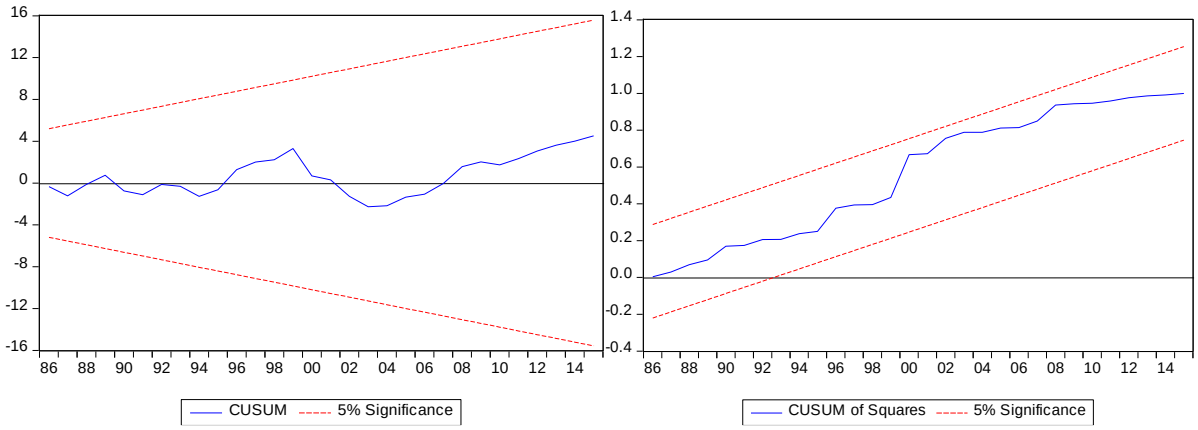

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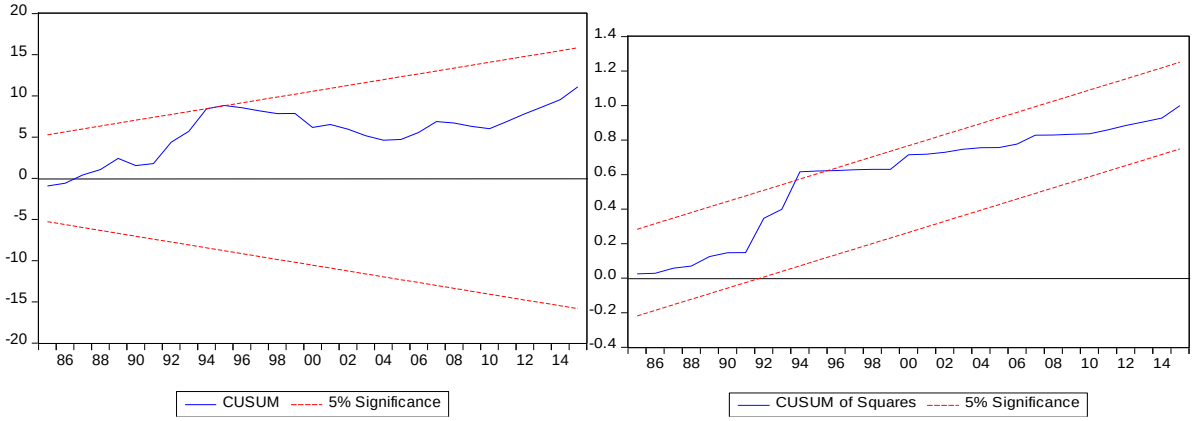

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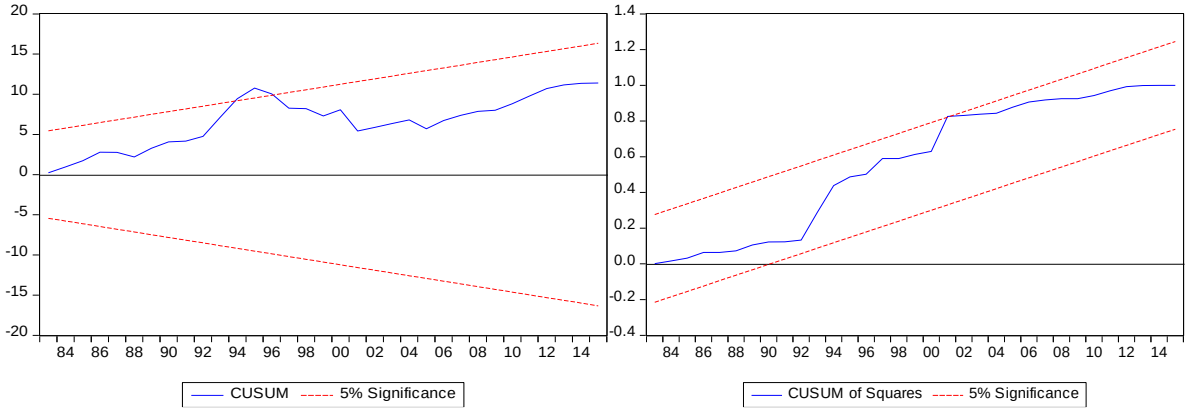

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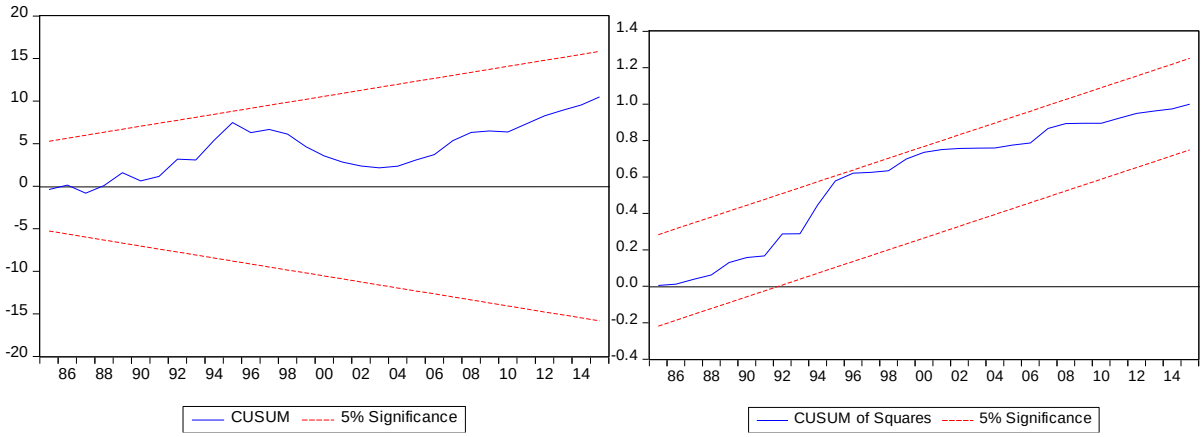

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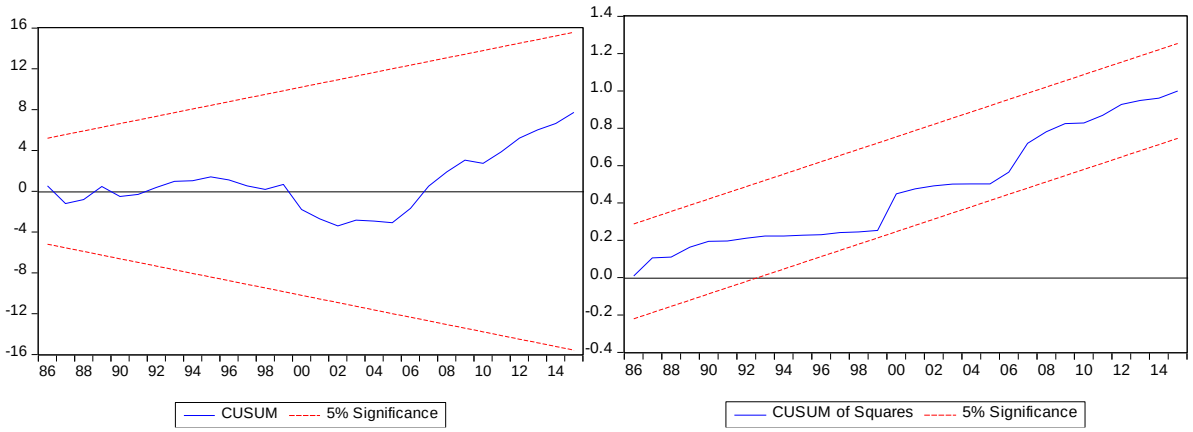

Figure 15 model 6

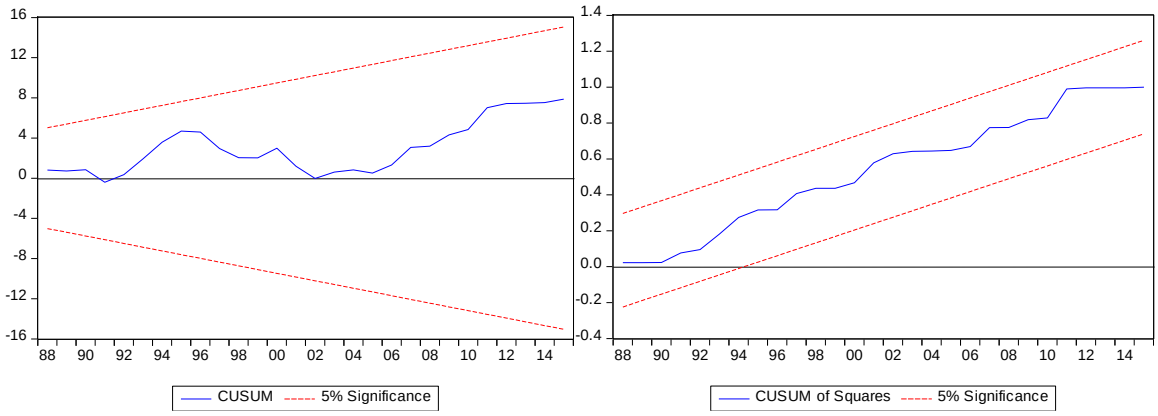

Figure 16 Model 7

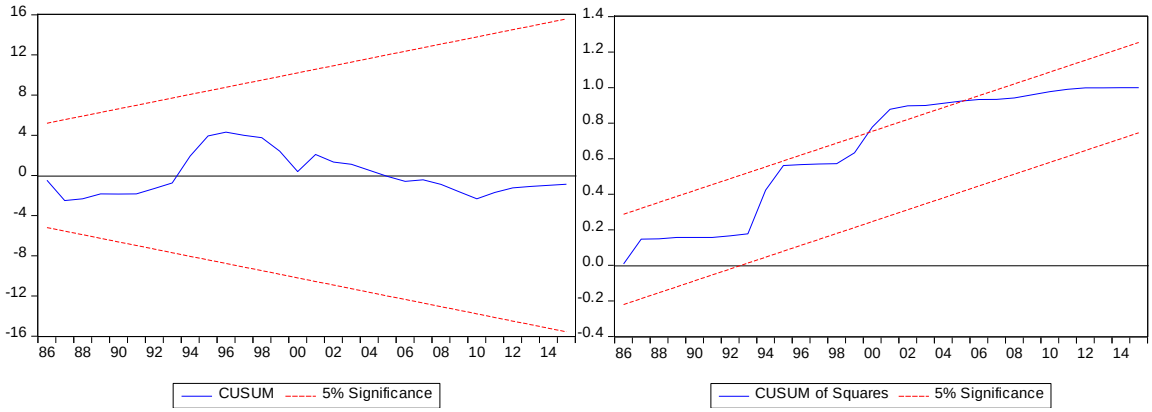

Figure 17 Model 8

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DIVERSIFYING THE NIGERIAN ECONOMY: ROLE OF SMALL AND MEDIUM SCALE ENTERPRISES

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ABSTRACT: *This research work focused on economic diversification of the Nigerian economy through Small and Medium Scale Enterprises (SMEs). The major objective is to ascertain the impact of Small and Medium Scale Enterprises on the growth of the Nigerian economy over the period 1981 to 2017 using economic growth variables. The research work departs from the comparative advantage theory to technology gap theory that emphasizes that technological change brings about productivity improvement which spills over to small and medium firms. This enhances the growth of SMEs and results in increased production of raw materials and other non-oil products which are in abundance in Nigeria. To drive home this objective, we formulated a simultaneous equation model using secondary data on GDP (as a measure of economic growth), Total Oil and Non-oil Trade, Bank loans to SMEs, Output of SMEs and Interest and Inflation rates (as control variables). The data were analyzed using Two-Stage Least Squares (2SLS) technique having confirmed that the two equations of the model were over-identified. The results obtained confirmed the relevance of Small and Medium Scale Enterprises in the drive to diversify the Nigerian economy from oil-based to non-oil based. This research work provides empirical evidence on the topical issue of diversifying the Nigerian economy using relevant data to prove the extent to which SMEs have helped in growing the economy. It recommended ways of further improving the SMEs towards ensuring sustained growth of the Nigerian economy especially in this period of dwindling oil prices and climate abnormalities which pose serious hazard to our oil-based economy.*

KEYWORDS: Small and Medium Scale Enterprises (SMEs), Economic Diversification, Total Oil, Non-Oil Trade, Two-Stage Least Squares (2SLS)

JEL Classification: C01, C32, C54

INTRODUCTION

The Nigerian economy is overwhelmingly dependent on oil. Oil accounted for more than 60 per cent of government revenue in 2016 and more than 80 percent of export earnings of Nigeria (CBN, 2017; www.sweetcrudereports.com). At independence in 1960, the Nigerian government embarked upon massive infrastructural development in the areas of roads, communication networks, hydro-electric dams' secondary industries etc. which were expanded at levels far beyond what was inherited from colonial rule (Effoduh, 2015). These projects were financed from the meager resources of the government often with foreign assistance from such countries as Britain and the United States (UNDP, 2013). The Nigerian economy at the time was predominantly agrarian with each region of the country specializing in one agric product or the other; for example the groundnut pyramids in the North, the palm

oil and Cassava farms in the West and Eastern regions, the Cocoa plantations in the West in addition to other numerous agricultural products (such as yam, rice, beans, rubber, cotton, timber etc.) produced in very large quantities all over the country (Nwachukwu, 2006). Government and financial institutions at the time provided the farmers with fertilizers, pesticides and other agricultural inputs at heavily subsidized prices. The Nigerian Agricultural and Co-operative Bank with headquarters in Kaduna state provided soft loans (both directly and indirectly) to farmers with food crops, coastal water fishery, poultry, piggery, and diary given the most priority (Irina, 2007). However, the loans granted were not to SMEs directly but to local farmers and businesses who were not referred to as SMEs until 1992 (CBN, 2015).

The oil boom periods of 1970s and 1980s accounted for the rapid increase in federal government revenue accounting for 87 percent of export receipts and 77 percent of federal government revenue in 1988 (Effoduh, 2015). This development diverted the attention of all stakeholders and investors in Nigeria towards oil and oil related investments thereby neglecting the non-oil sector. Consequently, non-oil trade plummeted to N9billion in 1983 as against the previous year's value of N13 billion and N10 billion recorded in 1981 and 1982 respectively. It further fell to N5.6billion in 1986.

From the oil boom era to date, the Nigerian economy has been anchored on revenue derived fom oil. For example, the economic recession which the country witnessed in 2016-2017 was caused by the sharp fall in oil prices in the world market.

Having seen the development of the Nigerian economy moving from agric-based to oil-based, we can affirm that Small and medium Enterprises (SMEs) activities play very important roles in the development of many economies in the world. Findings have shown that more developed countries tend to have large number of small firms (Maksimore & Damergue, 2002). The small and medium enterprises have provided many economic activities that have attracted international and global trade.

Among the problems that necessitated this research work include: the unprogressive economic policies pursued by successive Nigerian military regimes in the final decades of the last century which devastated the traditional agrarian economy and crippled growth of the non-oil sectors; Unsustainable import reliance policies, the projected decline in oil reserves by the end of 2030 (OPEC, 2015), high interest rate on loans granted to SMEs etc. The resulting fragility has been clearly evident during the global economic downturn which has impacted key areas of the Nigerian economy from banking and foreign exchange reserves to the capital market and the mortgage sector.

This work, therefore, has the major objective of ascertaining the impact of SMEs financing on economic diversification in Nigeria. The specific objectives of the study include: determining the impact of oil and non-oil trade on Nigeria's economic growth, how Deposit Money bank loans to SMEs and SMEs output have affected Nigeria's economic growth and the extent to which interest rate on these loans, and inflation rate, have affected the overall growth of the Nigerian economy.

LITERATURE/THEORETICAL UNDERPINNING

Conceptual Framework: Economic diversification according to the United Nations Framework Convention on Climate Change (UNFCCC, 2018) is generally taken as the process in which a growing range of economic outputs are produced. It is the development of different markets for exports and different income sources away from domestic economic activities (i.e. income from overseas investment).

Economic diversification can mean different things depending on the context. Zagros (2016) used a subtler word "economic complexity" and defined it as the idea that countries should not be dependent upon a small number of products for their economic livelihoods. He posited that a country that has an economy based predominantly on oil production is neither particularly complex nor economically diverse; on the other hand, a country that has a strong manufacturing base, a vibrant services sector, a burgeoning natural resource sector and a booming agricultural sector is quite complex and diverse.

Eluogu (2016) sees economic diversification in the present Nigerian economic context as simply means of creating new avenues for economic growth. It involves using the right strategy to boost revenue generated from other sectors of the economy. That is, facilitating growth of other sectors of the economy and through this, reversing the effects of the economic crises and returning the economy to a growth path (Eluogu, 2016). However, Eluogu stressed that this process will not necessitate a neglect of the oil and gas sector but accommodates the maximization of revenues derivable from the sector

Economic diversification in its standard usage either in terms of the diversity of economic activities or markets is a significant issue for many developing countries, as their economies are generally characterized by lack of diversification. Most developing countries like Nigeria rely heavily on the production of primary commodities that are predominantly vulnerable to climate variability and change.

Diversifying the Nigerian economy to address near total reliance on oil and gas proceeds is a policy that has been well touted by successive governments of Nigeria (Baba, 2013). With the recent crash in oil prices and consequent hardship engendered by this over-reliance on oil, it has become more compelling to Nigerian policy makers and all stakeholders that diversifying the economy is not optional but mandatory. One sure way of ensuring diversification of the economy is through the development and financing of Small and Medium Scale Enterprises.

Small and Medium Enterprise (SME) is a concept that tends to broadly explain the size of a business in an economy. The meaning depends on purpose; there are three major factors used by countries in classification and definition of enterprises. These include;

1. Capital investment on plant and machinery,
2. Number of workers employed and
3. Volume of production (Abubakar and Yahaya 2013).

This concept of small size firm is a relative one and it depends mainly on both geographical location and the nature of economic activities performed (Umar 2007). The concept was

further expatiated by the central Bank of Nigeria (CBN 2010) as asset based and number of staffs employed. The criteria according to CBN (2010) include:

- An asset base between ₦5 million and ₦500 million and
- Staff strength between 11 and 300 employees

In the CBN report, the small and medium Industries equity investment scheme (SMIEIS) in Nigeria saw SMEs as enterprises with a total capital employed not less than ₦1.5 million but not exceeding ₦200 million including working capital but excluding cost of land, and a staff strength of not less than 10 and not more than 300 (Abubakar and Yahya 2013).

In a related view, SMEs as defined by the Small Business Administration (SBA) Agency in USA as cited by Ayozie et'al (2013) is a business that is independently owned and operated and meets employment or scales standards developed by the agency. The scales standards are explicitly described as follows: -

- Manufacturing: Number of employees range up to 1500, depending on the industry.
- Retailing: small, if annual sales are not over 2million to 7.5 million Dollars.
- Wholesaling: small, if annual sales are not over 9.5 to 22 million Dollars
- Services: annual sales not exceeding 2 million to 8 million Dollars.

Contributions of Small and Medium Scale Enterprises (SMEs) to Economic Growth

SMEs have been seen as necessary components of national growth in both developed and developing countries. The history of economic growth cannot be complete without the involvement of SMEs. Ogujiuba et al (2004) established that in addition to increase in per capita income and output, SMEs help in the creation of employment opportunities, enhance regional economic balance through industrial dispersal and generally promote effective resource utilization leading to sterilization of economic growth. This agrees with Olla (1989) who observed that Great Britain and Japan trace their history of industrial and economic expansion to their broad base small scale business establishments. World Bank (2016) reported that the greater a country's ease of doing business is the greater the number of Jobs created in the formal sector. This is because the benefits of being formal usually outweigh the cost of sustaining SMEs especially tax. SMEs constitute a large percentage of the total employment growth of many countries (UNDP, 2013). It produces a significant share of their increase in Gross Domestic Product (GDP) and the contributions of larger firms tend to be stable (ADB, 2004). This assertion is true as OECD (2004) reported that SMEs and micro enterprises account for over 95% of firms, 60-70% of employment, 55% of GPD and generate the greater level of new employments.

In the case of developing economies, the situation is not very different. For example, Hassan, Aku and Habakuk (2017) cited the case of Morocco where 93% of firms are SMEs and account for 38% of production, 33 percent investment, 30 percent export and 46 percent employment. In the same vein, in Bangladesh, enterprises of less than 100 employees account for 49 per cent of all firms and 58 per cent employment. Similarly, in Ecuador, 99 per cent of

all private companies have less than 50 employees and account for 55 per cent of employment.

The seed of industrialization can be traced to SMEs. This is because a good number of them have extensive knowledge of resources and how goods and services are produced and distributed in the economy. SMEs also are major suppliers of inputs to the large firms, serve as customers to the large firms, provide different kinds of products ranging from food, clothing, health care and entertainment, amongst others (Etuk et'al 2014). They further assert that; the enterprises help in economic development through industrial disposal and transformation of primary and intermediate products as well as supply of the material needs of the larger enterprises. In effect, SMEs are important sources of local supply and service delivery to larger firms.

SMEs activities received closer attention from the Nigerian government in an effort to diversify the economy. The over-dependence of Nigeria on oil necessitated the Federal government in the mid-1980s to direct the banks to set up branches in the rural areas of the country to enable the rural dwellers to have access to financial services (Soludo 2008, cited in Eniola 2014). Hassan, Aku and Habakuk (2017) asserted that this policy provided opportunity for people especially entrepreneurs in the rural areas to have access to bank loans.

Nigeria has attracted much growth and development especially in the agricultural sector where small-scale self-employed people partake in agro-allied processing activities. According to the OECD (2004), SMEs account for more than 90% of all firms outside the agricultural sector, a significant level of employment and generate major domestic and export earnings.

Furthermore, SMEs assist in fostering rural infrastructural development, improvement of living standard of the rural dwellers, utilization of local resources, output expansion, transformation of indigenous technology, production of intermediary goods, and increase in revenue generation to government (Nnanna, 2001).

Wang Et al (2011) contended that petroleum oil is considered to contribute high to status of Nigeria but SMEs provides gainful employment for about 70% of the Nigerian population. Available statistics suggests that agricultural sector accounts for close to 35% to 40% of the nation's GDP. Most actors in the agricultural sector are small-scale self-employed individuals engaged in activities ranging from farming, handcraft, fishing, agro forestry and livestock rearing. These SMEs activities therefore, aid government in areas of economic diversification.

THEORETICAL LITERATURE REVIEW

The Classical Trade Theory: According to this theory, countries are better able to gain and sustain development if they devote their resources to the generation of goods and services in which they have comparative advantage, Smith (1776); Ricardo (1817) also cited in Morgan and Katsikeas (1997) and Dogon-daji and Muktar (2012). The theory thus explains the scenario where a country generates goods and services in which she has an advantage not only for consumption locally but also exports surplus and imports those goods and services in

which she has an economic disadvantage. Economic advantage and disadvantage usually arise from country differences in factors such as resource endowments, labour, capital, technology or entrepreneurship.

Technology Gap Theory: This theory, also known as the innovation theory, is an outshoot from the theory of creative destruction by Schumpeter. The theory believes that the only factor that can prevent decline in industrial productivity in new products or markets is technological progress. However, the rate of technological progress in one country depends not only on innovation in that particular country but also on technology spillover from other countries (Uzoh & Duru, 2014)

Constraint model theory in financing: This theory opines that the ability of banks to grant credit or loan is constrained by the amount of financial resources at their disposal and this is based on the capital requirement. Therefore, banks are constrained by the monetary policy in place at any point in time especially the reserve requirements (Okoli, Duru & Agobua, 2015).

Lending theory of financing: The theory opines that banks or lenders tend to avoid risky ventures. However, the level of risk associated with the riskiest small business tends to be applied to all small and medium scale enterprises. Also, the problem of information asymmetries helps to compound issues here against small and medium scale enterprises because information symmetrics lead to sub–optimal flows of finance available to smaller firms when compared to large quoted firms. This theory helps to explain why deposit money banks see small and medium scale enterprises as high risky ventures which they try to avoid (Okoli, Duru & Agobua, 2015).

The endogenous theory according to Okoli, Duru and Agobua (2015) explains why investment in education, infrastructure, research and development can help to boost productivity. These theories are very relevant to our study in the sense that Nigeria has vast agricultural and raw material base. These agric and non-oil sector form the core of SMEs in the country. By financing and sustaining these SMEs, Nigeria can develop her products into the international market thereby gaining comparative advantage through these products. This is based on the deductive reasoning of growing SMEs, which will result in increased production of raw materials and other agric products through innovations, which in turn will help to drive economic growth distinct from revenues earned via the petroleum sector.

Empirical Review: Muritala et al (2012) examined the impact of small and medium scale enterprises on economic growth and development of Nigeria using primary data. Their study agrees that there is a significant relationship between SMEs and economic growth.

Hassan, Aku and Habakuk (2017) studied Small and Medium Scale Enterprises as a tool for Economic Growth and Development in Nigeria. Using content analysis, he evaluated some of the activities of SMEs in many economies of the world like Great Britain and Japan. He found that SMEs contributed to human as well as structural improvement in the economies of nations. In order to replicate similar developmental strides achieved by these other nations in Nigeria, they recommended, among others, that the finance made to support and promote private sector enterprises or SMEs should be properly monitored and evaluated to discourage fund mismanagement.

Esu and Ubong (2015) in their analysis of economic diversification and economic growth in Nigeria employed time series data covering thirty-two years' period (1980 – 2011). Using the

error correction mechanism (ECM) and variables such as trade openness, total oil and non-oil trade, non-oil FDI, exchange rate and inflation rate, their result point to the fact that Nigeria could tap from her largely untapped trade potentials for sustained gains; both in the short run and long run. Their findings show that this can be achieved through conscious effort at diversifying the economy, encouraging large-scale industrialization of the non-oil (real) sector of the economy, emphasizing deepening technology in every trade and investment discourse, and sustaining recent improvements in the agricultural sub-sector.

Ovwiroro (2017) examined the challenges and improvement strategies in the diversification of the Nigerian economy through entrepreneurship. He sampled 91 SME owners from a population of 183 registered Small and Medium Scale Enterprises (SMEs) in Warri, Delta State of Nigeria using simple random sampling. His analyses revealed that various challenges affect the diversification of the Nigerian economy which include: low capital, poor access to loan, over taxation, inadequate infrastructural facilities, and poor transportation system. He recommended that government and financial institutions should continuously support the SMEs in Nigeria through the provision of soft loans and improved infrastructural facilities to help drive the economic diversification.

METHODOLOGY

Data on output of small and medium scale enterprises, interest rate, non-oil trade(export), deposit money bank loan to small and medium scale enterprise, gross domestic product, infrastructure, interest rate and inflation rate were sourced from the Central bank of Nigeria (CBN) Statistical Bulletin.

The data were purged of spurious relations by testing for stationarity using the Augmented Dickey Fuller (ADF) Unit Root test and the cointegration test ascertained the long run relationship amongst the variables. Also, the causality test was carried out to determine the effect of the current changes in diversification indices on the future growth of the Nigerian economy.

Model Specification

Hassan, Aku and Habakuk (2017) and Duru (2017) contend that Output of the small and medium scale enterprises to some extent depends on loans to SMEs. These loans to SMEs in the long run lead to increased effect of SMEs on economic growth through enhancing economic activities of the SMEs. This assertion is further modified into a simultaneous equation model where SMEs output is seen as a function of Bank loans to SMEs in addition to intervening variables such as Interest Rate, Non-oil Export, Rate of Inflation etc.. On the other hand, economic growth (proxied by Gross Domestic Product) is enhanced through the contributions of SMEs (i.e. SMEs output) in addition to other related economic growth indices – Terms of Trade, Total Non-Oil trade and Inflation Rate.

The two equations can be put in a functional form as follows:

$$SMEQ = f(DMBL, INTR, TNOT , GDP) \quad \ldots(1)$$

$$GDP = f(TOT, SMEQ, TNOT, INF) \quad \ldots(2)$$

Putting the equations above in Econometric form, we have:

$SMEQ = \alpha_0 + \alpha_1 DMBL, + \alpha_2 INTR + \alpha_3 TNOT + a_4\ GDP + U_{1t}$ ... (3)

$GDP = \beta_0 + \beta_1 TOT + \beta_2 SMEQ + \beta_3 TNOT + \beta_4 INF + U_{2t}$ …(4)

Where:

SMEQ = Small and Medium Scale Enterprises Output

DMBL = Deposit Money Banks' Loan to Small and Medium Scale Enterprises

INTR = Interest Rate

GDP = Gross Domestic Product

TNOT = Total Non-oil Trade

TOT = Terms of trade

INF = Inflation rate

U = Stochastic Error terms, $\alpha_1 - \alpha_4$ and $\beta_1 - \beta_4$ are the parameters of the model to be estimated and α_0 and β_0 are the intercepts of both equations.

Estimation of the two structural equations of the simultaneous equation model requires identification of each equation using the "Order" and "Rank" method of identification. The order condition, in quantitative form, states that an equation is identified if

(i) $R - r_i \geq g_i - 1$ (necessary condition), and

(ii) If we can form at least one non-zero determinant of order G-1 from structural parameters of the variables excluded from that equation (sufficient condition) (Egbulonu, 2005).

Where R = number of pre-determined variables in the model

r_i = number of predetermined variables in equation i

G = number of endogenous variables in the model

g_i = number of endogenous variables in equation i

For the order condition:

$G = 2, R = 5, r_i = 3, g_i = 1, r_2 = 2, g_2 = 1$

For equation (3), $R - r_1 > g_1 - 1$ meaning that equation (3) might be over-identified

For equation (4) $R - r_2 > g_2 - 1$ meaning also that equation (4) might be over-identified

Applying the rank condition for equation (3), we obtain the matrix of the structural parameters below:

SMEQ	GDP	DMBL	INTR	TNOT	TOT	INF
-1	α_4	α_1	α_2	α_3	0	0
b_2	-1	0	0	b_3	b_1	b_4

Striking off row 1 (equation being identified) and columns 1, 2, 3, 4 and 5 (the columns with non-zero parameters) to obtain the determinant $\left| b_1 \right|$ and also $\left| b_2 \right|$, since G-1 = 1

Since at least one of these determinants is non-zero, it means the rank condition is fulfilled, and equation (3) is therefore over-identified. Applying the same procedure to equation (4), we see that equation (4) is also over-identified.

RESULTS/FINDINGS

Table 1: Test for Stationarity Using Augmented Dickey Fuller (ADF) Unit Root

UNG	ADF test statistic at level	At first difference	2nd difference	5% critical value	Order of Integration
LN GDP	-0.8809	-3.1021	-8.1209	-2.9458	1(1)
LNTOT	-1.5345	-5.9061	-3.8882	-2.9458	1(1)
INTNOT	-1.015628	-7.2128	-6.0867	-29458	1(1)
LNDMBL	-1.8895	-3.2082	-14.5327	-2.958	1(1)
LNSME	0.001319	-4.65319	-10.0364	-2.958	1(1)
INTR	-2.6225	-6.1522	-8.284	-2.958	1(1)

The result of the Unit Root test using Augmented Dickey Fuller shows that all the variables are stationary at first difference at 5% significant level i.e. they are integrated of order I(1).

Table 2: Unrestricted Cointegration Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.829230	163.5050	125.6154	0.0000
At most 1 *	0.631191	101.6447	95.75366	0.0185
At most 2	0.548099	66.73303	69.81889	0.0860
At most 3	0.483539	38.93280	47.85613	0.2630
At most 4	0.240284	15.80636	29.79707	0.7258
At most 5	0.141086	6.187996	15.49471	0.6733
At most 6	0.024411	0.864986	3.841466	0.3523

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Result of the long run relationship using the unrestricted Cointegration rank test indicated that there are 2 cointegrating equations at the 0.05 level. The existence of at least 2

cointegrating equations denotes that a long run relationship exists among the variables of the model. Hence, we conclude that output of SMEs has long run effect on economic growth in Nigeria.

Table 3: Granger Causality Test

Pairwise Granger Causality Tests
Sample: 1981 2017
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LNTOT does not Granger Cause LNGDP	35	3.46918	0.0496
LNGDP does not Granger Cause LNTOT		3.11836	0.0588
LNTNOT does not Granger Cause LNGDP	35	3.43728	0.0498
LNGDP does not Granger Cause LNTNOT		2.67734	0.0851
LNDMBL does not Granger Cause LNSMEQ	35	3.73603	0.0310
SMEQ does not Granger Cause LNDMBL		1.77731	0.1864
LNSMEQ does not Granger Cause LNGDP	35	3.52908	0.0332
LNGDP does not Granger Cause LNSMEQ		3.88945	0.0214
INTR does not Granger Cause SMEQ	35	3.34195	0.0507
SMEQ does not Granger Cause INTR		2.01347	0.1512
INFR does not Granger Cause LNGDP	35	1.84930	0.1748
LNGDP does not Granger Cause INFR		3.21022	0.0545

Source: Extracted from the Eviews9 Output

Table 3 above shows the result of the Granger Causality test. The test shows that there is a bi-directional causal relationship between GDP and SME Output (SMEQ). This means that the current years' value of SMEs output can be used to predict future growth of GDP and vice versa. This result confirms the use of simultaneous equation model in our study.

Result of the Two Stage Least Squares

Equation 1

LnSMEQ = -1.5260 - 0.22O98*LnDMBL + 0.047868*INTR + 0.653703*LnTNOT + 0.2499*LnGDP

t-cal = (-0.9731) (-2.4286) (2.8603) (1.9477) (0.0603)

P-value = (0.3373) (0.0213) (0.007) (0.0603) (0,4759)

Adjusted R-Squared 0.9796; F cal = 43.159; Prob(F-statistic) = 0.0000

Equation 2

LNGDP = 4.5500 + 0.293805 LNTOT + 0.842701LNSMEQ – 0.065LNTNOT – 0.004565 INF

t-cal	= (16. 559)	(2.6726)	(5.3236)	(–0.40473)	(-2.1733)
P-value	= (0.000)	(0.0117)	(0.000)	(0.6884)	(0.0373)

Adjusted R-squared = 0.994; F_{cal} = 12.1641; Prob.(F-statistic) = 0.0000;

DISCUSSION OF RESULTS

The result of equation 1 indicates that Non-oil Trade (i.e. non-oil export and GDP) are positively (but insignificantly) related to output of SMEs. For non-oil trade in particular, it means that what the SMEs produce and export are too insignificant to induce greater output of the SMEs. Also, loans to SMEs are negatively (but significantly) related to output of SMEs, implying that increased loans to SMEs are being diverted for other uses. The adjusted R^2 of approximately 0.98 shows that about 98% of total variations in SMEs output is explained by bank loans to SMEs, Interest rate, non-oil trade and GDP. The F-statistic is highly significant suggesting that the overall regression results of the equation are reliable.

In equation 2, (i.e. the major concern to this study), the parameter estimates of two of the three indices of diversification – terms of trade and output of SMEs appear with the expected positive signs and are also significant, while the third one – non-oil trade appears with the wrong negative sign and is insignificant in explaining economic growth through diversification.

The first two results above confirm that the SMEs are contributing significantly to the growth and diversification of the Nigerian economy. However, the relatively poor performance of non-oil export supports the view that exporters, particularly exporters of SMEs products are not given adequate incentives to encourage them to tap into the foreign markets. The adjusted R^2 of 0.99 shows that about 99% of total variation in economic growth is explained by terms of trade, output of SMEs, Non-oil trade and inflation rate. This is a very good fit, and proves that our model is plausible. The F-statistic is highly significant suggesting that the overall regression estimates of the equation are reliable.

Implication to Research and Practice

The implication of the findings is that a lot needs to be done to improve the output of SMEs in order to achieve the needed diversification of the Nigerian economy, especially through channeling the right credit and financial resources and incentives. These SMEs in Nigeria need to be strengthened as obtained in other developed and developing countries where SMEs are actively the backbone of such economies. The study found out empirically, that Small and Medium Scale Enterprises are very critical to the diversification of the Nigerian economy as proven in the works of (Oyekanmi, 2003, Osalor, 2012, Joseph & Michael, 2013).

Furthermore, the model showed that oil trade contributes positively and significantly to economic growth as expected but non-oil trade still has a negative and insignificant effect on

Nigeria's economic growth. This implies that new avenues for growing the economy are still not adequately harnessed and utilized effectively.

CONCLUSION AND RECOMMENDATIONS

The various literatures we reviewed in this study showed that the SMEs promote economic growth. It is, in fact, said to hold a major key to the diversification of every developing country's economic base. Empirical evidence from our study supports this positive link between diversification of an economy via SME and Economic growth.

Our findings showed that the SMEs are significant contributors to the growth and diversification of the Nigerian economy. The relatively poor performance of non-oil export supports the view that exporters, particularly exporters of SME products are not given adequate incentives to encourage them to break into foreign markets to sell their products.

In the light of the foregoing, we recommend that Nigeria should intensify her effort to boost the SMEs because that is where she has comparative advantage. Diversification of the Nigerian economy through the SMEs would help to reduce her dependence on oil and pave the way for broad-based economic growth.

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BANK CONSOLIDATION AND THE PROVISION OF BANKING SERVICES TO SMALL CUSTOMERS [FIRMS] IN ABUJA, NIGERIA.

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ABSTRACT: *This research examines bank consolidation and the provision of banking services to small [firms] customers. The research used descriptive methods of analysis in examining the short run effect of banking consolidation on banking services rendered to SMEs in Nigeria. The study concluded that banking consolidation in Nigeria had little or no short run impact on banking services rendered to the SMEs. The research recommends that in other to create confidence on the policy, government should cushion the short-term effect by providing basic necessities that will keep SMEs on track.*

KEYWORDS: Bank Consolidation, Banking Services, SMEs, Bank, Nigeria.

INTRODUCTION

Small enterprises have always had limited access to financial services, affordable credit, and investment capital. The problem has multiple causes, including historical patterns of racial and ethnic discrimination, banks' and thrifts' concerns about profitability, and the restructuring of the financial services industry Melvin and Shapiro (1995) and Squires and O'Connor (2001).

The challenge of access means making financial services available to small enterprise, thereby spreading equality of opportunity and tapping the full potential in an economy. This challenge is greater than ensuring that as many people as possible have access to basic financial services. It is just as much about enhancing the quality and reach of credit, savings, payments, insurance, and other risk management products in order to facilitate sustained growth and productivity, especially for small and medium scale enterprises. Although the formal financial sector in a few countries has achieved essentially universal coverage of the population, at least for basic services, some financial exclusion persists in many developing countries (and, because small enterprise finds it difficult to participate fully in those economies, financial exclusion can be an even more serious handicap for those affected). The expectation over time is that a well consolidated financial firm in the developing economy has what it takes to effectively absolve this exclusion.

In line with the above statement the study has the following questions unanswered:

- Has bank consolidation in Nigeria resulted in efficiency of banking services to the small costumers in the short run and to what extent has this been achieved?
- How effective has lending services to the small customers been since consolidation?
- What is the rate of patronage earned from small customers by the newly consolidated banks?

Objectives of the Paper

In general, this research examines bank consolidation and the provision of banking services to small firms [customers]. The study assessed banking sector strength and reliability in the provision of banking services to small customers and the active roles they played in the Nigerian Economic Development immediately after consolidation.

Therefore, specific objectives of the study are to examine:

- The extent banking consolidation in Nigeria has in improvement in efficiency of banking services to the small customers in the short run.
- To evaluate the effect of lending services to the small customers since consolidation.
- The rate of patronage from small customers by the newly consolidated banks.

Hypotheses

H_o: Banking consolidation has led to high level of efficiency of banking services to small customers in the short run.

H_a: Banking consolidation has not achieved much efficiency of banking services to small customers in the short run.

H_o: lending services has been effective after banking consolidation.

H_a: lending services has not been effective after banking consolidation.

THEORETICAL FRAMEWORK

The theoretical effect of competition on banking outcomes has been addressed by a number of models. The Structure-Conduct-Performance (SCP) model predicts that more market power or concentration will negatively affect credit supply and cost (e.g. Bain, 1951, Hannan, 1991 for a banking application). Cetorelli (1999), however, gives examples of how the use of market structure (e.g., concentration ratios) to infer conduct may be misleading and discusses alternative methodologies based on demand and cost functions. Shaffer (2004) likewise notes that other definitions of equilibrium may give a different association between conduct and concentration (e.g. contestable markets).

Another model of the relationship between competition and market outcomes is the asymmetric information hypothesis (Petersen and Rajan, 1995). In this model, increased market power is positively related to credit supply because lenders are able to capture a larger share of future surpluses from the borrower. Because banks can charge a higher rate later and a lower rate earlier, the adverse selection (credit rationing) situation is mitigated resulting in more low-quality firms receiving credit. Boot and Thakor (2000) derive a model that predicts a non-linear relationship between competition and credit availability for relationship loans. In their model, a bank can make both transaction (or “arms-length”) loans and relationship loans that require the production of soft information resulting in what they call sector specialization. An initial increase in inter-bank competition gives the same result as the

asymmetric information models, a reduction in the benefits from investing in sector specialization. However, in their model, profits from transactions lending are more affected by competition than profits from relationship lending. Thus, inter-bank competition will cause banks to allocate more credit to its captured borrowers. Dell'Ariccia and Marquez (2004) produce a similar prediction in their model, where informed banks increase lending to information captured borrowers when faced with greater competition.

Given these differing theoretical predictions about the association between concentration, conduct, and banking outcomes for small firms, the empirical tests of the relationship between concentration and pricing using bank level data are, not surprisingly, inconclusive. Some evidence is found of market power in the pricing of deposits (e.g., Hannan and Liang, 1993), but not for loan pricing, even in highly concentrated markets such as Canada (e.g., Nathan and Nieve, 1989) or markets with a banking duopoly (Shaffer and DiSalvo, 1994). The size of the market used may also complicate the detection of a relationship between concentration and pricing. For example, Radecki (1998) examined the relationship between retail deposit rates and market concentration between the mid-1980s and mid-1990s and concluded that changes in the supply side of retail banking have created markets at least as large as a state.

To further complicate the empirical association between outcomes and concentration, Brevoort and Hannan (2006) note that competition from out-of-market lenders would not be included in a typical concentration ratio computation. Improvements in technology facilitate the entry of these out-of-market lenders, for example, by using credit scoring for business credit card lines. Over time the increased usage of these facilities by small firms could further weaken the link between the number or size of competitors within a local market and the intensity of competition Theoretical from a small firm's perspective.

Using firm-level data from the Board of Governors' 1987 Survey of Small Business Finance (SSBF), Petersen and Rajan (1995) found evidence in favor of the asymmetric information hypothesis. Firms in more concentrated markets were less credit constrained and had a lower initial cost of funds compared to firms in less concentrated markets. Over time, however, the cost of funds was higher, reflecting the recovery of the higher cost of the investment in private information for information-opaque firms. Jayarantne and Wolken (1999), however, found no significant relationship between a measure of deposit concentration and the amount of trade credit paid late (a proxy for credit availability) using the Board of Governors' 1993 SSBF. Yet, DeYoung, Goldberg and White (1999) found a positive association between concentration and the amount of small business lending in urban markets, but a negative association in rural markets. Beck, Kunt and Maksimovic (2004), using firm-level data from 74 countries, found a negative association between concentration and financing obstacles for firms of all size, although the relation turned insignificant in countries with high levels of GDP and well-developed financial institutions. Zarutskie (2006) analyzed a panel of U.S. corporate tax returns from 1987 to 1998 to assess the effect of competition on credit availability for small firms and found that higher concentration resulted in an increased chance of receiving a loan and more timely receipt of that credit. Elsas (2005), using German data, found a non-linear relationship between concentration or malite probability of using a Hausbank (banks associated with relationship lending). For low values of concentration, small firms were more likely to use a Hausbank as concentration decreases. And finally, Berger, Rosen and Udell (2007) failed to find any association between deposit concentration

and the probability of small firms having a line of credit but did find a positive association between concentration and the credit spread on lines of credit.

Given the unsettled state of knowledge about how deposit concentration as a proxy for competition affects small firm banking outcomes, this paper takes a different approach to the empirical investigation. By using a measure of competition that reflects the actions of market participants, we make two contributions to the literature related to bank structure, competition and banking outcomes: 1) how lender contact is related to traditional measures of competition, e.g. deposit concentration, as well as improved measures of local market structure, such as size-structure measures proposed by Berger, Udell, and Rosen (2007); whether the actions of banks in local markets, market structure, or both influence small firm banking outcomes. To the extent that lender contact is associated with certain types of market structure and not others, regulators and analysts may obtain a better understanding of the linkages between the numbers and distribution of lenders in a market and their actions. In addition, the scope of outcomes reported by small firms in the survey permits a more in-depth analysis of the effects of lender contact versus market structure on information-captured small firms.

METHOD OF DATA ANALYSIS

The researcher used descriptive analyses in answering the research question. The descriptive analysis was meant to give an analytical picture of the effect of banking consolidation on small & medium enterprises in Nigeria in the short run. Scales were outlined in order to grade preferences on agreement to the statement on the questionnaire administered. Such as:

(5) Strongly Agree =**SA**

(4) Agree =**A**

(3) Undecided =**U**

(2) Disagree =**D**

(1) Strongly Disagree **SD**

Inferential statistics was used. The sums mean scores of the banks administration and small medium enterprises were calculated and compared with respect to each of the areas of bank services that were examined.

The Research Design

The main focus of the research was to examine the services offered to small customers by the consolidated commercial banks in Nigeria. In line with the objective, the researcher related the services offered by consolidated commercial banks to small customers operating any form of transaction with these banks. A questionnaire was administered to sample of small customers transacting business with the consolidated banks.

Population /Area of Study

The research population covers Abuja as a whole which present Nigeria. The research was interested in examining the short-term effect of banking consolidation on the Nigeria commercial bank customers and the relationship that exist between banking consolidation and banking services to the small customers. To achieve the objective of the research, commercial banks in Abuja were used as a study area where the research was conducted.

Sampling Procedure

Since the research was aimed at looking at the short-term effect, questionnaire method of data collection was used. Abuja the federal capital of Nigeria was considered as an ideal place to conduct the research being that it is the federal capital of Nigeria having all various classes of customers cutting across the country and having wide range of banks. We viewed Abuja as a Summary of other States in Nigeria since all the states are represented there. A sample of 10 small medium enterprises (SME) customers was picked randomly and 10 consolidated banks located in Abuja were also picked randomly for the research. The SME selected for the study were randomly selected. Two each were selected from four area councils namely municipal area council, Bwari area council, gwagwalada area council, and kuje area council while one each were selected from kwali and abaji area council. The selection was based on the area council's attestation of the firms as remarkable in their activities. In the case of the banks, the basic criterion for their selection was that they were able to meet up with the consolidation criteria. The banks were randomly selected. Ten questionnaires were posted to the banks selected to be served to ten of their customers.

Presentation of Data

The respondents to the questionnaire were made up of 22 small medium entrepreneurs. Twenty-two entrepreneurs were selected from the streets of Abuja randomly. From the answers proffered by these entrepreneurs, it was coincidentally discovered that each of the small & medium enterprises patronized different bank independent of the other. It was also discovered that two of the SMEs' were as old as 20 yrs and above in existence, nine were not up to 20 years old but were more than 10 years of existence, and eleven were below 10 years of existence (Table 4.1).

Table 4.1: small medium enterprises (SME) patronage of banks

Names of the Firms	Banks Patronized for Business	Age (Years) of the SME
SME1	UBA	20 years above
SME2	Diamond	not up to 20 years but more than 10 years
SME3	Union	Below 10 years
SME4	First bank	not up to 20 years but more than 10 years
SME5	Fidelity bank	Below 10 years
SME6	Unity	20 years above
SME7	Oceanic bank	Below 10 years

SME8	Stanbic IBTC Bank	Below 10 years
SME9	Guarantee trust	not up to 20 years but more than 10 years
SME10	FCMB	Below 10 years
SME11	Access bank	Below 10 years
SME12	FCMB	not up to 20 years but more than 10 years
SME13	First bank	not up to 20 years but more than 10 years
SME14	diamond bank	not up to 20 years but more than 10 years
SME15	Sky bank	not up to 20 years but more than 10 years
SME16	Keystone bank	Below 10 years
SME17	FCMB	Below 10 years
SME18	Ecobank	not up to 20 years but more than 10 years
SME19	Stanbic IBTC bank	not up to 20 years but more than 10 years
SME20	Sterlin bank	Below 10 years
SME21	Zenith	Below 10 years
SME22	`Zenith	Below 10 years

Source: questionnaire

In furtherance to the explanations on the firms, we discovered that eight of the firms were agriculturally based; five were technologically based, while nine were trading based.

It was also discovered that the first SME had the oldest years of bank patronage while SME 5 had the least years of patronage. The firms also specified their growth rate as follows; nine have attended above 50% increase while thirteen experienced below 50% growth rate. The Table Below (Table 4.2) further gives details of the firms' historical trend.

Table 4.2:

Years of Bank Patronage by SME	Nature of Your Enterprise	Growth Rate of the Firms
24	Agriculture	above 50%
12	Trading incline	below 50%
7	Technological incline	above 50%

11	Agriculture	below 50%
2	Technological incline	below 50%
23	Agriculture	below 50%
7	Technological incline	below 50%
6	Agriculture	above 50%
14	Agriculture	below 50%
5	Trading incline	above 50%
3	Agriculture	below 50%
11	Trading incline	below 50%
12	Technological incline	below 50%
12	Agriculture	above 50%
15	Trading incline	below 50%
5	Trading incline	above 50%
7	Agriculture	above 50%
12	Trading incline	below 50%
13	Trading incline	above 50%
8	Technological incline	below 50%
7	Trading incline	above 50%
9	Trading incline	below 50%

Sources: Questionnaires and interview

Descriptive Analysis

The research was essentially meant to describe the short run banking services after consolidation. Based on the above fact, the answers provided by the SME and the banks enabled us to make this analysis. The Mean, standard deviation, maximum, minimum, range, median, mode and normal probability plot of each of the 11 questions for small medium enterprise and 9 for banks were analyzed from the answers to the questions in **Appendix 3 table 1 and 2 respectively**. **NCSS Software** packaged was used for the computation. These simple statistics shaded light on the views of the people concerning the short run services provided by the banks after consolidation. In line with these views, the following tables 3 and

4 showed the summary of the questions answered by both the SME and the Banks. **Appendix 4 and 5** gave the summery of the normal probability plot for each question asked.

The normal probability plot is a plot of the inverse of the standard normal cumulative versus the ordered observations. If the underlying distribution of the data is normal, the points will fall along a straight line. Deviations from this line correspond to various types of non-normality. Stragglers at either end of the normal probability plot indicate outliers. Curvature at both ends of the plot indicates long or short distribution tails. Convex, or concave, curvature indicates a lack of symmetry. Gaps, plateaus, or segmentation in the plot indicate certain phenomenon that needs closer scrutiny.

Confidence bands serve as a visual reference for departures from normality. If any of the observations fall outside the confidence bands, the data are not normal. The numerical normality tests will usually confirm this fact statistically. If only one observation falls outside the confidence limits, it may be an outlier. Note that these confidence bands are based on large sample formulas.

From the Martinez-Iglewicz normality test conducted the data were 10% Critical 5% Critical Decision was not rejected. This gave confidence for the descriptive analysis to be conducted. Appendix 6 and 7

TABLE 4.3: summary of SME answers

	Mean	**Standard Deviation**	**Minimum**	**Maximum**	**Range**	**Median**	**Mode**
question 1	3.545455	0.9116846	2	5	3	4	4
question 2	4.045455	0.72225	3	5	2	4	4
question 3	4.318182	0.4767313	4	5	1	4	4
question 4	3.636364	1.093071	2	5	3	4	4
question 5	3.818182	0.5884899	3	5	2	4	4
question 6	3.818182	0.9579921	2	5	3	4	4
question 7	3.409091	1.007547	2	5	3	4	4
question 8	3.363636	0.789542	2	4	2	4	4
question 9	2.636364	0.789542	2	4	2	2	2
question 10	4	0	4	4	0	4	4
question 11	3.590909	.9591212	2	5	3	4	4

Source: questionnaire

TABLE 4.4: summary of BANK answers

	Mean	Standard Deviation	Minimum	Maximum	Range	Median	Mode
Question 1	4.4	0.5026247	4	5	1	4.5	4
question 2	3.95	0.7591547	2	5	3	4	4
Question 3	4.15	0.3663476	4	5	1	4	4
Question 4	4.4	0.5026247	4	5	1	4	4
Question 5	4.5	0.5129892	4.5	5	1	4.5	4
Question 6	5	0	5	5	0	5	5
Question 7	3.85	0.4893605	3	5	2	4	4
Question 8	4	0	4	4	0	4	4
Question 9	4	0.3244428	3	5	2	4	4

Source: questionnaire

Interpretation of Findings

Contrary to the assertion made by the SMEs that banking services rendered were neither agreed as satisfactory nor disagreed as satisfactory (mean of table 3), the questionnaire answered by the banks showed that the bulk of services rendered to the SMEs was overwhelmingly agreed to have exhibited some levels of increases after consolidation (mean of table 4). For instance, comparing the mean of table 3 to the mean of table 4 we realized that almost all the means in column two of table 4 ranging from the first question to last question showed that banks accepted that their services have increase significantly after consolidation. This answer validated the H_o that banking consolidation has led to high level of efficiency of banking services to the small customers in the short run.

Whereas there is an overwhelming agreement by the banks on the positive increase in all the services rendered that were put up in the questionnaire, the SMEs are of the view that these services rendered are not too satisfactory (table 3 and 4).

From the above answer, it showed that although banks were of the view that they have attended some level of achievement on services rendered to SMEs. The answers shed light on the fact that SMEs are still expecting much from the consolidated banks later.

Although the mean value of all questions answered by SMEs shows mid points between (agree and undecided), in contrast the mode on the SMEs table (table 3) shows that the bulk of majority clearly agree on the fact that there has been a significant improvement on services rendered by the banks except for question 9 that clearly shows disagreement on the issue of Pricing of credit facility increasing from 21% per annum before consolidation to 25% per annum. The mode on the banks table (table 4) is also of the same view of agreement on services rendered to the SMEs by the banks as it is applicable with the mean on the banks table (table 4)

In the case of provision of credit facilities, question 4 (table 3) while the mode shows a simple majority agreeing to the fact that Banks are being more considerate in the provision of Credit facilities to small medium enterprises after consolidation, the mean to the question showed that SMEs are indifferent on the same issue. The act of being indifferent dose not validates the H_o hypothesis that lending services has been effective after banking consolidation.

There is also an overwhelming indifference in the case of the issue of simplified procedures of getting access to loan. Implying that either the banks are likely not to have changed the process of loan acquisition or that the improved processes are likely not too clear for the SMEs

In line with the issue of credit facilities, it is also agreed by the SMEs that the loan tenor is too short question 10 (Table 3)

On the issue of patronage, in table 2 we realized that the firms have to some extend showed high level of patronage of the banks. However, we discovered that while some of the firms have patronized their banks for longer time, some are quite young. In table 1 we realized that the age of the banks are also reason for the diversity of patronage by these firms.

The mode of Question 11 table 3 further shows that majority keep money in the bank not for the purpose of interest but for easy accessibility of the funds. The mean of this question showed almost contrasting opinion on the question.

From normal probability plot (appendix 4 and 5 respectively) we realized that the answers to the entire question except for normal probability plot 10 for the SME 4,5,6,7,and 9 for the banks were not linear this implied that while there was massive coincidental agreement on the answers proffered by the banks, the case was different with the SME's we realized that much of the answers given by the banks are in line with the expected answers graphically depicted in appendix 4 and 5 this demonstrated the probability that banks answers in line with the expected answers for most of the questions. On the other hand, we realized that most of the answers given by the SME are not in line with the expected answers.

Policy Implication of Findings

The thoughts behind banking consolidation in Nigeria to SMEs advantage are that banks will be strengthened to give quality services such as, financing for the construction of affordable houses, and provision of mortgage finance of medium-term tenors at affordable interest rates; provision of start-up and working capital for SMEs; provision of micro-credits to strengthen the informal sector, increase in productivity and reduced poverty. The financing of the above requests to be at single digit interest rates - Bernard (2006)

From our findings we realized that there is little or no such impact of banking consolidation on SMEs activities in the short run. The views express from the findings went contrary to those of the findings from the bank's perspectives. This showed that banking consolidation has not been felt in the short run by the SMEs.

SUMMARY OF THE STUDY

The outcome of the study shows that banking services rendered were neither agreed as satisfactory nor disagreed as satisfactory. The answers by the banks showed that the bulk of services rendered to the SMEs was overwhelmingly agreed to have exhibited some levels of increases after consolidation. From the foregoing, it shows that although banks were of the view that they have attended some level of achievement on services rendered to SMEs. The SMEs were indifferent as to how effective these services have been after consolidation.

While the banks were of the view that they have improved their services to the SMEs, there was disagreement amongst them on the issue of pricing of credit facility. The price increased from 21% per annum before consolidation to 25% per annum after consolidation. This shows that banks are indifferent in the pricing of their credit facilities to SMEs.

There was also an overwhelming difference on the issue of simplified procedures of getting access to loan by the SMEs. This implied that some banks are likely to have imbibed simpler procedure than others.

It was agreed by the SMEs that the loan tenor is too short. This means that government has to intervene so as to ensure that the loan tenor for the SMEs is increased.

CONCLUSION OF THE STUDY

In conclusion the answers given by the SMEs depict that banking consolidation in Nigeria had little or no short run impact on banking services rendered to the SMEs. It further showed that the impact of a policy in the short run is hardly felt in the entire system of the economy at the same time.

We realized that while it is easier for policy impact to be directly felt by those that are executing the policy, it might take longer time for other sectors not directly involved to feel the impact of the policy.

The study further showed that there is a wide range of expectations of better services as a result of the recent consolidation from the banking sector.

RECOMMENDATIONS OF THE STUDY

In other to create confidence on the policy, we hereby recommend that government should cushion the short-term effect by providing basic necessities that will keep SMEs on track. Consequently, financial regulatory body should ensure that credit facilities to the SMEs are pegged at an affordable price. Incentives in terms of tax concessions are recommended for banks that grant credit facilities to small and medium scales businesses. Other recommendations made by the study are; that special services rendered by banks to SMEs are clearly spelt out for the benefit of the SMEs; microfinance banks should be strengthened to provide financial services that are crucial to the growth of small and medium enterprises in Nigeria. ATM and other electronic services should be expanded to the grassroots' areas so that more customers will be encouraged to establish business relationships with the banks.

Finally, more research should be conducted so that banking consolidation policy will be kept on track in the long run.

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APPENDIX 1

SECTION A: Please tick (✓) in the appropriate box or space.

Academic qualification: (tick your highest)

(i) How long have you been running your enterprise?

(a) 20 years and above ☐ (b) not up to 20years but more than 10 years ☐ (c) Below 10 years ☐

(ii) What is the nature of your enterprise? ☐

(a) Agriculturally incline ☐ (b) Technological incline ☐

(c)Trading incline ☐ (d) other ☐

(iii) Which of the banks do you patronize for your business transactions? (State the name)

(iv) How long have you operated account with the bank mentioned? _____

(a) 20 years and above ☐ (b) not up to 20 years but more than 10 years ☐ (c) Below 10 years ☐

(v) What is the likely growth rate of profit of business from the time you started transaction with your bank?

(a) Annual profit improved by over 50% ☐ (b) Annual profit reduced by over 50% ☐

Key for Responses on the items below:

(5) Strongly Agree
(4) Agree
(3) Undecided
(2) Disagree
(1) Strongly Disagree
You are expected to tick only one number against each variable as it relates to your view.

SECTION B: Questionnaire on Banking Services to Small Medium Scale Enterprise

S/NO.	STATEMENT	R E S P O N S E S				
1.	Over the counter cash transaction has improved annually after consolidation	**5**	**4**	**3**	**2**	**1**
2.	Due to the increase in the number of branches access to funds via ATM has improved by a ratio of one ATM to hundred people consolidation					
3.	The establishment and payment of standing orders have improved by over 5% annually from 2006					
4.	Banks are more considerate in the provision of Credit facilities small medium enterprises after consolidation.					
5.	The provisions of bank drafts to small customers are faster and easier.					
6.	Bank statements are easily accessible now by small scale enterprises.					
7.	I get access to my bank account through internet now than before consolidation					
8.	Procedures of getting access to loan have been simplified by the day					
9	Pricing of credit facility has increased from 21%par annum before consolidation to 25%par annum.					
10	Tight to the risk associated to the credit facility the loan tenor is too short (usually one year)					
11	I keep my money in my account with the bank not for the purpose of interest but for easy accessibility of the funds thanks to the online real-time					

SECTION A: Questionnaire on Banking the Rate of Efficient Services Provided to the Small Customers

S/NO.	STATEMENT	RESPONSES				
		5	4	3	2	1
1.	Number of staffs Over the counter have increased by 50%					
2.	With the increase in number of branches and on-line real-time over the counter transaction has improved by 50%					
3.	Small medium enterprise desk is established in the bank after consolidation					
4.	Fund transfer services have improved by 50% due to the on-line real-time and the increase in number of branches					
5.	Provisions of a debit card for the withdrawal of cash from a business current account at ATMs operated by the Banks have improved by 50% after consolidation					
6.	Foreign exchange services to small scale customers especially bureau de change have improved by 50% after consolidation					
7.	The rate of efficiency in the provision of manager cheques have improved by over 50% after consolidation					
8.	In view of the increase number of branches and the provision of on-line real-time services, bank statement availability is very fast.					
9.	Due to increase awareness by the small and medium scale enterprise, banking relationship with them has improved as more SME are establishing banking relationship with us					

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PROPERTY INVESTMENT TRUST: A VEHICLE FOR REAL ESTATE DEVELOPMENT IN NIGERIA

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ABSTRACT: *Property development requires huge capital which in much way cannot be provided by one person. Sourcing fund traditionally had proved inadequate overtime. Therefore, there is need for better sources of financing property development in Nigeria. This research examines the suitability of real Property Investment Trusts (PITS) in financing property development in Nigeria. To this end, questionnaire were administered on Estate Surveyors and Valuers, Real Estate Developers Security and Exchange Commission (SEC), Mortgage Institutions, Nigeria Stock Exchange (NSE), etc. the research reveals that inadequate property finance constituted the most critical problem to real estate development in the country, it also shows that there is a large property market to support the application of REITS which has be found to adequately meet such capital requirements in developed countries which is still not popular in Nigeria. The research also reveals that for REITS to flourish in Nigeria, property development and capital market, government has to improve on legal and institutional frame works establish and support the mortgage market and ensure a stable economic environment. Percentages and frequency tables were used in analyzing the data collected.*

KEYWORDS: Property, Investment Trust, Real Estate Development, Stock Exchange

INTRODUCTION

Real estate development everywhere in the world is a capital-intensive venture. In the past, Onibokun (1985) ranked land acquisition and its documentation in addition to the ever-rising costs of building materials as major problems facing real estate development in Nigeria. He asserted that this had influenced the various housing policies and the subsequent establishment of many relevant programs such as the Site and Services Scheme and institutions like the National Institute for Road and Building Research. However, gone are the days when land used to be a major factor influencing the outcome of any real estate development. Umeh (1977) noted that finance influences the phasing, timing, scale of operation and marketing strategy for the finished products. In the same vein, Afolayan (1991) mentioned finance as playing a leading role in real estate development because it determines whether or not a project would be successfully completed or abandoned.

Omirin (2004) observed that financing real estate development has in recent times become more problematic due to complex interaction of several factors such as high interest rates being charged on loans, stringent repayment requirements, cumbersome loan requirements imposed by lenders and inflation. As noted by Onyiuke (2002), the economic situation in the country over the years had influenced the availability or otherwise of fund for real estate development.

The author made references to the 'social' nature of housing in an attempt to distinguish housing sector from other capital-intensive sectors of the economy. Governments, at all levels in Nigeria have come to realize that inadequate finance had been the main hindrance in the implementation of various development programs.

Also, real estate is unable to effectively compete with other investment opportunities such as shares, due to its capital-intensive nature, illiquidity, low yield, and long pay-back period. The various conventional methods of real estate financing are grossly inadequate while non-banking institutions such as insurance, pension funds are strictly limited by government regulations to provide the required capital. The failure of conventional sources to provide the required finance for real estate developments created the need for alternative sources such as securitization, unitization and real estate investment trusts.

Sources of Real Estate Finance

There are two (conventional and contemporary) major sources of finance for real estate development.

Traditional/Conventional Sources

Conventional sources of real estate finance are usually grouped into formal and informal.

Formal sources are usually debt financing through loan able funds sourced from banks, pension funds, insurance companies and primary mortgage institutions. According to Bruegeman and Fisher (2002), debt financing is very common but constrained by the long-term nature of the real estate developments as against the short-term nature of the lenders' sources of funds. Debt financing is available through non-bank institutions such as pension funds, finance houses and insurance companies, but these are limited by regulations that dictate the proportion of total funds that can be invested in real estate development. With short-term nature of lending by financial institutions coupled with regulatory limitation on loan ceiling, it is certain that a sustainable source of funding, such as REITs will be required for real estate development in Nigeria.

Informal sources include equity contribution from personal savings, which is usually less than 10% of the project cost and are mostly used for preliminary works like site acquisition, clearing and processing of necessary planning approvals. Other informal sources include esusu/ajo, age grade association, village development scheme and town's union (especially those living outside their place of births), loans from traditional money lenders, social club contributions, aaro/owe (where members contribute in kind by providing labour on members' site until all members have been so helped in building their houses by rotation). Good as these sources may be in the traditional settings, the complex economic situation and the need for huge capital had made finance from informal sources grossly inadequate for any meaningful real estate development.

Five distinct challenges have been identified with the use of conventional sources of funding real estate developments. First, funds from private equity, retained earnings or profits, accumulated savings or revenue reserves are small in nature and granted on short term thereby making it grossly inadequate. Second, debt financing is constrained by the long-term nature of real estate investments as against the short-term nature of the lender's own sources of fund. These resources are limited by regulations that dictate the proportion of total funds that can be

lent for real estate development purposes. Third, there are uncertainties concerning real estate property titles as evidenced by revocation of rights of occupancy within the Federal Capital Territory, Abuja in the immediate past democratic setting in Nigeria. Such experiences make certificates of occupancy (C of Os) vulnerable to litigations. Fourth, the time consuming, cumbersome and high cost of title registration processes coupled with high interest rate and high equity/debt ratio conditions demanded from the borrowers do not encourage the use of conventional sources of funds for any appreciable real estate development. Fifth, there are investments with lower risks and higher earnings within shorter periods (shares and stocks, LPO financing etc) than investments in real estate development competing for investor's funds. For this reason, these other investment vehicles often attract available loan able funds away from real estate investment opportunities.

Requirements for REITs Operations

For REITs to be dominant vehicle for real estate ownership in Nigeria there is need for government to take six major steps. First, there is need to have set of laws that gives backing to the establishment operations of REITs. The investment and Security Acts and other Federal Internal Revenue laws will have to be amended to create the required enabling environment for it take off. Second, though institutionally, Serbe-Yiadom (1993) describes REITs as an alternative vehicle to going to the bank offering investors the benefits of profitable investment without having to invest huge sum of money however, REITs still requires the cooperation of sub-sectorial institutions within the finance industry. The operation of REITs also requires the ability of financial institutions to analyze credit in relation to collateralized real estate development. Third, an enabling macro-economic environment that could generate the required demand for real estate developments and mortgage loan, which in turn affects return on investments, must be in existence. Periods of unstable economic situations resulting from high inflation, high interest rate, unemployment, and insufficient money in circulation, and low level of consumer affordability culminating in to high rate of loan defaults must not be allowed to prevail. The economic recession in USA in 1973 resulted in high level of default in loan repayment forcing the share price of REITs to fall to as low as 33% which equally resulted in lower dividend paid from $2 to $0.13 at a stretch. Such unstable economic environments make forecasting difficult thereby putting the investors in the danger of uncertainty and risk.

Fourth, in most states in Nigeria, title registration goes through arduous processes. Registration of title especially when there is change of ownership, takes a huge sum which may discourage investor in real estate development. There is therefore urgent need to review the various laws relating to transactions in real estate development, with particular reference to the Land Use Act No.6 of 1978. Fifth, Abayomi-Sanya (2006) posited that secondary mortgage market creates the avenue for mortgage documents to be structured, underwritten and sold in form of securities to investors thereby creating stream of funds for further investment. Sixth, Nubi (2003) emphasized that there is need for standardized and computerized mortgage software that will encourage centralized control of all the mortgage processes from origination to foreclosure so as to reduce transaction costs in addition to a market driven interest rate and predictable cash flows.

Sirota (2004) stated that for a company to qualify as REIT, it must:

- be a State registered corporation, business trust or similar association;
- be managed by a Board of Directors or trustees;

- have shares that can be fully transferable;
- have a minimum number of 100 shareholders;
- pay dividends of at least 90% of REITs taxation income;
- ensure that not more than 50% of the shares are held by five or fewer individuals during the last half of each taxation year;
- ensure that not less than 75% of its total investment is on real estate;
- derive at least 75% of gross income from rents or mortgage interest;
- have not more than 20% of its assets in stocks in taxable REIT subsidiaries.

MATERIALS AND METHODS

A total of 500 questionnaires were administered on Primary Mortgage Bankers, Real Estate Consultants and Property Investment Companies. 375 questionnaires representing 75% were returned. Personal in relevant units in Nigerian Stock Exchange Commission, Federal Mortgage Bank of Nigeria, Security Exchange Commission and Stock Brokers were orally interviewed. Surveyors and valuers as advisers on property indices for mortgage operations, property investment companies as investors in summing up the state of the art on real estate investment. In-depth discussions were carried out with members of staff of the Nigerian Stock Exchange; Loans and Advances Section of the Federal Mortgage Bank of Nigeria, Stock brokers and the Security Exchange Commission. Information so generated is analyzed as shown in Tables 1 -7:

ANALYSIS AND DATA PRESENTATION

Table 1: Real Estate Development Problems

Challenges	Ranking
High Inflation Rate due to unstable economic climate	5
Rigid Government Policies	6
Low Demand	7
High Cost of Building Materials	3
High Cost of Land	2
Costly, Cumbersome Registration of Interest in Land Processes	4
Inadequate Finance	1

Source: Field Survey, 2013

Table 1 reveals that finance is the greatest problem facing real estate development in Nigeria. This is followed by high cost of land and building materials, Inflation is ranked as 5th of all

the problems encountered by real estate development. A situation whereby inadequate finance, high cost of land and high cost of essential building materials top the list of problems confronting real estate development in a country, as highlighted by the data generated should be a big concern to the government.

Table 2: Adequacy of Traditional Sources of Finance

Opinion	Frequency	Percentage
Very adequate	38	10.13
Slightly adequate	50	13.33
Adequate	50	13.33
No	200	53.34
Not sure	37	9.87
	375	100

Source: Field Survey, 2018

From Table 2 it is clear that the traditional sources of finance are not adequate for real estate development. While 200 respondents (53.34%) declared that traditional sources are not adequate, 100 respondents, (26.66%) were for slight adequate to very adequate. More than half of the respondents, as indicated in Table 2, agreed that the traditional sources of finance were inadequate as against approximately one third that felt some measure of adequacy.

Table 3: Need for Better Source(s)

Opinion	Frequency	Percentage
Strong agree	150	40.00
Agree	175	46.67
Disagree	12	3.33
Indifferent	38	10.00
Total	375	100

Sources: Field survey 2018

A total of 325 respondents (86.67%) testified positively to this while only 50 (13.33%) could not see any need for better source(s) of financing real estate. Approximately 87% of respondents noted that there is a dire need for better source(s) of financing real estate development in Nigeria. Despite the National Housing Fund and the Primary Mortgage Institutions in operation, there is need to look for other forms of real estate funding as being projected through REIT.

Table 4: REIT's Applicability in Nigeria

Opinion	frequency	Percentage
Very applicable	100	26.67
Applicable	200	53.33
Not applicable	50	13.33
Not sure	25	6.67
Total	375	100

Sources: Field survey 2018

The result obtained in Table 4 above is not unexpected bearing in mind the earlier claim by respondents in Tables 3 that there is the need for other sources of funding real estate development and acquisition. A total of 300 respondents (80%) agreed that REIT is applicable in Nigeria real estate industry while 75 respondents (20%) do not agree.

Table 5: Sustainable Real Property Market

Opinion	Frequency	Percentage
Strongly agree	100	26.67
Agree	188	50.13
Partially agree	50	13.33
Disagree	37	9.87
Total	375	100

Sources: field survey 2018

The Federal Government's earlier desire of providing for housing for all by year 2000 could not materialize and government having realized the enormity of the financial need of the housing sector had introduced and gave adequate backing to the National housing Fund with the Federal Mortgage Bank of Nigeria granting mortgage loans at 9% as against going interest rates of between 18% and 30% on commercial bank loans currently in vogue. Based on this, the result in Table 5 indicating that the real estate market in Nigeria will sustain REIT is justified. While 100 respondents (26.67%) strongly agreed, 188 respondents (50.13%) agreed, 50 (13.33%) moderately agreed and only 37 respondents (9.87%) did not agree.

RESULTS AND DISCUSSION

Stakeholders' views, as summed up from the respondents and in-depth personal interviews, showed that while finance is of great importance in real estate development (Table 1) the traditional sources of funding real estate are not enough for the kind of funding required for real estate development. This is clearly evident from Table 2 above. Hence there is need for strong and viable alternative source(s) of finance for real estate development in Nigeria (Table 3). Respondents were of the opinion that REIT could be applied in Nigeria (Table 4), since there is a virile real estate market that could sustain it (Table 5). However, it is observed that there is no an operational guideline for REIT's implementation, in the country. A greater percentage of the stakeholders interviewed were of the opinion that there is the need for enhanced public awareness among employers of labour in a bid to financially support employees in owning homes while still active and productive to enable beneficiaries fully repay the loan before retirement from services.

CONCLUSION AND RECOMMENDATION

Ability to provide alternative sources of funding real estate development during this era of global efforts at providing houses for all is one of the greatest challenges facing the Federal Government of Nigeria. With the fastest urban growth occurring in the cities, the impact of

inadequate housing in the various environments is no longer news. In addition, the growing problem of urban poverty is a serious confounding factor in the effort to manage funds accumulated into the National Housing Fund by the Federal Mortgage Bank of Nigeria. The range of policy options for solving many of the problems of financing the country's real estate development sector has been highlighted. These policies may not deliver the required results except there are sufficient administrative and legal resources, or sufficient political will in addition to adequate public support. Meeting this urban challenge will require the concerted efforts of everyone with a stake in the country be they members of staff of the three tiers of government, operators of private enterprises, community members or the ordinary citizens.

REITs are becoming appealing instruments to investor all over the world. They are excellent ways from small investor to pool their resources together and invest in real estate developments without the major commitment of time and capital require for direct ownership of real estate.

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HOUSING PROVISION IN NIGERIA: THE COOPERATIVE ALTERNATIVE

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ABSTRACT: *Housing problems in Nigeria are multi-dimensional. They occur both in the urban and rural areas. They are qualitative, quantitative, psychological and socio-cultural in nature. These problems are consequences of the inability and ineffectiveness of both the public and private sectors to meet the housing needs of the populace. As a result of this, any lasting solution to the Nigerian housing problem requires a multi- faceted approach. Various policies aimed at alleviating these housing problems have been formulated and implemented. They have met with varying degrees of success. After identifying the main causes of housing problems in Nigeria, this paper examines the Cooperative housing concept as a strategy for housing delivery. The essential features of the concept are discussed and an evaluation is made of its impact on the housing sector in selected countries based on various criteria. Some of these are: aims and objectives, modalities for funding, peculiarities of implementation, planning imperatives and levels of success. The paper concludes by relating the experiences of these countries to the contemporary Nigerian housing situation and determining the applicability of the cooperative housing concept given the nation's socio-economic environment.*

KEYWORDS: Housing Provision, The Cooperative Alternative, Housing Problem, Housing Situation, Cooperative Housing, Nigeria

INTRODUCTION

The housing delivery system in Nigeria is a combination of inter-related processes. As such, housing problems are multifarious and require multidimensional solutions.

Nigeria's diverse housing problems revolve around overcrowding and slum housing. Many Nigerians cannot afford decent homes. They live in contraptions that can only be called 'Shelter' and not 'Housing'. Government over time has intervened in the housing sector by increasing housing stock through the construction of housing estates and through its mortgage institutions, facilitated the disbursement of housing loans. These measures have done little to address the situation. On the other hand, houses provided by the private sector operators are out of the economic reach of even the medium income earner. An effective and realistic strategy for providing decent houses in decent environments at decent prices is therefore crucial.

Various authorities have proffered strategies for improving housing delivery. Fasakin (1998) suggested that the cooperative housing movement should be given a closer look. Oduwaye (1998) posits that the rigid bureaucratic system of government should be streamlined, while issues of land allocation and housing finance should be addressed. Omole (2001) suggested that financial institutions should be more accessible to the people.

Cooperative housing has been successfully implemented in many countries including Sweden, Denmark, Norway, Canada and South Africa.

Judging from the inherent success of cooperative movements in Nigeria, this paper seeks to examine the Cooperative Housing System as a pragmatic tool for improving housing delivery. In order to fully achieve this, the paper looks at the structure, types and benefits of the system; and goes further to evaluate the impact of the system in Australia and the United States of America, with a view to determining the applicability of Cooperative Housing in Nigeria in the face of present socio-economic realities

METHODOLOGY

The study relied on secondary data relating to the concept and implementation of Cooperative Housing in United States of America and Australia. Data was from both published and unpublished sources. Considerable materials were gotten from Internet sources. Non-statistical methods were employed in analyzing the systems in both countries. A comparative analysis was done based on some parameters including modalities for funding, peculiarities of Implementation, planning Imperatives and levels of success

What is Cooperative Housing?

Fasakin (1998) defined Cooperative Housing as a society that corporately owns a group of houses or flats in which each member participates actively in all matters concerning the estate. Sazama (2000) defined a housing cooperative as a cooperative where member-residents jointly own their building, democratically control it and receive the social and economic benefits accruable from living in and owning a cooperative, while the National Cooperative Housing Association of America (2001) described it as a form of multi-family ownership venture between cooperative corporations and the corporation's owners called tenant –stockholders.

Operational Framework

The basic operational structure of the Housing cooperative takes the following format:

The cooperative corporation owns or leases the housing project, including all land, dwelling units and common areas. Its tenant stockholders, who by virtue of their stock ownership are entitled to occupy a specific housing unit, in turn, jointly own the cooperative corporation.

The tenant-stockholder purchases stock (sometimes called shares or membership certificates) in the cooperative corporation. Upon purchase of the stock, he signs a perpetual lease, called a proprietary lease or occupancy agreement that gives him a legal and exclusive right to occupy a dwelling unit as long as all obligations to the cooperative are met.

The corporation is the legal owner of the property. As such, the corporation is responsible for meeting its financial obligations, including mortgage payments, real property taxes and management and maintenance costs. The cooperative passes on these costs to the tenant-stockholders, who pay a single monthly fee or carrying charge to the cooperative

The process is illustrated graphically below

FIG 1 COOPERATIVE HOUSING PROCESS:

FORMULATION OF HOUSING COOPERATIVE CORPORATION

Registration of members

Establishment of Executive Committee of Residents

ACQUISITION OF PROPERTY

DESIGN OF HOUSING COOPERATIVE ESTATE

Application for plan and financial approval from relevant authorities

Construction

COMPLETION OF CONSTRUCTION AND ASSIGNMENT OF HOUSES TO TENANT-STOCKHOLDERS

MANAGEMENT OF COOPERATIVE BY EXECUTIVE COMMITTEE OF RESIDENTS

Collection of Monthly Holding Charges

Maintenance of housing cooperative

Keeping of records

Kinds of Housing Cooperatives

1. **Market Rate Cooperatives**: which sells stock at full market value in the original sale and permits a market rate of return on resale by tenant-stockholder
2. **Fully Mutual Cooperatives/Limited Equity Cooperative**: This limits the returns allowed when shares are sold. The amount of return is determined by a formula established in the corporation's bylaws
3. **Mutual Housing Association**: is a non-profit corporation set up to develop, own and operate housing. Generally, the corporation is owned and controlled by the residents of the housing project
4. **Subsidized Cooperative**: is a cooperative which has received some form of subsidy from a government or non-profit entity to lower the cost of the housing to the tenant stockholders

5. **Building Cooperatives**: where housing is cooperatively built, but the cooperative dissolves after construction is completed and housing is turned over to individual private ownership
6. **Communal Housing Cooperatives**: where residents share food and activities. Decision-making is often a consensus by all residents. Other types of communes are greenhouse cooperatives
7. **Tenant Management Cooperatives/ Leasing Cooperatives**: lease the property from an investor on a long-term basis, sometimes with an option to buy. The residents operate the property as a cooperative

Benefits

Housing cooperatives seek to provide the highest quality housing possible within cost guidelines. Benefits derivable from cooperative housing are economic, social and physical.

Economically, cooperative housing allows tenant-stockholders to acquire equity; hence the value of the property appreciates with time. Even though it is more affordable than individually developed housing, members have no personal liability in the cooperatives mortgage hence persons ineligible for personal mortgage can buy into a limited equity cooperative. Furthermore, the members are eligible for tax deductions as the corporation is responsible for real estate taxes and mortgages. Buying into a cooperative ensures predictable monthly costs

Social advantages of the cooperative housing scheme include democratic control and participatory decision-making, cultural diversity, and the elimination of outside landlords. Cooperatives also foster a sense of kinship, as they are communities within communities. The physical layout of the housing complex (usually neighborhood design) encourages social interaction. The incidence of crime is greatly reduced in Housing Cooperatives as prospective members are screened thoroughly prior to being admitted.

Physical benefits include shared maintenance responsibilities as the cooperative association bears the cost of major repairs. Also, vandalism and abuse of property is reduced as ownership denotes responsibility.

DATA DISCUSSION

Cooperative Housing in Australia

The cooperative movement in Australia has witnessed a tremendous boost in the past two decades especially since its tenets have been applied to housing development. Cooperative housing in Australia is modeled after that of Canada. Its major objective is to provide decent and affordable housing for low and middle-income earners in self-governing communities. Cooperative housing in Australia is well funded, regulated and amenable to comprehensive land use planning and democratic control.

Variants of housing cooperatives presently operate in Australia. The peculiarities of each of these types as practiced in Australia are discussed below

a. **Equity Housing Cooperative**: this is the oldest type of housing cooperative and dates back to 1944 when the Cooperative Housing Association Act was enacted. In this system, the central government and state bank provides financial support while the housing cooperative societies disburse loans to groups of potential tenant-stockholders. By 1975 when the Federation of Housing Societies of Victoria was established, tenant-stockholders were required to make personal investments and so enjoy the right to capital gains.

a. **Rental Cooperatives**: This form of housing cooperative was established in 1978 to provide affordable homes for low and middle-income earners who either choose not to be homeowners or cannot afford to purchase or maintain a home of decent standard in a good location. In this system, the tenants are not required to provide equity. Usually, the central government provides. Grants for the purchase of houses for rental cooperatives. The Ministry for Housing retains title and grants a head lease to the cooperatives. Tenants, who must fall within a certain income bracket, then take a sublease from the cooperative.

b. **Community Settlement Cooperative**: this system provides an alternative to the purchase of private property. Land is corporately owned by all tenant-stockholders, who are entitled to the use of the land for housing and gardening. The cooperative corporation is responsible for the provision of basic infrastructure. The ministry of housing provides mortgage finance, carries out environmental and developmental planning in consultation with the community and provides a legal backing to the cooperative

Cooperative Housing in America

The cooperative housing movement in the United States of America started with ethnic and union groups developing self-help cooperatives in the 1920s. It evolved into federal funding of low-income cooperatives in the 1960s and 1970s; and then into local non-profit organizations using ad-hoc funding to organize affordable cooperatives from the 1980s till date (Sazama, 2000).

Housing cooperatives were not well established in the United States until after the World War 1. Cooperative housing in America reinforces joint ownership of property, empowers low- and moderate-income families and gives them the opportunity to take responsibility for their actions and bear the consequences of such actions on the cost and quality of their housing.

Major variants of housing cooperatives in operation in America include the following:

i. **Mutual Housing Association** Is a non-profit corporation set up to develop, own and operate housing. This type of cooperative started in the 1918 and was organized as self-help groups for urban workers. Generally; the corporation is owned and controlled by the workers unions.

ii. **Limited Equity Cooperatives:** tenant-stockholders are not entitled to capital gains, as there is a limit to returns allowed when shares are sold. The amount of return is determined by a formula established in the corporation's bylaws. This system, also called Subsidized cooperative usually receives some form of subsidy from a government or non-profit entity to lower the cost of the housing to the tenant stockholders. This form of housing cooperative started in 1927 with the enactment of the New York State Limited Dividend Housing Companies act. This act was the first large-scale government programme available for affordable housing cooperatives.

iii. **Market Rate Cooperative**: in 1955, the New York State Limited Profit Corporations Law was passed. It encouraged the development of moderate-income housing through property tax exemptions and low-income loans financed by the State Revenue bonds. With the advent of privatization, limited equity coops had a 20-year limit after which they were required to convert to the Market rate cooperatives which sell stocks at full market value of the original sale and permits a market rate of return on resale by tenant-stockholder.

iv. **Leasing Cooperative**: During the 1960s, in the aftermath of World War 2, some federal housing estates were privatized into cooperatives for low-income families. These cooperatives were purchased by realtor speculators who rented them out to tenants. These tenants managed the properties on an invest term basis, sometimes with an option to purchase**.**

Comparative Analysis of the Two Models

Both the American and Australian models of cooperative housing have similar goals and objectives. On the other hand, the administrative structure of these systems differs. Hence. A comparative study of the two systems is done, employing the parameters in the table below

TABLE 1: COMPARATIVE ANALYSIS OF AMERICAN AND AUSTRALIAN COOPERATIVE HOUISNG MODELS

PARAMETER OF COMPARISON	**AMERICAN MODEL**	**AUSTRALIAN MODEL**
OBJECTIVE	To obtain for low- and moderate-income families, decent housing at an affordable price with effective resident control	To provide affordable housing for low- and medium-income people and to build self-governing communities
ORIGIN	1918, Brooklyn New York by the Finnish Home Building Association (a group of migrant artisans)	1865 in New South Wales by the Friendly Society
VARIANTS OF HOUSING COOPERATIVE	I. Mutual Housing Association ii. Leasing Cooperative iii. Limited Equity Cooperative iv. Market Rate Cooperative	I Housing Cooperative II. Common Equity Rental iii.Community Settlement Cooperative
ORGANIZATIONAL FRAMEWORK	Most of the cooperatives were set up by civic organizations and private realtors. Government only acts as a policy maker and a facilitator by offering tax rebates and	Quite bureaucratic as sectoral organizations liaise between the cooperatives and the central government. The government plays a prominent role in the administration of the cooperatives.

	direct funding for cooperatives targeted at the poor	
FUNDING	The government, housing cooperatives and commercial institutions fund the system Cooperatives enjoy the right to formulate their own policies and funding arrangements	Funded by the central government and other tertiary institutions. Cooperatives enjoy the right to formulate their own policies and funding arrangements
PLANNNING IMPERATIVES	Bottom-up approach used here. The Urban Planners served as the initial pressure groups and are fully involved in ensuring that planning principles are not compromised. Cooperatives founded with local community development goals usually succeed in obtaining grants and waivers from the government. Also, the estates are well planned because of the influence of the urban planners.	Bottom-up approach in that the members initiate the projects. General process from plan approval, through design, construction and management of the cooperative adhere to basic planning principles, which makes for well planned estates as neighborhood design and land use zoning are affected
SUCCESS	Over one million Americans live in housing cooperatives. 17% of the total number of rent-reduction housing units in America is cooperatives. Its growth has been attributed to the high government support it gets through legislation and direct funding and in recent times, privatization	975,480 Australians live in cooperatives. The growth of cooperatives in Australia has been erratic over time in that it appears to be stimulated by natural economic trends, legislative changes, social conditions and initiatives of various other institutions

Nigerian Experience at Cooperative Housing

Cooperative housing is not new in Nigeria. The principle of cooperatives is entrenched in the customs of many Nigerian ethnic nationalities. The Yoruba of Southwestern Nigeria have always used cooperative means to achieve home ownership. A considerable proportion of rural dwellings were produced by pooling physical efforts (aaro in local parlance), as well as obtaining loans (aajo and esusu) from the local cooperative saving societies. As successful as these systems were, not much emphasis on formal cooperative housing is operated in Nigeria. Although credit and thrift societies and building societies exist which indirectly perform cooperative housing functions, the impact on the housing sector is negligible.

Applying the Cooperative Principle to Contemporary Housing Provision

Socio-economic constraints have affected the Nigerian housing industry adversely. The construction industry in Nigeria is in dire straits. The problem is further aggravated by the high cost of building materials. Inadequate provision of infrastructure within the existing housing estates is traceable to the ailing economy which seems to defy solution. Structural unemployment is the order of the day. In fact, poverty has been institutionalized; hence it is impossible for a medium income earner to own a house.

Judging from the extensive housing demand in Nigerian urban centers, there is the need for a revolutionary and radical strategy involving non-market and non-profit making measures. Cooperative housing provides this alternative.6

Indeed, the application of the cooperative housing principle to Nigeria's housing problem requires an in-depth study of her culture and socio-economic environment in order to device an indigenous and workable operational framework. A study of the experiences of other countries will no doubt also act as a guide.

The socio-economic status of the country necessitates the need to encourage the use of local building materials and direct labor in the actual construction of the estates

The experience of other countries has shown that public enlightenment is essential to providing a new concept of community life. This should be carried out by planners who should in addition perform the following functions:

i. Identify and define sites for housing cooperatives

ii. Prepare design guidelines for a range of housing standards to match resources and needs of the various types of cooperatives and their members

iii. Prepare layout plans for the schemes, bearing in mind minimum planning standards, and the provision of communal facilities. The layout design should be either neighborhood or village design concept to foster the community spirit.

iv. Train the tenant-stockholders, in consultation with relevant professionals, in the art of building construction, landscaping and estate maintenance and management.

v. Ensure the proper implementation of the plans.

Furthermore, the government must be involved in the process of devising a cooperative housing system in Nigeria by providing financial and technical support to the cooperatives. This can be achieved by:

a. Promulgating appropriate legislation to give muscle to the cooperative housing system

b. Providing for and funding research in cooperative housing

c. Providing financial concessions, by way of tax rebates, autonomy to cooperatives, and grants to cooperatives targeted at the low-income earners.

d. Allow for easier accessibility to mortgage finance

e. Provide land for housing cooperatives

f. Ensure that government involvement in housing follows the cooperative format thereby marrying the public and private sector involvement

CONCLUSION

Why Cooperative Housing?

Apart from the fact that the principle of cooperatives is inherent in most Nigerian cultures, cooperative housing is a pragmatic and cost-effective means of home ownership. The principle has been endorsed by many influential international organizations such as the United Nations, the International Cooperative Alliance and the United Nations Center for Human Settlements. Furthermore, cooperative housing has been tested in many nations where it has been used, to varying degrees of success, to address housing problems. Therefore, modifying this concept to suit Nigeria's socio-cultural and socio-economic peculiarities will result in renewed hope for the average Nigerian in his quest to attain home ownership

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AN EMPIRICAL INVESTIGATION OF THE IMPACT OF EFFECTIVE SHIPPING POLICY INSTRUMENT ON THE DEVELOPMENT OF THE NIGERIA MARITIME INDUSTRY

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ABSTRACT: *The Nigeria's shipping sector is estimated to be capable of generating above 5trillion naira annually but the sector has been totally neglected. To make the sector effective and harness revenue from this sector, there will be an overhaul of policy, institutional, regulatory and legal framework. This study therefore, empirically investigates the impact of an effective shipping policy instrument on the development of the Maritime sector in Nigeria. Data were collated in Lagos, Nigeria through a structured questionnaires administered to stakeholders of the maritime sector in Nigeria. The method of analysis used in the study is a simple non-parametric (chi-square test) statistical method. From the method of analysis, the study found out that an effective shipping policy affect the development of the maritime sector in Nigeria. The study therefore recommends the enactment of a new national shipping policy to effectively support the Nigeria's shipping policy dates back to 1987 when the Nigerian shipping policy act no.10 of 1987 was enacted following Nigeria ratification of the United Nations Code on Trade and Development (UNCTAD) so as to make shipping policy instruments have an impact on the development of the Maritime sector in Nigeria, which will invariably aid Nigeria economic growth.*

KEYWORDS: Shipping Policy, Maritime Sector, Development, Non-Parametric Test

INTRODUCTION

The development of the maritime sector in any country follows a continuous modeling and maritime policies. This means that the maritime sector is continuously upgraded to meet international standard and best practices in shipping policy formulation. However, a developing economy cannot operate in total isolation from the maritime sector hence a special attention to the development of the maritime sector.

Formulating shipping policy remains one of the most controversial issues in the development of the maritime sector in Nigeria. Maritime policy is a set of basic principles and associated guidelines, formulated and enforced by the governing body of an organization, to direct and limit maritime activities and actions of its participants in pursuit of long term goals. Maritime policy will mainly concern investment decisions aimed at expanding maritime sector in some form or others (Bennett, P. 2000). In the year 2018, the idea of developing the Maritime sector while holding other variables constant had affected the sea port areas. Transport which is also called waterborne transport is one of the modes of transportation of goods and/or persons, which has for centuries been the main prerequisite for trade transactions between nations and regions, and has without doubt played an important role in creating economic development and prosperity (Eide et al. 2007.).The maritime industry is an area of great importance to the Nigerian economy and a strong catalyst for socioeconomic

development as it contributes an immense percentage to the national GDP of the country through transportation of freight, promotion of trade and commerce, revenue generation, creation of job opportunities varying from skilled to unskilled, institutional development, international relations, and promotion of tourism.

Ekong (1984) cited by (Olayiwola 2018) stated that over 96% of the transportation of Nigeria's external trade is by maritime transport, this however had not changed despite we are now in the year 2018. The maritime industry consists of companies and organizations whose activities supply innovative products and services related with the business of designing, constructing, manufacturing, acquiring, operating, supplying, repairing and/or maintaining vessels, or component parts thereof; of managing and/or operating shipping lines and customs brokerage services, shipyards, dry docks, marine railways, marine repair shops, shipping and freight forwarding services and similar enterprises. One of the major problems that have continued to hinder the growth of the maritime industry in Nigeria is the issue of inadequate policy creation and poor implementation. The Nigerian maritime industry has undergone series of policy reforms which are not positively felt in the maritime sector in Nigeria. As business became more international and newly industrialized, many industrialized nations tends to standardize their shipping polices so as to be effective. In as much as shipping policy help the maritime sector in creating a model in transporting items, its impact has not been effectively felt in the maritime sector. It is as a result of this that this study is been carried out to find and empirically investigate the impact of an effective shipping policy on the maritime sector using the Lagos Tincan Island port domain as a case study.

LITERATURES

Transportation is the hub to most growing cities to enhance productivity and boost the effective running of the economy; hence effective and efficiency measure must be employed before the changes can result in severance damage because the movement of freight from origin to destination depends on the effectiveness of the transportation (Roe 2015).

Shipping consists of a large part of maritime activities in Nigeria and so the importance of shippers cannot be underestimated. Around 90% of world trade is carried out by the international shipping industry. Without shipping, the import and exports of goods on the scale necessary for the world today would be impossible. (International Chamber of Shipping (ICS) 2015).

A striking feature of the shipping business to outsiders is the different characters of the companies in different sections of the industry. For example, liner companies and bulk shipping companies belong to the same industry but they seem to have little else in similarity. In fact, there are several different groups of companies involved in the transport chain, some directly and others indirectly. The direct players are the cargo owners, often the primary producers such as oil companies and the shipping companies. Because shipping is a service business, ship demand depends on several factors including price, speed reliability and security. (Kaps, H. 2004.). The role of shipping and shipping services needs to be strengthened to secure the foundation from which to develop more innovative and competitive solutions in the manufacture of equipment, shipbuilding, logistic and transport

services. The growth of international trade demands that all trading nations, not just the few, should contribute to the security of trade routes. The demand for shipping worldwide is increasing, so new and innovative ways of transporting cargoes present designers and engineers with opportunities. (Maritime foundation, 2016). The survival of the maritime industry in Nigeria depends to a large extent on the level of aggregate demand for shipping services and the country's shipping lines market share. The latter hugely depends on the operational efficiency of the lines and the former on how well the country is performing. Using the trend in total amount of vessels and cargo throughout Nigerian ports, there is an observable growth in the demand for shipping services in Nigeria. (The guardian Nigeria, 2016).

In 2018, the Nigerian Port Authority stated that Nigeria is a waterfront state, with broad coastline and therefore point of frequent economic activities that needed effective financial inclusion. It has inland water systems and large variety and volume of items, oil and gas trades. Due to the close link between shipping activities and economic development, most nations cannot afford to toy with the industry (Ihernacho 1997). Maritime transport is essential to the operation of any country's economy and a vital part of the nation's transport infrastructure. As any other industry, to unlock the key to potential in the maritime industry, policies and projects that have various ways and ability to improve and guide the industrial participants and the country's economy must be implemented. These policies must be able to address the issues militating against the business' effectiveness and control the activities of every participant in all maritime sectors. Shipping is essential to the functioning not just of modern society generally, but of the global economy in particular (Kaps, H. 2004.). The industry has various industries within it; it is often associated with shipping lines involved in the carriage of cargo as well as including associated service providers (Workplace Performance Technology LTD 2010). The maritime industry sector has three types of activities which are maritime transport services, maritime auxiliary services and port services. Roe (2015) stated that the water transportation industry as consisting of activities of shipping companies, cruise ships and ferry operators as well as revenues generated by cargo loading and unloading, port fees and pilotage authority. Shipping is considered as the lifeblood of the global economy. More than 80 % of the worlds goods are carried by ship (Vieira, et al. 2007). Agarwal and Ergun (2008), the shipping industry is made of three main divisions: industrial shipping, tramp shipping and liner shipping. Industrial shipping refers to the cases where the shipper owns the ship and aims to minimize shipping cost. In tramp shipping activities, the carrier engages in contracts with the shippers to carry cargo bulk between specific points at specific time frame. Igbowe (2012) enunciated some strategies towards the development of the shipping industries in Nigeria. His main focus was on the shortcoming of the decree 10 of 1987 which vested policy implementation on the National Maritime Authority (NMA now NIMASA). Igbowe (2012) in examining the future of Nigeria maritime industry observed among other things that Nigeria requires a well articulated maritime law and policy constructed to encourage and foster economic growth and development. The work of (Boisson 1994) suggested that shipping policy in Nigeria maritime sector has not been effective. Olayiwola (2011) in his write-up is also of the opinion that for a greater impact or relevance in the maritime sector to be achieved, the nation must embark on a more elaborate shipping policy which should encompass the development of maritime capacity building in line with the trends of the world's maritime growth, taking into consideration the relevance of the shipping globalization. Faure and Hui. (2008) believed that perhaps unlike any other country, the maritime industry provides a basket of opportunities for investment. First and

foremost, it has served to stimulate import and export trade by way of providing surface transport through which freight are moved by sea on a massive scale. Nevertheless, shipping trade has played an important role in Nigerian economic development. It accounts for about 95% of the vehicular means of Nigeria's international trade. Besides it has also acted as a cardinal force in Nigeria's efforts to correct her trade imbalances with the developed nations of the world.

In pursuit of developing our maritime industry, the Nigerian Maritime Authority (NMA now NIMASA) was established to coordinate and implement Nigeria's Shipping Policy. NMA's successor the Nigerian Maritime Administration and Safety Agency (NIMASA) when established in 2007 had no defined purview regarding Nigeria's Shipping Policy, though it was mandated to promote and develop indigenous commercial shipping in international and coastal shipping trade, and regulate and promote maritime security, maritime pollution and maritime labor. The Merchant Shipping Act 2007 was established to provide for merchant shipping and related matters. This Act was to be implemented by NIMASA and lays down a list of regulations for ships operating in Nigeria regarding licensing, registration, certification and penalties for non-compliance with the Act. Nigeria has an estimated number of 60 legislative enactments comprising its maritime and shipping laws. (Bisi 2015).

MATERIAL AND METHODS

Having noted that the main aim of this study, the method of analysis applied in this study is distilled from the literature. In line with the research questions, a non-parametric test will be used to justify the findings. A non-parametric test is a test that does not follow any form of assumptions in analyzing data. The aim of this study is to empirically investigate if an effective shipping policy affects the development of the maritime sector in Nigeria. 200 questionnaires were administered and 170 was deem fit for analysis. However, the sample size was determined using Yamame formula at 5% error. The use of non-parametric test such as chi-square as method of analysis in this study has been justified in the literature in this study.

Decision Rule: The stated hypothesis will be tested at 0.05 level of significance, and a df of greater than or equals 3. We will reject the null hypothesis H_0 and accept the alternative hypothesis H_I; also we will accept the null hypothesis H_0 and reject alternative hypothesis H_I once both Ho and H_I are not at this level of significance for the stated hypothesis.

Test of Hypothesis

H_1: Effective shipping policy instrument significantly affect the development of the maritime sector in Nigeria.

The Hypothesis was tested using chi-square and the results are presented in table 1a and 1b

Table 1(a): Chi square table showing the impact of shipping policy instruments on maritime sector in Nigeria

	Observed N	Expected N	Residual
Strongly Disagree	4	34.0	-30.0
Disagree	3	34.0	-31.0
Undecided	26	34.0	-8.0
Agree	56	34.0	22.0
Strongly Agree	81	34.0	47.0
Total	170		

Source: Author's computation using SPSS.

Table 1(b)Test Statistics

	How effective has the shipping policy instruments been in affecting the development of the Maritime sector in Nigeria.
Chi-Square	135.824[a]
Df	4
Asymp. Sig.	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 34.0.

Table 1(a) reveals that an effective shipping policy have impact on the development of the Maritime sector in Nigeria (x=135.824, df =4, p<.005).

We therefore reject Ho; which stated that an effective shipping policy does not have significant impacts on the development of the maritime sector in Nigeria and accept H_1.

DISCUSSION OF RESULTS AND CONCLUSION

The study was motivated by the importance of maritime sector in aiding economic growth. Instead of using the usual equation model or advanced mathematical techniques in analyzing the research question, a simple non-parametric test was applied.

The following findings which addressed the research question and hypothesis were made. The major findings are summarized below:

From our analysis, the researchers found out that the chi-square calculated is greater than the chi-square tabled as represented by 5% level of significance. Since the chi-square calculated is greater than the tabulated, we conclude that an effective shipping policy affect the development of the maritime sector in Nigeria. However, similar works such as the work of Iheanacho (1997), Kuronen and Tapaninen (2009), opined that an effective shipping policy affect positively the growth of the Maritime sector. In addition, it has been noted from review of professionals and scholars in the platform of the International Chamber of Shipping (ICS), (2015) and the Maritime foundation (2016) that effective shipping policy help in the development of the Maritime sector. It is on this empirical finding that this study recommends the enactment of a new national shipping policy to effectively support the Nigeria's shipping policy dates back to 1987 when the Nigerian shipping policy act no.10 of 1987 was enacted following Nigeria ratification of the United Nations Code on Trade and Development (UNCTAD) so as to make shipping policy instruments have an impact on the

development of the Maritime sector in Nigeria, which will invariably aid Nigeria's economic growth. Hence it is concluded that shipping policy and the Maritime sector has a linear relationship. Given the important of the maritime sector contribution to economic development, it becomes expedient to continuously examine how shipping policy can better be improved so as to continuously affect positively on the Maritime sector in Nigeria.

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