Moderating Effect of Corruption and Easy of Doing Business on the relationship between Defence Expenditure and Economic Growth in Nigeria

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Abstract

The global economy has witnessed terrific increase in security challenges in recent years; this has informed a green-eyed attention on the defence expenditure of many nations across the globe with a view of mitigating the challenges. In Nigerian, the situation seems to be at variance with defense expenditure been on a steady increase but more security challenges witnessed on daily basis. Given this particular challenge and the gap existing in literature, this study seeks to examine the moderating effect of corruption and ease of doing business on the relationship between defence expenditure and economic growth in Nigeria. In this studycorruption is measured using the World Bank corruption index, ease of doing business is measured using World Bank ease of doing index while economic growth is measured using GDP. The study adopted an ex-post facto research design and time series data was collected from Nigerian Code of Conduct Bureau and SPRI from 1988-2018. The study aligned with Keynesian Public Expenditure Hypothesis. The study also, adopted the use of ordinary least square regression for the purpose of data analysis after all times series assumptions were met. The result shows that, the interacting effect of corruption have positive and significant effect on the relationship between defence expenditure and economic growth in Nigeria. Also, that the moderating effect of ease of doing business have positive but insignificant effect on the relationship between defence expenditure and economic growth in Nigeria. The study recommended that government should strengthen its fight against corruption by consistently monitoring public expenditures especially, expenditures that directly affect economic stability and growth such as defence.

Introduction

The global economy has witnessed terrific increase in security challenges in recent years; this has informed a green-eyed attention on the defence expenditure of many nations across the globe with the view of mitigating the challenges. Defense is an important territorial guard that ensures the safety of lives and properties of any economy against internal and external threats that could cause harm to the smooth operation of the activities of an economy. A well-defended economy creates a level plain field for economic activities such as foreign direct investment and the production of goods and services

to strive within the economy. This is obviously one of the reasons why developed and developing nations budget huge sums of money for expenditure on defense. Defense expenditure is a military expenditure in terms of the amount of financial resources dedicated by a state to raise and maintain an armed force for the purpose of defense. Defense expenditure could also be seen as the quantity of society's resources that is allocated for the acquisition and management of military capability which are classified into recurrent and capital expenditures of the Armed Forces namely: The Army, Navy and the Air Force (source). It involves the running expenses of the defense departments and other governmental agencies engaged in defense projects

Also, a nation with high security challenges is capable of recording low stability in terms of concentration on production of goods and services, provision of educational facilities and training for citizens; the absence of these activities could lead to poor economic growth. Economic growth can be seen as the increase in the amount of goods and services produced per head of the population over a period of time measured by the country's gross domestic product (GDP). Economic growth can be enhanced by attracting investments in the economy, boosting the ease of doing business and mitigating corruption to forestall confidence among operators in the economy.

Under normal circumstances, the increase in defense expenditure is expected to provide the needed logistics and manpower needed to curb external and internal threats that would create security challenges against economic growth in an economy. On the contrary, the Nigerian situation seems to be at variance with the ideal because the defense expenditure has been on a steady increase but more

security challenges are witnessed on daily basis. The area of defense and economic development has been researched by several scholars like Fatih and Esra 2016; jelivo and Musa 2016; Kurt and Karagoil 2015 and Saroja and Eliyathamby 2014. These researchers have found that defense expenditure has positive and significant effect on economic growth. However, this does not seem to be the case in the Nigerian context where defense expenditure is rising with increase in security challenges. A critical review of literature indicates that the varying situation between extant literature and this study is the fact that previous studies did not factor in the fact that corruption could be a factor that may affect the effect of defense expenditure on economic growth but corruption is a dangerous menace that if allowed to interact with the defense expenditure may dissuade the aim of the expenditure leading to spurious results.

Corruption has been alleged to be inherent with defense expenditure as alleged by the case of the arms deal in Nigeria by Dasuki in 2014. The ease of doing business is another variable left unstudied by previous researchers. However, the ease of doing business is a major factor in determining the conducive operation of business organizations because when business organizations have a conducive environment, the business booms otherwise, the business suffer retardation at the expense of economic growth. The recurrent and capital defense expenditure which has been on the increase over the years in Nigeria has also been studied to see how they both affect economic growth in Nigeria. Based on the above gaps in literature, this study has interacted corruption index with defense expenditure to see how the interaction affects economic growth in Nigeria. Also, the ease of doing business has been moderated against defense expenditure to ascertain the outcome on economic growth. The

interaction of these variables as stated above is knowledge creation that has contributed to the existing body of knowledge on the effect of defense expenditure and economic growth in Nigeria.

The study will be built on two hypotheses;

Ho₁ Moderating effect of corruption has no significant effect on the relationship between defense expenditure and gross domestic product in Nigeria.

Ho₂ Moderating effect of the ease of doing business has no significant effect on the relationship between defense expenditure and gross domestic product in Nigeria.

Literature Review

Defence Expenditure
International Monetary Fund (IMF) (1974) defined defence expenditure as all expenditures, whether by defence or other departments, for the maintenance of military forces, including the purchase of military supplies and equipment (including the stockpiling of finished items but not the industrial raw materials required for their production), military construction, recruiting, training, equipping, moving, feeding, clothing and housing members of the armed forces, and providing remuneration, medical care and other services for them. Also included are capital expenditures for the provision of quarters to families of military personnel, outlays or military schools, and research and development (R&D) serving clearly and foremost the purpose of defence. Military force also include paramilitary organizations such as gendarmerie, constabulary, security forces border and customs guards, and others trained, equipped and available for use as military personnel. Also falling under this category are expenditures for purposes of strengthening the public services to meet wartime emergencies training civil defence personnel, and acquiring materials and equipment for these purposes. Included also are expenditures for foreign military organizations and alliances. This category excludes expenditure for non-military purposes, though incurred by a ministry or department of defence, and payments or services provided to war veterans and retired military personnel.

The North Atlantic Treaty Organization (NATO) (1976) defined defence expenditure as all current and capital expenditure on the armed forces, in the running of defence departments and other government agencies engaged in defence projects as well as space projects, the cost of paramilitary forces and police when judge to be trained and equipped for military operations, military R&D, tests and evaluation costs, and costs of retirement, pensions of service personnel, including pensions of civilian employees. Military aid is included in the expenditure of the donor countries. Excluded are items on civil defence, interest on war debts and veterans' payment.

This must have been the stirring point when United Nations Organization (UNO) (1986), gave the most detailed aggregated categorization in terms of three major groups namely: operating costs, procurement and construction and research and development. From the categorization of the UNO, the operation costs which harbours military personnel, operations and maintenance including civilian pay is concern with operating or consumption expenditure, whereas procurement and construction and research and development is associated with investment expenditure. Of the three definitions given, that of UNO stands out since it clearly distinguishes among the three functional categories that have specific opportunity costs: man power and operational items, investment in

weapons and current assets, and investment for the future. The categorization suggests the structure of defence expenditure.

In the Nigerian context, there have been several modifications in the presentation of the Ministry of Defence's breakdown of expenditure. For example; the departments that makes up defence sector includes ministry of defence, defence headquarters, Nigerian army, Nigerian navy, the Nigerian air force, Nigerian defence academy, national defence college, armed forces staff college, Nigerian armed forces rehabilitation centre, defence intelligence agency, military pension board, defence intelligence military school and defence industry corporation of Nigeria (Federal Ministry of Finance (FMF), 1996). The breakdown of the Nigerian defence sector showed that both IMF and NATO definitions of defence expenditure exclude some unique features. While defence in IMF excludes military pension personnel, that of NATO excluded civilian personnel on pension. These exclusions, are taken into consideration for the defence sector in Nigeria. The definition of what constitute military expenditure is unique and relative from one country to another. For the purpose of this study, the United Nations Organization (1986) definition is adopted.

Corruption
The definition of corruption used in this paper is, as put forward by Transparency International (TI) (2002), as the abuse of entrusted power for private gain. As a consequence, actions are assumed to be corrupted if they entail the misuse of some aspect of entrusted, public power for private gain. According to Ngouo (2000) corruption is the exploitation of public

positions for private benefits. She also, stated that the lack of any civil spirit among any categories of civil servants leads to corruption and misappropriation of public funds.

Gray and Kaufmann (1998) defines acts of corruption to include bribery and extortion which necessarily involves at least two parties and other malfeasances that a public official can carry out alone including fraud and embezzlement. For them it manifests in government activities something that the bribe receiver is required to do by law, constitute the former. The latter, on the other hand is a bribe paid to oblation services to bribe receiver is prohibited from providing. In Asian Development Bank perspective of corruption as cited by Agbu (2001), corruption in defined as the behavior of public and private officers who improperly and unlawfully enrich themselves and/or those closely related to them, or induces others to do so, by measuring the position in which they are placed.

Easy of Doing Business
Ease of doing business was created by Simeon Djankov at the World Bank group in 2001. The academic research for the report was jointly done with professors Oliver Hart and Andrel Shieifer. Ease of doing business is an aggregate index published by the World Bank. Ease of doing business is an index published by the World Bank which aggregates figures that includes different parameters which define the ease of doing business in a country (World Bank Group, 2000). The index aggregates scores country by country which become the ease of doing business index (Djankov, Hart & Shieeifer, 2001). This study conceptualizes the ease of doing business as the measurable factors that are put in place by an economy to make business opportunities effective and efficient. Indicators such as distance to frontier,

construction permits, registration, getting credit, tax payment mechanism, infrastructure are computed. Thus, higher rankings (a low numerical value) indicate better position usually indicating simpler regulation for business and stronger protection of property rights, whereas a high numerical value indicate deteriorating conditions (Ani, 2015). Ease of business has been critiqued for lack of generally accepted methodologies for determining in the indices used and peculiarities of each country (Ashraf, 2015).

Economic Growth
The search for a satisfactory definition of economic growth by many scholars of public finance has actually continued without an end. However, it is important to conveniently adhere to the convention that real per capita national income or output represents the most reliable indicator of a system's economic achievement at any point in time and that any change in real per capita income signifies welfare. Economic growth is an indication of society's welfare. It reflects the changes in its ability to attain any socially agreed upon set of goals, whether consumption, capital formation expenditure or national defence etc. Generally, growth can be defined as sustained increase in macroeconomic aggregates particularly real gross domestic product (RGDP). According to Bello (1995), developing countries resources are concentrated in the hands of a few powerful capitalist and because of this; the success of the above definition must take into cognizance the issue of proper income distribution devoid of all forms of manipulation and exploitations. A further weakness of the above definition is the fact that a number of national output indicators such as housewife services, smuggling etc are

not recorded or adjusted for in national income accounting.

Perhaps, a more detailed effort at defining and explaining economic growth is that of Kuznets (1955) which is: "modern economic growth of nations has two distinctive features: in all cases, it involves a sustained and substantial rise in produce per capita and in almost all cases it involves a sustained and sustained rise in population. For the purpose of measuring economic growth particularly that of least developed countries (LDCs) Kuznets maintain that: Modern economic growth implies major structural changes and correspondingly large social and institutional conditions under which the greatly increased product per capita is attained. Yet for purposes of measurement, the changing components must be reduced to a common denominator, otherwise it would be impossible to compare the product of the united states with that of china or the product of an advanced country today with its output a century ago.

Economic growth is also, used to imply a movement from a lower equilibrium condition to a higher one. Neo-classical economics however, assumes that economic development could be achieved if a country whose original economic condition is static is able to generate aid sustained an annual increase in its GDP at rates more than 5 percent or at least higher than its population growth rate. Economic development is presumed to have taken place in such a situation since it implies an increase in per capita income. The neoclassical concept relates to economic growth rather than economic development. However, this idea is applied to development, given the experience of developed economies. It

is expected that the benefits of growth would spread to all facets of the economy through pecuniary and technological externalities (Krugman, 1992).

Empirical Review
Fatih and Esra (2016) analysed the nexus between defense expenditures and economic growth using panel data from sixteen countries spanning from 1991 to 2013. A panel fixed effect model has been estimated for the all countries and the results show a negative effect on economic growth due to military expenditures, but this negative effect is negligible due to the statistically insignificant value of the coefficients.

Jelilov and Musa (2016) investigated the reasons why defence spending in Nigeria has failed to generate commensurate growth rate for the economy. Time series data spanning 1981-2012 were analysed using the OLS technique. It was found that government expenditure has a positive and significant impact on economic growth. Government expenditure drives economic growth in Nigeria and the paper recommends that more of government's resources should be directed to especially capital expenditure.

Ogbonnaya (2018) examined the effect of corruption on Nigeria Economy. A cross survey research design was adopted and secondary data extracted from the World Bank, Transparency International data. The statistical tool used was multi-regression analysis and t-test for the hypotheses testing and data analysis with the aid of SPSS version 20. The result of the study shows that corruption has significant impact on the economy of Nigeria.

Nwankwo (2014) empirically investigated the impact of corruption on growth of Nigerian economy using granger causality regression techniques. The study used gross domestic product as proxies for economic growth and corruption index as a proxy of corruption in the analysis. The study revealed that the level of corruption in Nigeria over years has significant negative impact on economic growth in Nigeria.

Sunkanni and Isola (2014) carried out a research on corruption and economic growth in Nigeria, the study adopted Johansen co-integration test, ADFs unit roof test, Granger causality test and Ordinary least square, with time series data covering a period of 20 years. The result revealed that there was no significant relationship between corruption and the Economic growth determinates.

Ardagna and Lusagi (2009), used doing business surveys to construct a cross-national harmonized micro data from a broad sample of developed and developing countries and investigated the heterogeneity of the effect of entry, contract enforcement regulation, and financial development on both the decision to become an entrepreneur and the level of employment of newly created businesses. The study focused on the interaction between the level of regulation and financial development and some individual characteristics that are important determinants of entrepreneurship, such as gender, business skills, and social networks. They found that entry regulation moderates the effect of business skills, while accentuating the effect of gender, even after accounting for the level of financial development.

Ani (2015) aimed to explain the effect of ease of doing business to economic growth among selected economies in Asia for the year 2014. Multiple regression determined the effect of doing business to economic growth. The study found out that the variations in ease of doing business was

explained by dealing with construction permits, getting credit, registering property and trading across borders. Dealing with construction permits and getting credit have negative effect to Gross Domestic Product while registering property and trading across borders have positive effect. Trading across borders greatly affect gross domestic product among selected countries in Asia.

Supported Theory
This study will be anchored on the Keynesians Theory as it offers the most suitable theoretical explanation of the growth process adopted in this study.

Keynesian economics (Keynesianism) are the various theories about how in the short run, and especially during recessions, economic output is strongly influenced by aggregate demand (total spending in the economy). In the Keynesian view, aggregate demand does not necessarily equal the productive capacity of the economy; instead, it is influenced by a host of factors and sometimes behaves erratically, affecting production, employment, and inflation (Hunt, 2004).

The theories forming the basis of Keynesian economics were first presented by the British economist John Maynard Keynes during the Great Depression as specified in the General Theory of Employment, Interest and Money (Keynes, 1963 & 2008). He declared that government should increase expenditure (in this study expenditure on defence sector), with a view to stimulating the growth of the economy. Keynes argued that an economy could languish indefinitely with high unemployment if aggregate demand is inadequate. Nelson (2006) noted that increased government expenditure, on the other hand, would not only boost demand directly but would also set off a chain reaction of increased demand from workers and suppliers whose income had been increased by the government's expenditure. Similarly, a tax cut would put more disposable income in the wallets of consumers, and that too would boost demand. Keynes contented, then, that the appropriate fiscal policy during periods of high unemployment was to run a budget deficit. These ideas flew in the face of the conventional wisdom that budget deficits were always bad**.**

Keynesian economists often argue that private sector decisions sometimes lead to inefficient macroeconomic outcomes which require active policy responses by the public sector, in particular, monetary policy actions by the central bank and fiscal policy actions by the government, in order to stabilize output over the business cycle (Fletcher, 1989). Keynesian economics advocates a mixed economy - predominantly private sector, but with a role for government intervention during recessions. This theory is aligned to this study particularly to investigate the extent to which government's expenditure on defence affects economic growth in Nigeria.

Methodology
The study adopts descriptive ex-post facto research design. Data for this study is basically in secondary form and was collected from the Nigerian budget from 1988-2018. Other sources of data include the Nigerian Code of Conduct Bureau and the Stockholm International Peace Research Institute (SIPRI).
Regression technique is used as a major technique of data analysis in this study.
The econometric model was therefore, specified thus;

$EDB*GDP = \beta 0 - \beta_1 CUI + \beta_2 TDE + \beta_3 EDB - \beta_4 CUI*TDE + \beta_5 EDB*TDE + U$ 1

$CUI*GDP = \beta 0 - \beta_1 CUI + \beta_2 TDE + \beta_3 EDB - \beta_4 CUI*TDE + \beta_5 EDB*TDE + U$ 2

Where,
GDP = Gross domestic product
CUI = Corruption index
TDE = Total defense expenditure
EDB = Ease of doing business

U = Error Terms
β_0 = Constant
$\beta_1, \ldots \beta_5$, = are the coefficients of the independent variables

Table 1 Variables and their Measurements

Variable	Name	Type	Measurement	A priori expectation
GDP	Gross domestic product	Dependent	measured using the values obtained from CBN statistical bulletin	
EDB	Ease of doing business	Independent	measured using the World Bank EDB index	+
TDE	Total defense expenditure	Independent	measured using the total defense expenditure for the period	+
CUI	Corruption index	Independent	measured using dummy variables 1 if corruption cases are reported and 0 otherwise.	-

Source: Author's compilation 2019

Results

This chapter presented and discussed the data collected in the course of the study. It also consists of the presentation and analysis of secondary data extracted from the Nigerian budget, Nigerian Code of Conduct Bureau and the Stockholm International Peace Research Institute (SIPRI). The data is a time series data producing thirty-one (31) observations.

Table 2: Summary Descriptive Statistics

Variable	Mean	Max	Min	Sd	skewness	Kurtosis
GDP	13.60	16.67	10.34	1.24	0.12	5.98
CUI	0.51	1.00	0.00	0.50	-0.06	1.00
TDE	11.51	12.50	9.83	0.80	-0.46	1.90
EDB	0.22	1.00	0.00	0.42	1.31	2.72

Source: Stata Output, 2019

The results for the various descriptive statistic items for gross domestic product (GDP), Corruption index (CUI), Total defense expenditure (TDE) and Ease of doing business could be seen from Table 2 above. It can be seen that the mean or average values for the gross domestic product (GDP), Corruption index (CUI), Total defense expenditure (TDE) and Ease of doing business are approximately 13.60017 (14%), .516129 (52%), 11.51795 (12%) and .2258065 (23%) respectively. In addition, the standard deviation, which measures the dispersion around the mean, stood at 1.249939 for GDP, .5080005 for CUI, .802384 for and .4250237 for TDE. The table equally documented minimum GDP, CUI, TDE and EDB values of 10.34%, 0%, 9.83% and 0% in that order. On the other hand,

the maximum value documented for GDP, CUI, TDE and EDB was 16.678 (17%), 1%, 12.50533 (13) and 1% respectively.

Therefore, the descriptive statistics of the variables of the study shows the nature and extent of dispersion of the data, which

to a large extent suggested that the data did not follow the normal curve. Therefore, the test of normality is conducted and the results of data normality test of the variables are presented in table 3.

Table 3: Shapiro-Wilk (W) Test for Normal Data

Variable	Obs	W	V	z	Prob>z
GDP	31	0.70045	9.757	4.720	0.00000
CUI	31	0.99860	0.045	-6.403	1.00000
DTE	31	0.9972	0.225	-3.310	0.99950
EDB	31	0.88329	3.801	2.767	0.00283

Source: Stata Output, 2019

The study applies Shapiro-WIlk (W) test for normal data. Under this technique, null hypothesis principle is used to check a variable that came from a normally distributed population. The null hypothesis of the test is that the data is normally distributed. In this study, Table 4.2 indicates that data from the variables of the models of the study are not normally distributed because the P-values are significant at 5% level of significance, except for CUI and DTE variables, which is not significant at all levels of

significance (p-value of 1.00000 & 0.9995). Thus, the null hypothesis (that, the data is normally distributed) is rejected for GDP and EDB, while accepted for the CUI and DTE.

Unit Root Test Results

Time series data are generally non-stationary and therefore, running a regression without controlling for that problem will yield spurious regression results, meaning that the results may appear good but do not make economic sense.

Table 4. Results of Unit Root Test in First Order Difference

VARIABLE	ADF	P-value	Order of Integration
GDP	-5.881	0.0013	I
CUI	-4.405	0.0041	I
DTE	-7.348	0.0030	I
EDB	-6.040	0.0001	I

Source: Stata Output, 2019

The results in table 4 above indicate that the series variables are integrated of order one I (1) as well as stationary at first differences given their respective p-values

that are all significant at 5%. Consequently, the result of the unit test reveals that the data used for this study are stationary in nature.

Table 5 Coefficient of Correlation

Variables	GDP	CUI	DTE	EDB
GDP	1.0000			
CUI	-0.4577	1.0000		
DTE	0.5109	0.4126	1.0000	
EDB	0.1003	0.2141	-0.1698	1.0000

Source: Stata Output, 2019

Pearson Correlation Coefficients of the Variables

Table 5. above indicated that Corruption index is negatively correlated with Gross Domestic Product in Nigeria up to 45%. Total defence expenditure positively related by 51%. Also, ease of doing business is positively correlated with Gross Domestic Product in Nigeria up to 10%.

Regression Diagnostic

The three diagnostics tests conducted in this study are Multicollinearity, heteroscedasticity tests and serial correlation. These tests are important to regression estimation in order to satisfy the assumptions of the Ordinary Least Square (OLS) of homoscedasticity and absence of exact correlations among the independent variables in the model.

Multicollinearity Test

In this study, Multicollinearity test was conducted using Variance Inflation Factor (VIF) and Tolerance Value (TV). According to Gujarati (2004), when VIF value is more than 10 and/or when the tolerance value is less than 0.1 then there is a strong indication of the presence of Multicollinearity.

Table 5: VIF Test for Multicollinearity

Variable	VIF	1/VIF
CUI	1.34	0.746548
TDE	1.32	0.759861
EDB	1.14	0.873797
Mean VIF	1.27	

Source: Stata Output, 2019

The test for Multicollinearity using the variance inflation factor (VIF) reveals the absence of it as all factors are below 10 and tolerance values are less than 1.0. The mean VIF is 1.27. The result means that there is no evidence of Multicollinearity among the explanatory variables.

Test for Heteroscedasticity

Heteroscedasticity test is conducted to check the homoscedasticity assumption of the regression model. The presence of heteroscedasticity violates the homoscedasticity assumption and may lead to a wrong inference.

Table 6: Breusch-Pagan / Cook-Weisberg Test for Heteroskedasticity

chi2(1) =	1.75
Prob > chi2 =	0.1861

Source: Stata Output, 2019

In this study, heteroscedasticity test was conducted using Breusch- Pagan/Cook-Weisberg test. The result of Breusch-pagan / Cook-Weisbaerg test for the study shows that the chi2 value is 1.75 and the p-value of chi2 is 0.1861 indicating the absence of heteroscedasticity

Table 7. Breusch-Godfrey LM Test for Autocorrelation

lags(p)	chi2	Df	Prob > chi2
1	0.669	1	0.1602

Source: Stata Output, 2019

The test of autocorrelation using Breusch-Godfrey test shows that the chi-square value of 0.669 and probability of 0.1602 which falls within the inconclusive region

of Breusch-Godfrey partition curve. Hence, we can clearly say that there exists no degree of autocorrelation in the model.

Regression Result
Table 7 reports the regression results of moderating effect of corruption index and ease of doing business on the relationship between defense expenditure and economic growth in Nigeria. In the second empirical model which introduce the interaction variable of corruption index

and ease of doing business, the result shows that the association between defense expenditure and economic growth in Nigeria becomes positive and statistically significant at level of 5% when we use CUI*TDE. While EDB*TDE becomes negative and insignificant. This result can give us an idea of the moderator effect of the of corruption index and ease of doing business on the association between defense expenditure and economic growth.

Table 8: Regression Result

GDP	Beta Coefficients	t-values	Sig.
CUI	1.458203	1.05	0.302
DTE	7.84564	9.33	0.000
EDB	.7896656	0.19	0.847
CUI*TDE	.0138118	5.26	0.000
EDB*TDE	-.1330787	-0.73	0.470
R2	0.9001		
F. Statistic	45.04		
F-Sig.	0.0000		

Source: Stata Output, 2019

The cumulative R^2 of the model have a cumulative value of R2 of 0.9001. This signifies that 90% of the total variation in the explanatory variable is caused by the same set of independent variables and the interacting variables. Furthermore, the value of F-statistic coefficient (45.04) which is significant at 5% level of significance (0.000).

Hypotheses One: Moderating effect of corruption on the relationship between defense expenditure and economic growth in Nigeria.:
Moderating effect of corruption on the relationship between defense expenditure and gross domestic product shows coefficient value of .0138118 with t-value of 5.26 and a corresponding p-value of 0.000. Therefore, the study rejects the null hypothesis which states that moderating effect of corruption has no significant effect on the relationship

between defense expenditure and economic growth in Nigeria.
Hypotheses Two: Moderating effect ease of doing business on the relationship between defense expenditure and economic growth in Nigeria.
Moderating effect of the ease of doing business on the relationship between defense expenditure and gross domestic product in Nigeria. shows coefficient value of -.1330787 with t-value of -0.73 and a corresponding p-value of 0.470. On the basis of this, the study accepts the null hypothesis two of the study which states that moderating effect of the ease of doing business has no significant effect on the relationship between defense expenditure and economic growth in Nigeria.

Conclusion and Recommendations
This study examined moderating effect of corruption and ease of doing business on the relationship between defence expenditure and economic growth in

Nigeria. This study has interacted corruption index with defense expenditure to see how the interaction affects economic growth in Nigeria. Also, the ease of doing business has been moderated against defense expenditure to ascertain the outcome on economic growth.

Based on the findings, it was concluded that the interaction of corruption effects has significant influence relationship on the between defence expenditure and economic growth in Nigeria. This implies that the existence of corruption in defence expenditure will not lead to economic growth. This is based on the fact that expenditures on defence are expected to provide a secured and protected environment for smooth operations of economic transaction. Where corruption sets in and the outcome on defence expenditure does not commensurate with the desired outcome, it becomes an expenditure in waste. This conclusion is substantiated by the recent high profile cases of corruption in the sector.

It is also, concluded that the moderating effects of ease of doing business exerts no significant influence on the relationship between defence expenditure and economic growth in Nigeria. In this study, the interaction of ease of doing business indices do not have any significant effect on the relationship between defence expenditure and economic growth in Nigeria. Ease of doing business is an index provides aggregates figures that includes different parameters which define the ease of doing business in a country. Nigeria is still ranked very in the ease of doing business index. This could be based on the fact that there are no adequate measurable factors put in place by Nigeria to make business opportunities effective and efficient. Most especially in the public sector organisations.

Recommendations

Based on the findings and conclusions, the following recommends were made;

1. Policy makers (i.e government) should strengthen the anti-corruption fight in the defence sector since it has been found to have negative effect on the nation's economic growth. The defence sector should be closely monitored on the way it expends money on both capital and recurrent expenditures. This can be achieved by creating an oversight board to mornitor defence expenditure and ensure that such expenditures are tailored towards the best interest of the public.
2. Nigeria should look at improving its ease of doing business parameters since there has been no significant changes in the ease of doing business index over the years. Awareness should be created concerning the ease of doing parameters especially in the Nigerian public sector organisations and strict adherence should also, be encouraged.

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The Causality BetweenElectricity Consumption and Economic growth for Nigeria: A Time Varying Framework

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Abstract

The relationship between electricity consumption and economic growth is vital to an understanding of the dynamics of economic growth and development. A perspective in the literature suggest that there is apositive association between electricity consumption and economic growth, implying that the economy cannot grow at a rate much higher than the rate of increase in the electricity supply. This study employs the state of the art econometric approach to investigate whether the relationship is time varying. The results of non-linear unit root test suggest that real GDP is stationary at levels, while electricity consumption is integrated of order (1) as such cointegration test is not valid when a time series is stationary. Further, whether energy variable has unit root has implications for the correct modelling of energy and economic growth. The results of the Granger causality test using F statistics finds evidence supporting the neutrality hypothesis, implying an absence of causality. In this case, fluctuations in economic growth will not be transmitted back to electricity consumption. The absence of causality further points us to the fact that a reduction in electricity consumption through energy conservation policies will not impact economic growth.

Introduction

The relationship between electricity consumption and economic activity has been generously investigated in the literature because the growth rate of electricity consumption has important implications for economic activities and public policy.Outcomes from several studies give the impression that there is a positive association between electricity consumption and economic growth, implying that the economy cannot grow at a rate much higher than the rate of increase in the electricity supply. This relationship: whether electricity consumption drives real GDP is essential for electricity conservation policies (Olaniyan, McLellan, Ogata, & Tezuka, 2018). The broad acknowledgement of the union between electricity and the production and consumption of goods and services prompted the prominence of energy outcome in the sustainable Development Goals (SDGs). In fact Goal 7 entails ensuring universal access to affordable electricity by 2030, which calls for investment in clean energy sources like wind, thermal and solar. Infrastructural development and technological advancement are necessary tools in the provision of clean energy in all less developed countries that can result in growth and aid the environment. This paper,therefore, re-investigates the relationship between electricity use and

economic activity covering the period of 1970-2014. This would better make us understand the perspective in the literature that suggest that when the economy is expanding, the electricity sector is driven to supply more energy to meet the demand and also when the economy slows down, the electricity sector will be under pressure to reduce its supply in response to less demand.Althoughthe mechanisms that drive the relationship are full of controversies. However,so long as we do not understand these controversies we do not have a clear idea of the actual relationship.For instance, high consumption of electricity usually boosts power producers income and is seen as a medium of advancing economic growth of a country. At the same time electricity generation using fossil fuels may add to pollution and other environmental woes.Therefore, allocating resourcesto electricity production is an important issue in many resource constraint countries. In order to improve our understanding, this study utilizes Error Correction Model (ECM) and causality approach so as to identify the special causal relationship between electricity use and economic activity since 1970.

The outline of the paper is structured as follows: Section 2 presents the contextual setting; Section 3 presents a brief review of related literature; section 4 presents the methodological framework; Section 5 presents the results of the bi-variate model; finally, section 6 consist of further discussion and the overall concluding remarks, respectively.

Contextual Setting
This section documents electricity consumption and economic growth trends in Nigeria. Nigeria is the largest economy in sub-Saharan Africa, but adequate, reliable electrical service which is important for economic growth has been elusive.Besides inadequate supply which is linked to the poor performance of the electricity supply, transmission line constraint has also been responsible for the poor electricity consumption in Nigeria.Recently the nations power plants experienced a reduced output by about 3,118 megawatt as a result of transmission line constraint and low demand by electricity distribution companies.

Demand for electricity has been on the increase but available generation from the national grid averages 3,8578.28 MW/h (Central Bank of Nigeria, 2017). A significant part of the rising demand is met by onsite generating sets which are primarily fueled by petrol and diesel.
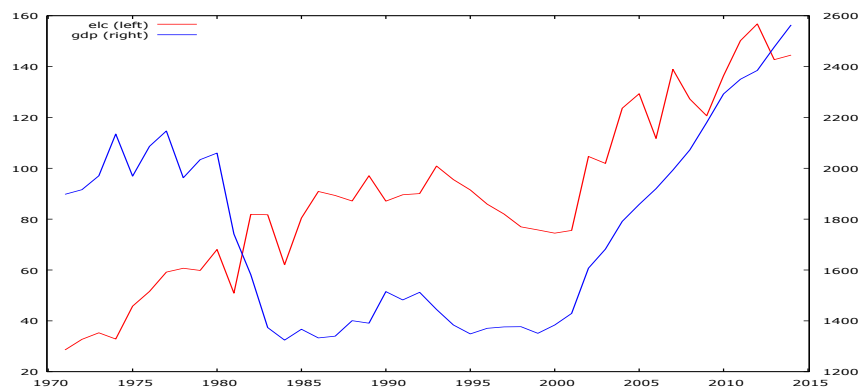
Figure 1, highlights important trend. First it shows that electricity consumption grew 13.7 per cent from 1972-1977 at a time when the economy grew by just 2 per cent. Meanwhile from 1990-1995, electricity consumption seemed to grow in lockstep with the GDP, both recording negative growth rate of -0.73 per cent and -0.40 percent.However from 2002 to 2007, the GDP grew 5.74 per cent as electricity consumption jumped 12 per cent. From that year, it seems then, that GDP growth correlated with electricity consumption.

Trend of electricity consumption per capita in Nigeria comapred to Sub Saharan African Countries
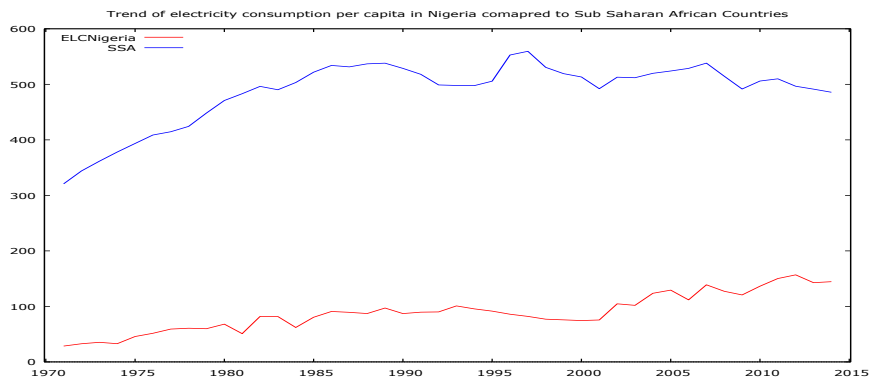
Figure 2, highlights important trends. First, Nigeria is electricity poor in comparative perspective despite her vast natural resources. Second, the national average has been significantly below the average for the group of Sub Saharan African countries. This trend is disturbing because the economy cannot grow at a rate much higher than the rate of increase in the electricity supply (Hirsh & Koomey, 2015). As a result of poor electricity services, Nigeria is the largest African importer of diesel generators, and back-up diesel generation cost households and business almost $22 billion per year in fuel cost alone (WEO, 2017). This practical problem leads us yet to another important issue which is the environmental woes that may arise from construction of conventional generating plants to meet rising demand of electricity. Additionally, the nation generates the bulk of its electricity from gas-fired power plants which contributes to rising level of Green House Gases. Emissions have profound impact on health and climate. Additionally,most gensets contribute to noise pollution which further reduces the quality of life of users and non-users.

Literature Review
The literature on electricity and growth nexus has attempted to find an answer as to whether electricity consumption drives growth or growth drives electricity consumption. Although one cannot dispute the claim that electricity use has brought about expanded business activity and will likely continue to do so in the future. A reflection upon the history of this relationship demonstrates that it has been more variable than people have assumed (Hirsh & Koomey, 2015). From this perspective, there are four lines of arguments with respect to the causal relationship between energy consumption and economic growth. For a detailed

review of the 4 hypotheses see Apergis and Payne (2011). The hypotheses on the causal relationship between consumption of energy and economic growth are; Energy-led-Economic Growth hypothesis, Economic Growth-led-Energy theory, Energy-led-Economic Growth-led-Energy hypothesis, as well as the Growth-Energy Neutrality theory.

The Energy-led-Economic Growth hypothesis postulates a unidirectional causation from energy consumption to the growth of the economy. This means a poor or inadequate supply of energy can dampen economic growth. The Economic Growth-led-Energy theory states that the growth of an economy leads to rising demand for electricity and not the other way round. This tends to suggest adverse energy condition will not constraint economic growth. The Energy-led-Economic Growth-led-Energy hypothesis implies a feedback relationship, where energy consumption and economic growth are importantly causing each other. Finally, the neutrality hypothesis assumes absence of causal relation between energy consumption and economic growth.

Several empirical evidence abounds on the relationship between energy and economic growth. However, the reviewed literatures on the causal relationship between electricity consumption and economic growth, showed varied and inconsistent empirical information in relation to electricity consumption and economic growth nexus.

Based on the four hypotheses advanced, there are four empirical evidences on the causal relationship between electricity consumption and economic growth.
First, is the empirical evidence on the electricity-led-growth hypothesis.For instance,Dantama, Abdullahi, and Inuwa (2012) investigate the effect of energy demand on economic growth in Nigeria using autoregressive distributed lag (ARDL) approach to cointegration analysis. The study reported a long-run relationship between economic growth and different measures of energy. Specifically, the study found that coal does not exert a positive influence on economic growth, while the consumption of electricity and petroleum positively impact the economy. However, the combination of three sources of energy tend to undermine the economic influence of electricity consumption.

Akinlo (2009)examines the causal relation between the amount of electricity consumed and real gross domestic product in Nigeria and found a unidirectional causation from electricity use to economic growth. The study further decomposed the trend and the oscillating integral of the real gross domestic product and electricity consumption with the use of Hodrick-Prescott (HP) filter. The findings reveal a long-term relationship between the trend and periodic parts of the two series, this tends to suggest interlink between Granger causality and the periodic function. Meanwhile, the weakness of the study lies in the usage of small sample size and omitted variable bias that may arise from bivariate analysis. In another related study, Akomolafe and Danladi (2014) investigate the direction of causality between electricity use and economic growth and found a unidirectional causality from electricity use to economic growth. The study opined that the supply of electricity is adequate enough to cause investment growth, thereby fueling economic growth. Similarly, Odularu and Okonkwo (2009) result reveals that electricity exerts a positive influence on economic growth in Nigeria. In line with this, Solarin (2011)suggests that past values of electricity consumption have the ability to predict the present level of economic growth in Botswana.

These studies seem to suggest that an increase in the supply of electricity through cutting inefficiency and more investment by firm and government in the generation of electricity as well as rising usage will catalyze the growth of the economy.

On the contrary, empirical evidence on cointegration relation between economic growth and electricity consumption and a one way causation from economic growth and electricity consumption abounds. For instance,Akinwale, Jesuleye, and Siyanbola (2013)investigate the causal relationship between gross domestic product (GDP) and electricity consumption in Nigeria using vector autoregressive and error correction model approach, and found a unidirectional causation from GDP to consumption of electricity. The study attributed the relationship to poor electricity supply which resulted in inadequate demand for electricity that is not significant enough to propel economic growth. Also, Adom (2011) using Toda and Yomamoto Granger causality found a unidirectional causality running from economic growth to electricity usage in Ghana. In addition, Wolde-Rufael (2006)found evidence of cointegration between economic growth and electricity consumption and failed to reject the growth-led-energy (electricity) hypothesis in some African countries. Similarly, Apergis and Payne (2011)showed that past values of economic growth have a predictive capability in determining current values of electricity consumption in some low-income countries.

Meanwhile, Al-mulali, Fereidouni, and Lee (2014)found a feedback causality between the consumption of electricity and economic growth in a study on selected Latin American countries. Similarly, Bélaïd and Abderrahmani (2013)reported a bidirectional causality

between economic growth and electricity consumption for Algeria in the short-run and long-run. These study support the notion that there is a relation between electricity usage and growth of economy, hence, electricity influences the growth of gross domestic product, and a significant measure of economic growth causes a reasonable consumption of electricity and vice versa. Apergis and Payne (2011)panel results, further suggests a bidirectional causal relationship between electricity consumption and economic growth in some countries with high per capital income. In the case of Burkina Faso, Ouedraogo (2013)investigated the relation between electricity consumption and growth of the economy. The study found a bidirectional relationship between the use of electricity among households and economic growth, thereby suggesting that electricity is an important factor in growing the economy of Burkina Faso.

Finally, few studies, such asAcaravci and Ozturk (2010); (Ozturk & Acaravci, 2011)found neither short run relationship nor long run relation between electricity consumption and economic growth in some North Africa and Middle East countries. Similarly, Yoo, &Kwa (2010) found no evidence of causal relationship between economic growth and electricity consumption in Peru.

This inconsistency can be ascribed to a number of determinants that include time horizon, the method of estimation, measure of variables, and econometric approaches as well as prevailing economic conditions(Smyth & Narayan, 2015).

The study discovers that existing studies based on Nigeria data with the exception of Akinlo (2009)studied the relationship of the trend, not the cyclical components. Meanwhile, the causation among the cyclical parts of the variables in question is germane, given that it correlates with fluctuation in output.Therefore, this study

extends the frontier of knowledge on the causal relationship between electricity consumption and economic growth along several dimensions. First, the study employ both linear and non linear unit root test, so as to properly identify unitroot properties of the series. Second, the sign and magnitude of the coefficients will be analyzed in relation to the various hypotheses related to the causal relationship between real GDP growth and electricity consumption. Third, like the studies by (Menyah & Wolde-Rufael, 2010; Wolde-Rufael, 2014), TY causality techniques are used that do not require pre testing for the cointegration properties of the system. The TY procedure avoids the potential bias associated with the unit root and cointegration technique (Menyah & Wolde-Rufael, 2010).

Methodology

Analytical Framework
To gauge the nature and direction of causality, a first step is to identify the appropriate analytical framework, but the energy- GDP causality literature in most cases are exploratory in nature, not having any solid theoretical underpinning (Beaudreau, 2010). One approach (e.g., Bernstein & Madlener, 2015; Best & Burke, 2018) is the conventional augmented production function. The underlying economic framework in this study derives from a functional relationship between output and electricity consumption.Specifically, the study adopts a special class of distributed lag models known as error correction model to investigate the Granger causality between real GDP and electricity consumption for Nigeria.

The Error Correction Model is outlined as follows. It is hypothesized that there is a long run relationship between real GDP and electricity consumption. In the short-run however, there may be disequilibrium. With the error correction mechanism, the

disequilibrium in one period is corrected in the next period.To ensure the error correction process reconcile short-run and long-run behavior, it should be negative and range between zero and one in absolute term (Gross, 2012; Ramnathan, 2002).

Suppose the long-run relationship between real GDP growth denoted as (Y) and electricity consumption (X) is of the form

$$Y_t = KX_t \quad ----------------------1$$

Where K is a fixed constant, taking log of both sides of equation (1), yields

$$y_t = k_t + x_t \quad --------------------2$$

Because $y_{t-1} = k + x_{t-1}$ we have;

$$\Delta y_t = \Delta x_t \quad --------------------3$$

Where Δ denotes the change in a variable from period $t-1$ to t. A general short-run model with lagged adjustment is of the following form:

$$y_t = \beta_0 + \beta_1 x_1 + \beta_2 x_{t-1} + \alpha_1 y_{t-1} + u_t \quad ---------4$$

Equation 4 is the structure of the ECM. It relates the change in real GDP to the change in electricity consumption plus the gap between the two variables in the previous period. The general specification of the error correction model is as follows:

$$\Delta y_t = \beta_0 + \beta_1 \Delta x_1 + \gamma_1 x_{t-1} + \gamma_2 y_{t-1} + u_t \quad ---------5$$

if the variables are found not to be cointegrated, then equation (5) reduces to a VAR model in differences which is used to investigate the short-run interactions.

$$\vec{Y} = \vec{\alpha} + \Theta_1 \vec{Y}_{t-1} + \vec{\varepsilon}_t \quad -----------6$$

Where $\vec{Y} = (Y_t, X_t)'$ is a column vector, Θ_1 is a $2X2$ matrix, $\vec{\varepsilon}_t$ is a 2 dimensional vector of white noise terms

with covariance matrix $\sum$. This is basically an extension of the AR model.

Data

This study used the annual time series data of the Nigeria economy from 1971-2014. The data was obtained from World Bank Development Indicators. All variables are converted to natural logs prior to analysis.The bivariate framework includes real GDP in billions of constant 2010 US dollars, and electric power consumption (ELC) defined in kilowatt hours.

Estimation Technique and Results

As a robustness check, it is important to test the data on stationarity. For this purposes, this study employs Augmented Dickey Fuller (ADF), and Kwiatkowski-Phillips-Schimdt-Shin (KPSS) tests. The results suggest that both series are nonsationary, the results from ADF and KPSS tests are given in Table 1.

Table 1 Results of ADF and KPSS test

	ADF		KPSS	
	Level	1st difference	Level	1st difference
ELC	-0.71	-6.450**	1.03	0.155*
GDP	-0.07	-4.375**	0.32**	0.08**

Notes:

a .ELC stands for Electricity consumption, GDP for gross domestic product

b. Critical values for the ADF test at 5% level without trend and with trend are -2.93 and -3.51 respectively

c. Critical values for the KPSS LM statistics at 1% and 5% are 0.212 and 0.149

The null hypothesis of ADF is that a series is $I(1)$, while the null of KPSS is that a series is $I(0)$.In the case of electricity consumption, since the LM test statistics value (1.03) is larger than the critical value at level 5% (0.46), we reject the null hypothesis of stationarity. Thus, the time series is non stationary. Meanwhile in the case of real GPD, the LM test statistics value (0.32) is not larger than critical at 5% (0.46), we fail to reject the null hypothesis of stationarity. Thus GDP is stationary. Similarly, the ADF results from Table 1, are largely consistent with previous studies, but we suspect an increasing role of industry in the domestic economy following various reforms adopted in the economy since the SAP era. Therefore, we test for structural break in electricity consumption and real GDP using the Zivot and Andrews (1992) test. The Zivot and Andrews (ZA henceforth) is an extension of the Dickey-Fuller type test. An important advantage of the ZA test is that it does not require knowledge of the break point. The ZA test require estimating the following equations respectively;

$$y_t = \mu^B + \beta^B t + \gamma^B DT_t^*(\lambda) + \alpha^B y_{t-1} + \sum_{j=1}^{k} c_j^B \Delta y_{t-1} + \varepsilon_t ----------7$$

$$y_t = \mu^C + \theta^C DU_t(\lambda) + \beta^C t + \gamma^C DT_t^*(\gamma) + a^C y_{t-1} + \sum_{j=1}^{k} c_j^C \Delta y_{t-1} + \varepsilon_t ----------8$$

Where following Zivot and Andrews (1992) notation, we use superscript B and C to indicate the two alternative test hypotheses, and λ is the fraction indicating break point position, $DU_t(\lambda)$ =1 if $t > T\lambda, 0$ otherwise; $DT_t^*(\gamma) = t - T\lambda$ if $t > T\lambda, 0$ otherwise y is the series being tested.

Table 2 Results of Zivot and Andrews Test for Unit Root Subject to Structural Break

Variable	Breakpoint	Statistics	Critical value at 1%	Critical value at 5%
	Case 1: Break in Slope only			
ELC	2001	-3.59	-4.80	-4.42
GDP	1996	-3.16	-4.80	-4.42
	Case 2: Break in Slope and intercept			
ELC	1996	-4.85	-5.57	-5.08
GDP	1993	-3.11	-5.57	-5.08

Note: The null hypotheis of Zivot and Andrews test is that the original series is nonstationary with unit root; the alternative hypothesis is that the original sereis is stationary around a broken trend line

The results of the ZA test are shown in Table 2 indicating no significant break point. First, for the case of a break in slope, the test statistics on electricity consumption turns out to be -3,59. This value is larger than the critical value of 1% and 5% significance level, suggesting that there is no significant break point in electricity consumption. This results suggest that electricity consumption is nonstationary at levels.The test statistics for GDP turns out to be -3.16, greater than the critical value of 1% and 5% level. This therefore suggest that there is no significant break point in GDP, and that we cannot reject the null hypothesis that GDP is nonstationary with a unit root.

Second, for the case of a break in both the slope and intercept, both electricity consumption and GDP are found to be unit root process without any significant break point.

Cointegration test can only be carried out on nonstationaryseries,we therefore apply the ECM approach to investigate the cointegrating relationship. The results of the cointegration(available upon request) suggest that both series are not cointgerated, Therefore, we depart from the analysis of long-run relationship, and instead examine the short-run causality only. To do this, we specifically transform all the variables into their respective growth rates to achieve stationarity and study their short-run interactions in a model of ordinary VAR as against ECM model by estimating equation 6.

Granger non Causality Results
Based on the structurally identified VAR, the FEVD results are obtained and presented in table 4 covering a 10 year forecast horizon. For each variable, the results is shown by one of the two panels in table 4. For each panel in the table, there are 6 rows showing the variance decomposition of that variable from time period 1 to 10 years ahead. The first panel shows how the variations of GDP depend on itself and on electricity consumption. At first period, 98% of GDP growth is due to itself while electricity consumption explains a little as 1.35%. This suggest that electricity plays a disproportionate role in growth of GDP. The contribution of electricity consumption is very limited, no more than 1.8% over the 10 year horizon.

The second panel of table 4 shows how electricity consumption variation is explained by itself and growth of GDP. Beginning at period 1, consistent with the causality results suggested by the F statistics analysis, presented in table 3, Electricity consumption is exogenous, explaining 99% of its own variation. Over the 10 year horizon, the contribution of GDP to electricity consumption is as low as 4.6%.

Table 3 Granger non-Causality test(F Statistics)

Dependent variable	GDP	ELC
All lags of GDP	-	0.0016[0.9681]
All lags of ELC	0.6744[0.4165]	-

Figures in parenthesis are p-values

Table 4: Forecast Error Variance Decomposition Result

Panel A{GDP)			Panel B (ELC)		
Period	GDP	ELC	Period	GDP	ELC
1	1	0	1	0.1	99.8
2	98.6	1.65	2	0.52	99.4
3	98.3	1.7	3	0.53	99.4
4	98.4	1.6	4	3.7	96
5	98.27	0.17	5	0.38	96.1
10	98.2	1.81	10	4.7	95.3

In summary, the FEVD results of the first two panels of the table demonstrate, there is no causality in the short-run, because each variable explains a greater portion of its own variance over the 10-year horizon. Failing to find Granger causality in either electricity consumption over GDP. This result differs from the branch of literature that suggest either a unidirectional or bidirectional relationship between electricity consumption and economic growth, see for instant (Akinlo, 2009;

FEVD for gd1

FEVD for elc
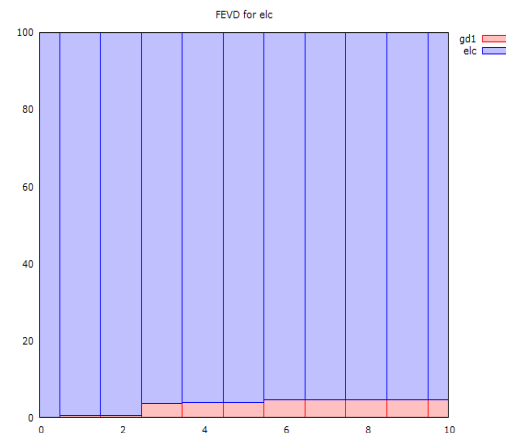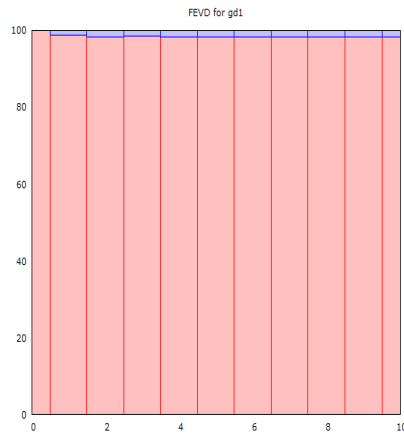
direction implies that electricity consumption is regarded as a small component of growth of GDPThis therefore suggest that electricity conservation policies will not have effect on economic growth which is consistent with the neutrality hypothesis. The results further show the relative exogeniety of

Squalli, 2007; Wolde-Rufael, 2006).

Conclusion
Although electricity is a vital factor in the growth prospects it plays a disproportionate role in the production process of different economies. It has features such as aggregation, substitution, the representation and dynamics,and

trends.This is indeed the case for Nigeria. Nigeria in particular is rich in both renewable and non renewable energy sources but yet the Nigerian economy finds herself in a situation where she is over dependent on fossil sources and at same time experiences one of the lowest electric power consumption per capita in the world.

This study explores the causal relationship between electricity consumption and economic growth using the Structural VAR approach. First, the unit root results provides mixed evidence regarding stationarity properties of both variables, this has implications on for the correct modeling of energy and economic growth Second,ECMcointegration test indicate that there does not exist long run equilibrium relationship between real GDP and electricity consumption. This observation, leads this study focus on short-run dynamics instead of long-run dynamics which is prevalent in most studies.

Finally, the estimation of Granger non causality tests using the SVAR approach revealed the absence of causality between electricity consumption and economic growth. It follows that, in terms of policy implications, electricity conservation policies that reduce electricity consumption will not retard economic growth.In general, theresults from the multivariate approaches suggests that the role of electricity has disproportionate impact, hence of little importance in so far as growth is concerned. This finding is consistent with early literature that finds a disproportionate role of electricity in growth (Toman & Jemelkova, 2003) and this study supports this view.

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Determinants of Foreign Direct Investment in Nigeria: The Debt Overhang Hypothesis Revisited.

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Abstract

The exit of Nigeria from the global debtors club saw a total collapse of the external debt from an outrageous US$35.94billion, as at 2004 to a modest US$3.54billion in 2006. The figure has gradually risen since then to US$9.518billion in 2014. This gradual rise in the external debt has raised much concern as to whether it will engender a debt overhang situation? The objective of this article is to prove that the current level of external debt in Nigeria will not lead to a debt overhang situation. The research further examined the determinants of foreign direct investment (FDI) flow to Nigeria.Using an inferential approach and adopting a double-logautoregressive model the research applied the ordinary least squares (OLS) technique in a stepwise multiple regression involving six major debt burden indicators using secondary data from 1970-2003. The result showed that the size of the external debt is not statistically significant enough to engender a debt overhang situation into the country.To sustain economic growth and development the study recommends that macroeconomic stability, infrastructural development and structuredliberalization is integral. This article is divided into five sections. Section one introduces the article, section two reviews relevant literature, section three outlines the methodology, section four discusses the result findings and section five outlines the recommendation and conclusions.

Introduction

The build up to debt arises from the fact that there are savings, fiscal and foreign exchange gaps in most developing and underdeveloped nations. These gaps are necessitated by the behavior of certain macroeconomic aggregates such as output, consumption, investment, export and, government revenue among others. Where output is high enough to encourage more of exports over imports borrowing becomes less attractive. But this has not been the case in Nigeria. Between 1970 and 2003 external borrowings reached alarming proportions with the attendant consequence of rising debt service (amortization and interest rate payment) leading to crowding out effect on investment. Since foreign direct investment is a non-debt element of

foreign capital flow, it is a better source of resources for bridging the resource gap in Nigeria and other less developed countries (LDC's) than interest bearing loans. The Research and Policy Committee of the Organization of Economic Cooperation and Development (2005) stated that "the progress of underdeveloped countries could be served if private American investors were willing and able to supply most of the foreign capital they could usefully absorb and if the underdeveloped countries were willing and able to encourage large investment from this source." This statement is not just emphasizing the need for foreign investors to invest in LDC's but that LDC's should encourage such investments. Foreign investors are however, not philanthropists hence they are keen on returns on their investment. Thus as long as security on their investment is guaranteed and the returns on investment are high, they will be willing to invest. Therefore, to accelerate the pace of economic growth and development, less developed countries direct a lot of efforts to attracting Foreign Direct Investment (FDI).According to Obadan (2004), the factors that could forestall the inflow of FDI to any economy might include macroeconomic instability, poor investment climate, political instability, weak legal and institutional framework as well as a high and unsustainable external debt. Since Nigeria exited the debt club in 2005, external debt figure has remained very low at about 6.7billion dollars as at December 2013 (Vanguard June 8, 2013). Between 2005 and 2013 external debt and its servicing has remained low although a steady but slow rise is being recorded in the external debt figure. There has been generally a 46.9% increase in the external debt between 2006 and 2013. While this may suggest availability of fund for government expenditure, there is a sudden rise in domestic debt and its servicing.

This suggests that the crowding out effect still exist. Business News of October 8, 2013 reports that while external debt servicing has crashed by 16.67% domestic debt servicing has increased by 34.88%. This casts a gloom on the expected benefit of exiting the global debtors club.

Nigeria is a developing nation as she is characterized by comparatively high levels of poverty, unemployment, crime, political instability and insecurity, poor technological know-how, poor infrastructures, and high maternal and infant mortality rates among others. To move away from such a dismal situation to one of hope, the country needed meaningful investments in infrastructure, research and development, science and technologyin order to create an enabling environmentfor growth and development. However, as adeveloping nation, the country still suffers from savings and foreign exchange gap and had to supplement its meager resources with external capital by way of loans, grants and foreign direct investment (Olaniyi 1995). Nigeria had benefited from such external resources since the 1970's but the debt component of such external resources far exceeded the non-debt component. Proponents of the debt overhang hypothesis assert that huge external debt negates the flow of the non-debt component of external resources which is Foreign Direct Investment. Thus, they argued that external debt prevented the flow of FDI to Nigeria.External debt as at December 2013 stood at US$6.67 billion which is about a 50% increase over the 2006 figure shortly after Nigeria's exit from the global debtors club. The value of the 2013 external debt figure however, was only about 10.5% of the 2003 external debt figure and 3% of the 2013 Gross Domestic Product (GDP) figure. Despite these modest figures on external debt there are reactions against the gradual rise of the external debt figure in recent years. The

question therefore arises: Will the current gradual rise of the external debt engender a debt overhang situation? A review of the external debt/FDI relationship from 1970 to 2003 when external debt was at its peak will validate or invalidate the existence of the debt overhang hypothesis and will allay the fears attached to the rising external debt figure.In 1970 the external debt figure stood at US$0.68 billion (N488.58m) but rose to US$3.4 billion (N1, 881.80m) in 1980. By 1991, the external debt stock reached a height of US$33.73m (N334, 247.44m). From that time until December, 2003 the external debt stock reduced marginally and stood at US$32.92 million (N4, 256,143.53m), made up of U.S $27.50 billion Paris Club debt; U.S $ 3.04 billion multilateral debt; U.S $ 0.52 billion Non-Paris bilateral debt; U.S $ 1.44 billion London Club debt and U.S. $ 0.91 billion promissory notes (DMO Annual Report and statement of account 2003).

The overall objective of this study is to identify the determinants of FDI in Nigeria butspecifically, attempt to determine the relevance of the debt overhang hypothesis in Nigeria.The period 1970 to 2003 marks the time in Nigeria's economic history when the debt profile increased rapidly and got to a peak before she exited the club of debtors. It is therefore the period relevant for an empirical validation of the debt overhang hypothesis in Nigeria. The argument is this: if the debt overhang hypothesis was not significant to deter the flow of FDI to Nigeria during 1970 to 2003 then it will not be significant enough to deter FDI inflow during 2006 to 2013.The research work is divided into five sections. Section one introduces the article while sectiontworeviews relevant literature. Section three presents the research methodology and model specification. Section four contains result presentation and discussions. Lastly, section five provides the conclusions and policy recommendations.

Literature Review

Foreign capital flow is a broad term which consists of movements of financial resources from one country to another. It includes all kinds of financial transactions such as lending by governments and international organizations, short and long-term bank lending; investment in public and private bonds, investments in equities and direct investment in productive capacity, each of which has different growth implications and different capital market-risk exposures (Obadan 2004). Foreign Direct Investment involves the transfer of resources including capital, technology,and management and marketing enterprise. It is a form of investment in equity participation.The International Monetary Fund (IMF) in its Balance of Payment Manual (1977) defines FDI as an investment that is made to acquire a lasting interest in an enterprise operating in an economy other than that of the investors, the investors' purpose being to have an effective voice in the management of the enterprise. The foreign entity or group of associated entities that make the investment is termed the Direct Investor. The unincorporated or incorporated enterprise – a branch or subsidiary respectively in which direct investment is made is referred to as a Direct Investment Enterprise.Also, the organization for Economic Cooperation and Development (OECD) (1983) defines a Direct Investment Enterprise asan enterprise(incorporated or unincorporated) in which a single foreign investor controls 10 percent or more of the ordinary shares, voting power or the equivalent, unless it can be established that the foreign investor does not have effective voice in the management of the enterprise;or one in which the foreign investor controls less than 10% of

ordinary shares or voting powers but has effective voice in its management.Thus foreign direct investment involves a direct ownership and control of an enterprise in a foreign land. It could come to the host country as a subsidiary of foreign firm or by means of the formation of a company in which a firm in the investing country has equity holding or the creation of fixed assets in the other country by the nationals of the investing country.But what factors determine the flow of FDI to Nigeria? Adefeso and Agboola (2012) investigated the long run determinants of FDI to Nigeria using Residual Based Engel-Granger Dickey-Fuller cointegration test and observed that tourism and availability of natural resources are significant determinants of FDI in Nigeria. Dinda (2008), noted that trade intensity has apositive effect on FDI flow to Nigeria but contradicted the findings of (Alam and Shah, 2013; Muka'ilu and Fu'ad, 2013; Obida and Nurudeen, 2010; Bevan and Estrin, 2004) on market size. Using the error correction technique, Obida and and Nurudeen (2010) observed that market size, deregulation, political instability and exchange rate depreciation are major determinants of FDI inflow to Nigeria. Their assertion on market size as a significant determinant of FDI agrees with Bevan and Estrin (2004) and Alam& Shah (2013). Using panel data to estimate the determinants of FDI from western to Central and Eastern Europe, Bevan and Estrin (2004) noted that market size, gravity factor, unit labour cost and proximity are strong influencersfor FDI flows. Alam and Shah (2013) conducted a study using panel data on ten OECD countries and noted that in addition to market size and labour unit cost, quality of infrastructure is also very significant as an FDI determinant. Also Alavinasab (2013) used simple econometric techniques to determine the economic factors that affect FDI inflow to Iran and posited that real

GDP growth, returns on investment, infrastructure and the proportion of imports to GDP were significant factors for Iran. Mika'ilu and Fu'ad (2013) used a series of econometric techniques and observed that market size, openness and proper monetary management are important factors that determine FDI inflow to Nigeria. According to Akpan (1997), the following factors affect the inflow of Foreign Direct Investment to Nigeria – returns on investment in the rest of the world, domestic interest rates, inflation rate, debt service, per capital income, ratio of world oil prices to world industrial countries' manufactured goods, credit rating and political stability. Akpan had a simple econometric model with three equations estimated using the OLS technique. The result of his findings suggests that political regime, real income per capita, rate of inflation, world interest rate and debt service explain the variations in FDI in Nigeria. He suggested that policies that will reduce inflation, debt servicing and increase per capita income will no doubt increase the country's credit rating and thus attract more FDI flow to the nation. He also found that credit rating was positively related to non-oil FDI but was not statistically significant and in relation to total FDI and oil FDI the coefficient did not confirm the apriori expectation. He further opined that the problem of credibility and policy reversal should be addressed if policy makers wish to attract FDI into country. He noted that credibility is not a theoretical matter as many developing countries have had policy reversal especially during adjustments.Pfefferman and Madarassy (1992) argued that the quality of institutions in developing countries can influence FDI – the strongest responses occur when investors are convinced that improvements in institutions will endure. They further posited that policy reversals by government are most likely to be low

when countries operate an export-oriented economy, convertible currency and a large scale of privatization program.Edwards (1990) contended that though political variables play significant role in determining FDI, standardized estimates clearly show that, depending on the variables used as a proxy, political considerations is the least important of all the factors, considered to determine FDI. Bennett and Green (1972) found that U.S. direct investments are not affected by political instability in the recipient country even thought executives rank political stability as the most important variable. Highlighting the transmission mechanism through macroeconomic stability or otherwise affect FDI, Obadan (2004) indicated that inflation reduces international competitiveness of export which reduces export earnings and puts pressure on current account and exchange rate all of which lead to macroeconomic instability and adverse investment climate. He further stressed that exchange rate, as the centerpiece of the investment environment, derives from the argument that a sustained exchange rate misalignment in terms of overvaluation or undervaluation is a major source of macroeconomic disequilibria, which spells danger for investment.Also, Aremu (1997) indicated that countries that make credit available to investors in form of subsidized loans and guaranteed export credits will attract more FDI. This is because such credits are made available to foreign investors for their operations and invariably impact on cash flow and liquidity. Such cash flow can easily be accessed by foreign investors. Salako and Adebusuyi (2001) showed that host government expenditure on infrastructure influences foreign direct investment positively as it provides the enabling environment for investors by reducing their cost of operation. The result of their estimation also showed that credit to

private sector is an important factor since foreign investors will be operating in the domestic economy. Adam (2001) noted that debt overhang has a significant depressing effect on investment. His simulation experiment shows that net debt outflow results in serious depression of economic activity in Nigeria.Ekpo and Egwaikhide (1998) observed that debt variables were significant and negatively correlate with investment and growth. Using the two stage least squares (2SLS) technique and lagged value of debt service to export earnings ratio as a debt burden indicator, they showed that the debt overhang hypothesis exists. They alsoshowed that export performance has a strong positive impact on investment and this evidence underscores the need to vigorously improve the nation's export promotion strategy so as to enhance domestic savings and raise private investment for long term growth. They however, noted that the unfavourable terms of trade which were experienced for most of the period were detrimental to capital formation. Borenzstein (1989), indicated that large external debt burden was significant in reducing investment activities. He showed that high debt service payment carts away fund that would otherwise serve investment purposes. He further contended that returns from investment must be used in repaying existing debt because where large external debt strains relationship with creditors, foreign direct investment attraction becomes even more difficult and costly. Iyoha (1997), used a simultaneous equations model of external debt and economic growth, incorporated two debt burden indicators (debt stock to GDP ratio and debt service to export ratio) and used the two stage least squares technique to estimate the model. He found that the debt over-hang hypothesis exists for Nigeria. Also, Ekpo (1997) found that the debt service ratio was inversely related to FDI

and statistically significant in all his specifications thus supporting the existence of the debt overhang hypothesis. According to Salako and Adebusuyi (2001) external debt ratio supports the debt overhang hypothesis. Their result showed that a one percent rise in the external debt ratio reduces the inflow of FDI by 15 percent. However, utilizing the Johansen and Jesilius Maximum Likelihood cointegration technique as well as the fully modified OLS to estimate the long run parameters, Onwuka et al (2009), noted that the size of the foreign debt is not a significant impediment to the flow of FDI into Nigeria. Their findings contradicted exiting literatures (Iyoha 1997; Ekpo 1997; Salako and Adebusuyi 2001; Adam 2001, and Obadan 2004) among others. They however, observed that monetary management, per capita income and openness are important factors for attracting FDI in Nigeria.

Theoretical Framework
The basic framework for this research is the MacDougall-Kemp Hypothesis. The model was first developed by G.D.A. MacDougall (1958) and subsequently elaborated by M.C. Kemp (1964). The theory assumedthat given a two-country model – one being the investing country and the other being the host country – and given that the price of capital equals its marginal productivity, capital moves freely from a capital abundant country to a capital scarce country which brings about the equality of the marginal productivity of capital between the two countries. This leads to improvement in the efficient use of resources and ultimately to an increase in welfare. Though output in the investing country may decrease due to foreign investment outflow, the returns on capital invested abroad helps to keep national incomeup such that national income does not fall. The returns on capital invested received by the investing country is equivalent to the marginal productivity of

capital times the amount of foreign investment. In so far as the income from foreign investment exceeds the value of loss of output in the investing, the investing country continues to invest abroad because it enjoys greater national income than prior to its investment abroad. Supporting this model is the theory of marginal efficiency of capital which relates the basis of investment to the returns on investment. Given this background it follows that a basic motivation to invest abroad is the returns on investment. The debt overhang hypothesis posits that foreign investors will be reluctant to invest abroad if there is a real threat to the returns on their investment. This threat according to the hypothesis is external debt. Proponents of the debt overhang hypothesis argue that highly indebted countries will impose heavy tax burden on the profits of foreign investors so as to raise sufficient revenue to service their accumulated debt. But does foreign debt really prevent foreign direct investment flow to Nigeria? Will the recent gradual rise in the external debt since the country's exit from the global debtor's club in 2005, engender a debt overhang situation? To answer these questions we will revisit the period 1970 to 2003 when the external debt figure was most outrageous since the history of the country. This is because the period 2005 to 2013 is just about eight (8) years and is not large enough to apply econometric techniques and draw any meaningful statistical conclusions. Using the inferential approach we will use the conclusions drawn for the period 1970 to 2003 to predict the resultant effect of the recent gradual rise in the nation's external debt figure on FDI inflow to Nigeria.

Methodology
The basic modeladopted for this study is an econometric model and follows the pattern of Ekpo (1997), Ekpo and Egwaikhide (1998) and Salako and

Adebusuyi (2001) with a little variation in the number of equations. The model began from the simple neoclassical accelerator theory which states that an increase in the rate of output of a firm will require proportionate increase in its capital stock. In other words, investment occurs to enlarge the productive capacity to produce output and meet the rising increase in demand. Under this framework investment is undertaken to bridge the gap between desired capital stock and actual capital stock i.e.

$$K_t = \beta Y_t \dots\dots\dots\dots\dots\dots\dots\dots\ 1$$
and
$$K_{t-1} = \beta Y_{t-1} \dots\dots\ \dots\dots\dots\dots\dots..2$$

Where

K_t = desired capital stock
K_{t-1} = actual capital stock in the previous years
Y_t = output in the previous period
Koyck's transformed lag scheme is stated as
$$Y_t = \alpha (1-\lambda) + b_0 X_t + \lambda Y_{t-1} + vt \ \dots\dots\dots\ 3$$

Where

X_t = is any explanatory variable
Y_{t-1} = is the lagged value of Y_t appearing as an explanatory variable.

Equation (3) depicts a rigid stochastic autoregressive model, containing a lagged value of the dependent variable as one of the explanatory variables.Thus to fully capture our analysis we have synchronized all three equations to obtain a stochastic multiple autoregressive model of the form:

$$Y_t = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 +\dots..+\beta_3 Y_{t-1} +v_t \ \dots 4i$$

Thus the appropriate relationship to be estimatedin the koyck's transformed autoregressive formwith it's a priori expected signs is shown below:

$$Lfdi =\alpha+ \beta_1 lifs+ \beta_2 er + \beta_3 Ir+ \beta_4 inf+ \beta_5 op$$
$$+ \ \beta_6 fdi_{t-1}+ \ v_t\dots\dots\dots\dots\dots\dots\dots.4ii$$
$$+ \quad + \quad - \quad + \quad + \quad +$$

The model eventually contains a total of seven (7) equations each being a multiple autoregressive model as shown below.

$$Lfdi =\alpha+ \beta_1 lifs+ \beta_2 er + \beta_3 Ir+ \beta_4 inf+ \beta_5 op$$
$$+ \beta_6 fdi_{t-1} \dots\dots\dots\dots\dots\dots\dots\dots..5$$
$$Lfdi =\alpha+ \beta_1 lifs+\beta_2 er+ \beta_3 Ir+\beta_4 inf+\beta_5 op+$$
$$\beta_6 fdi_{t-1} + \beta_7 ed/gdp \dots\dots\dots\dots\dots\dots..6$$
$$Lfdi =\alpha+ \beta_1 lifs+\beta_2 er+ \beta_3 Ir+\beta_4 inf+\beta_5 op+$$
$$\beta_6 fdi_{t-1} + \beta_7 ed/ex\dots\dots\dots\dots\dots\dots\dots.7$$
$$Lfdi =\alpha+ \beta_1 lifs+ \beta_2 er+\beta_3 Ir+ \beta_4 inf+\beta_5 op+$$
$$\beta_6 fdi_{t-1} + \beta_7 ed/gr\dots\dots\dots\dots\dots\dots\dots.8$$
$$Lfdi =\alpha+ \beta_1 lifs+\beta_2 er+ \beta_3 Ir+\beta_4 inf+\beta_5 op+$$
$$\beta_6 fdi_{t-1} + \beta_7 ds/gdp\dots\dots\dots\dots\dots\dots.9$$
$$Lfdi =\alpha+\beta_1 lifs+\beta_2 er+ \beta_3 Ir+\beta_4 inf+ \beta_5 op+$$
$$\beta_6 fdi_{t-1} + \beta_7 ds/ex\dots\dots\dots\dots\dots\dots.10$$
$$Lfdi =\alpha+\beta_1 lifs+\beta_2 er+ \beta_3 Ir+\beta_4 inf+ \beta_5 op+$$
$$\beta_6 fdi_{t-1} + \beta_7 ds/gr\dots\dots\dots\dots\dots\dots\dots.11$$

where

lnFDI = Foreign Direct Investment
lnifs = Infrastructure
lnEr = Exchange rate
lnIr = Intetrest rate
lnInf = Inflation rate
lnOp = Openness
$lnFDI_{t-1}$ = Lagged values of FDI
lnEd = Various external debt burden indicators

Theoretically, double log or loglog or log linear models are used in exponential regression models but are also used in non-exponential regression models to reduce the variables in the model to the same unit and to ensure that the models are linear in parameters. To this end all seven equations are double log equation models. Equation 5 contains one dependent variable i.e lnFDI and six (6) explanatory variables i.e lnlifs, lner, lnIr, lnInf, lnOp and $lnfdi_{t-1}$. After conducting unit root test (see appendix 1) to ascertain the stationarity and order of integration of the variables, equation 5 was regressed to provide a premise upon which the effect of external debt on FDI flow can be analyzed (see Table 1 of appendix 2). The method of analysis involves some sort of stepwise

regression. Having obtained a reference point from equation 5, debt burden indicators are added individually, to the original equation to observe whether there is any significant change in the R-Square, Durbin-Watson and F-statistic values obtained in equation 5.

Result

The Augment Dickey-Fuller unit root test indicates that all the variables were stationary at first difference being integrated at order one i.e 1(1) except lnEDGDP and lnEDSGDP which were stationary at second difference.Equation 5 (see appendix 2) has a negative intercept, suggesting that in the absence of the selected composite factors, FDI inflow to Nigeria would have been negative during the period, that is, no foreign investor would have been attracted to the country. It is observed that infrastructure is positively correlated to FDI in Nigeria which agrees with a priori expectation. It has a coefficient of 1.0295, indicating that a 10% increase in infrastructures will lead to FDI inflow of about 102%. This finding agrees with Salako and Adebusuyi (2001) and Alam and Shah (2013).Interest rate is very important especially in the area of local borrowings for short term exigencies. High interest rate implies high cost of borrowing and this adversely affects the operations of foreign investors. Interest rate is positively related to FDI but by a low coefficient of 0.0256. This indicates that increasing interest rate by 1% will only increase FDI flow to Nigeria by 0.025%. This is so because apriori expectation demands that interest rate be negative to support the notion that high interest rate makes borrowing costly. The result shows that for Nigeria to attract FDI, interest rate is not the priority factor for consideration.Exchange rate, inflation rate, and openness are statistically insignificant but are positively related to FDI and are part of the composite factors in the model. However, openness showed

a high positive correlation with FDI suggesting that a 10% increase in liberalization through policy changes could attract an increase in FDI flow by 32.6 %. Openness, exchange rate and inflation agree with apriori expectation. All things being equal an open economy should attract more FDI as opposed to restrictive economy. Also lower exchange rate means lower foreign investment and a high exchange rate means higher foreign investment. This is so because, low exchange rate in the host country implies more foreign currency to engage in foreign investment. Thus a higher exchange rate will require little foreign exchange and will imply more foreign investment. Therefore, the positive correlation between exchange rate and FDI agrees with apriori expectation. Conversely lagged values of FDI showed a negative relationship with current values of FDI. An observation here is that the t-values for all the explanatory variables, in the simple regression were statistically significant except for inflation. However, in the multiple regressions they were not individually significant but are, as composite factors. None the less, the R-square (R^2) in equation 5 was significant showing that about 82% of the FDI inflow is influenced by all the explanatory variables listed in equation 5 The F-statistics of 16.42 indicates that the model is well specified. Also, the D-W statistics of 2.57 indicates the absence of autocorrelation among the explanatory variables. To fully assess the impact or effect of external debt (proxied by the debt burden indicators) on FDI, we have introduced various debt burden indicators to the main equation. Thus, in equation 6 (see Table 2 of appendix 2) the debt burden indicator introduced is the ratio of external debt stock to GDP. Though statistically significant its co-efficient of 0.0083 showed a positive but weak correlation which does not giveenough

support to the debt overhang hypothesis. Moreover, the D.W statistics (i.e 2.22) shows the absence of autocorrelation and the F-statistics of 20.63 shows a well specified model. In equation 7, (table 3 appendix 2) a second debt burden indicator (ratio of external debt to export) was introduced. Again the debt burden indicator was statistically insignificant with a t-value of 1.6322 and a positive coefficient of 0.0013. This also does not support the debt overhang hypothesis.In equation 8, another debt burden indicator, the ratio of external debt to government revenue was introduced. statistical changes was observed in the F-statistic from 17.60 in equations 7 to 18.097 in equations 8, indicating that the model is much more well specified than in the previous equation. However, conclusion about the debt burden indicator remains the same as in equation 7. The R-squared and the D-W statistics showed no significant difference. In equation 9 yet another debt burden indicator was introduced -the ratio of debt service to GDP. Although a negative relationship was established it was nonetheless insignificant owing from the t-value of -0.2049. The value of the D.W statistic of 2.60 is a reflection of the absence of autocorrelation. The R- squared changed slightly and the coefficient of the debt service to GDP showed a negative but weak relationship. The negative sign indicates that external debt inversely affects FDI inflow. However, the statistical insignificance of the variable makes it difficult to draw such conclusion. Equation 10(table 6 appendix 3) maintained the same conclusion drawn from the D.W test, the F-test, and the R-squared of equation 9. However, the co-efficient of the debt burden indicator (i.e ratio of external debt service to export) indicated an inverse but weak relationship with FDI. The equation does not also support the debt overhang hypothesis in

view of its weak and insignificant relationship with FDI.Lastly, in equations 11(table 7 appendix 4)we introduced yet another debt burden indicator, the ratio of external debt service to government revenue. Conclusions about the R^2,D-W test and F-statistic remain almost the same. Also the co-efficient for the debt burden indicator in that equation is negative but weak supporting the conclusions in equations 10.Owing to the statistical conclusions, what does the t-test on the empirical evidence show? Does it support our conclusions or otherwise?The critical values of't' at 5% and 1% are 1.697 and 2.457 respectively. The acceptance or rejection of any hypothesis is based on the rule which states: "accept the null hypothesis if the observed t-value is less than 2 or less than the critical values of't' as found in the t-distribution table". The test of significance is conducted at 1% and 5% level of significance for each of the debt burden indicators. Also, the observed or calculated t – values for the various debt burden indicators in the order of the equations are given below:

Equation (6): lnEDGDP   =2.6418
Equation (7) lnEDEXP   =1.4249
Equation (8) lnEDGR   =1.6322
Equation (9) lnEDSGDP   =-0.2049
Equation (10) lnEDSEXP   =-0.6990
Equation (11) lnEDSGR   =-0.5558

As can be seen from the above results, the t-values for the entire debt burden indicators are less than the critical values both at 1% and 5% significant levels except lnEDGDP which is insignificant at 5% only. Moreover, their coefficients reveal a very weak impact on FDI. Although one of the debt burden indicators (i.e EDGDP) proved statistically significant, at 5% level, the value of its coefficient and its sign makes it difficult to support the debt overhang hypothesis.

Testing the Residual of the Model
Using the Engel-Granger test, the residual of the model (equation 5) was obtained and tested for unit root to ensure that the model is well specified, the variable are cointegrated at order zero i.e $I(0)$ and that the result of the regression is not spurious. The augmented dickey-fuller test showed that the residual of the model was stationary at level that is co integrated at order zero. The ADF statistic at 1% level of significance is -7.5545 which is above the critical value of -4.2712. The equation of the residual with intercept and trend is presented below:

U_t = 866.080 - 64.4629$_t$ - 1.3134$_{ut-1}$
Se = (2094.01) (110.959) (0.1739)
t = 0.4135   -0.5809 -7.5545
R^2 = 0.66 35, D.W = 2.032, F-statistic = 28.60

Testing for Autocorrelation
Autocorrelation is correlationbetween members of series of observation ordered in time or space, or between the disturbance termsui and uj of any two or more variables i and j where i ≠j. Because autoregressive models are highly likely to exhibit autocorrelation due to the fact that the durbin watson statistic usually tends towards 2, the durbin watson test fails to be an appropriate tool for establishing the presence or otherwise of autocorrelation in autoregressive models. A better test called the Durbin h-test is most appropriate. The formular is given below

$$h = p \sqrt{n}/1 - n[var(\acute{\alpha})]$$

Where :
h = Durbin's h statistic
p = 1-d/2
n = number of observation
ȧ = coefficient of the lagged variable
varȧ = variance of the coefficient of the lagged variables given as the square of the standard error of the lagged variable.

However, the durbin h-test is applicable if and only if the value of n[var(ȧ)] is less than 1. Where it is greater than 1, the h-test fails to be an appropriate test tool for autocorrelation in autoregressive models. The last option will be the Breusch and Godfrey (BG) test also called the lagrange multiplier test, the proceedures of which are outlined in a number of econometric texts. However, the decision rule is thus :

Reject the null hypothesis (there is no serial correlation of any order) if the value of (n-p) R^2 is greater than the chi-square value at the chosen level of significance in which case one p is statiscally different from zero.

The R^2 obtained from the regression of the residual on the regressors is 0.5129. The number of observations are 34 while the number of p's equals 6. The regressors includes 6 lagged residual value and 6 existing regressors, making a total number of twelve (12) regressors.

The BG test statistic is obtained using the formula (n-p) R^2 as follows:

BG statistic   = (34-6)(0.5129)
                = 28(0.5129)
                = 14.3612

The probability of obtaining a chi-square value of 14.362 at 6 degree of freedom is 0.025 indicating that the actual p value is not zero. Based on this we could reject null hypothesis that there is evidence of autocorreletion and accept the alternative hypothesis that there is no serial autocorrelation of order one i.e AR(1). Again we can compare the BG statistic (chi-square calculated) of 14.3612 with the critical chi-square value at 6 degree of freedom which is 14.4494. Evidently, the BG statistic is less than the chi- square critical at 6 degree of freedom. This can also lead to the conclusion that there is no autocorrelation of any order in the estimated model.

Conclusion and Recommendations

From the empirical result of the research we can conclude that the size of the external debt is not significant in influencing the flow of FDI into the country. This implies that the debt overhang hypothesis does not exist for Nigeria for the period under review. Moreover, the Nigerian economy depends largely on the revenue from the sale of crude oil rather than taxes imposed on the profits realized by foreign investors, thus the amount of revenue generated from such taxes has always been a small fraction of the nation's total revenue. Therefore, foreign investors need not worry about the taxes they will pay.However, rising external debt is unacceptable as this will ultimately lead to crowding out effect as funds for investment will be used for debt servicing

The research therefore suggests that attention be given to more critical factors such as macroeconomic stability, infrastructural development and efficiency,openness and a sound institutional framework that will remove the bureaucratic bottlenecks that hamper FDI inflow. To this end the monetary authority must constantly keep a tab on macroeconomic indices by fine tuning the levels of inflation, interest rate and exchange rate such that the economy is generally investment friendly both for foreign and domestic investors through prudent monetary management policies.

Also there is an urgent need for a drastic revolution in infrastructural development in the country not just in the power sector but also in efficient road and transport networks especially where economic production units exist.

Also government must improve its liberalization policy to allow the free flow of foreign capital such that local investors are also important players in the economy.

Finally, the gradual rise in the current external debt figure will not engender a debt overhang situation in so far as the level of the debt remains below standard external debt/ GDP ratio and the borrowed fund are used for achievable capital projects rather than recurrent expenditure or transfer payments.

Conclusively, the research shows that the size of the external debt is not a statistically significant factor determining the flow of FDI into Nigeria, given that infrastructures, exchange rate, interest rate,inflation rate, openness are the only factors influencing the flow of FDI to Nigeria.

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Appendix 1

Table 4.1 ADF Stationary Test Result

Variables	Level	1st diff	2nd diff	Order of Integration	Decision Rule
lnLFDI	-1.6520	-7.7002	-	I (1)**	Stationary at 1st difference
lnLIFS	-0.3626	-5.4533	-	I (1)**	Stationary at 1st difference
lnER	-2.2055	-3.7023	-	I (1)**	Stationary at 1st difference
lnIR	-2.1863	-6.1799	-	I (1)**	Stationary at 1st difference
lnINF	-3.3561	-5.4533	-	I (1)**	Stationary at 1st difference
lnOP	-3.6152	-7.3427	-	I (1)**	Stationary at 1st difference
lnLAFDI	-1.6407	-7.5217	-	I (1)**	Stationary at 1st difference
lnEDGDP	-1.8246	-3.3756	-5.6714	I (2)**	Stationary at second difference
lnEDEXP	-1.6888	4.6601	-	I (1)**	Stationary at 1st difference
lnEDGR	-1.6993	-4.0308	-	I (1)**	Stationary at 1st difference
lnEDSGDP	-1.9018	-2.7609	-4.4148	I (2)**	Stationary at second difference
lnEDSEXP	-1.2109	-4.-983	-	I (1)*	Stationary at 1st difference
lnEDSGR	-1.1077	-3.8215	-	I (1)*	Stationary at 1st difference

* *Stationary at 1%, 5% and 10% /critical values*
** *Stationary at 5% and 10% critical values only*

The Aversion Integral of Actuarial Risk Dynamics in Nigeria

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Abstract

The aim of this work is to find a new condition to compute aversion to risk integral which solves the associated second order differential equation with boundary conditions. The evaluation of an individual aversion to risk forms an integral part of expert's investment opinion. The evaluation technique of general insurance is theoretically deficient in formation and deepenedscientific methodologies. Investors' total wealth is usually categorizedinto assets which are assigned to short term project and free asset which assignment is subject to indefinite interval of time. The insufficient risk methodologies looks appropriate for the former category while the latter category is distributed in line with individual risk aversion intensity.

Keywords: Risk, Aversion, Differential Equation, Integral, Premium
JEL Codes: E10, E11

Introduction

This paper aims to establish a different condition to evaluate aversion to risk, aversion integral which the solves the associated second order differential equation with boundary conditions. Aversion is the mathematical construct of the feeling which guides an insurance agent taking a decision whose outcome is an uncertain event. Analytic and stochastic forms have been constructed through Taylor's expansion of utility about the initial wealth. In Thomas (2016), it was stated that the analytic technique of Taylor's expansion will only be valid when the share or interest in insurance business are conspicuously small and consequently the risk aversion will be close to zero for every one making its measurement difficult and subject to quantisation noise. Aversion to risk was originally introduced by in Pratt(1964) and Arrow(1963,1965,1970) where professional expertise was drawn to

examine the association between behavior to risk and wealth. From Arrow (1970), it is apparent that the evaluation of this concept as wealth differs is strikingly observable to predict inference under risk uncertainties where it was suggested that aversion to risk is proportional to wealth. Empirical studies such as Holt and Laury (2002); Szpiro(1983); Eisenhauer and Halek (1999) all fall in line with the hypothesis of Arrow (1970) that aversion to risk increase with wealth. Bellante and Saba (1986) and levy (1994) however are among few other scholars who disagreed with Arrow (1970) based on empirical findings that aversion to risk increases with wealth where the authors discovered that aversion reduces as wealth declines. Aversion to risk may also be constant irrespective of the wealth level as seen in Szpiro (1986), Chiapori and Paiella (2011). Morin and Suarez (1983); Halek and Eisenhauer (2001) discovered that at low level of wealth, relative aversion to

risk inreases with wealth but at higher levels of wealth, aversion decreases with wealth thus describing a novel non-linear association. The authors note that in case of the affluent individuals, the intensity of relative aversion to risk would be a weaker condition to the extent that the aversion co-efficient can be measured as constant. From the summary of discussions of the authors, one can easily infer that if ρ is the saturated point where $u(w)$ is maximum so that $u'(\rho) = 0$ where the gradient function vanishes, then the risk aversion function $a(w) = -\frac{u''(w)}{u'(w)}$ proportionally grows with wealth and becomes asymptotically unbounded as $w \to \rho$. As the wealth approaches the saturation threshold ρ, then only a small fraction of utility is obtainable through a financial gain so that it will be financially unethical to assume further risk. Suppose function $u(w)$ is concave, then the utility of the expected value of an uncertain amount of asset will be higher than the expected utility of the asset or wealth.

From the knowledge of numerical analysis u will be concave if when given any number x_0 in the interval (c, d) then there exists a constant parameter k depending on y_0 such

$u(y) - u(y_0) \leq k(y - y_0)$.

However, the utility function should meet the requirements of continuity in an interval (c, d) for it to be concave. If $u(y)$ is differentiable then $k = u'(y_0)$, but when $u(y)$ is not smooth, then there will be many k satisfying $u(y) - u(y_0) \leq k(y - y_0)$

Theorem
Assume the risk neutral is a linear combination of two different sub-risks $\bar{\Theta}_1$ and $\bar{\Theta}_2$,
where $\bar{Y} = C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2$, then
$\frac{\partial^2\Pi(C_1,C_2)}{\partial C_2{}^2} = \left[\frac{\bar{\Theta}_2\sigma^2}{u'(w-\mu_Y)}\right]$ and

$$\frac{\partial^2\Pi(C_1,C_2)}{\partial C_1{}^2} = \left[\frac{\sigma^2_{\bar{\Theta}_1}}{u'(w-\mu_Y)}\right]$$

Proof
$$E(\bar{Y}) = E(C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2)$$
$$= C_1E(\bar{\Theta}_1)$$
$$+ C_2E(\bar{\Theta}_2)$$
$\sigma^2_{\bar{Y}} = C_1{}^2\sigma^2_{\bar{\Theta}_1} + C_2{}^2\sigma^2_{\bar{\Theta}_2} + 2C_1C_2COV(\bar{\Theta}_1,\bar{\Theta}_1)$, where $var(\bar{\Theta}_1) = \sigma2\Theta1$

$$(\mu_Y - \Sigma^+) = \left[\frac{\mu_2 u''(w-\mu_Y)}{2u'(w-\mu_Y)}\right] = \left[\frac{\left(C_1{}^2\sigma^2_{\bar{\Theta}_1} + C_2{}^2\sigma^2_{\bar{\Theta}_2} + 2C_1C_2COV(\bar{\Theta}_1,\bar{\Theta}_2)\right)u''(w-\mu_Y)}{2u'(w-\mu_Y)}\right]$$

Thus
$$\Pi(C_1,C_2) = \left[\frac{\left(C_1{}^2\sigma^2_{\bar{\Theta}_1} + C_2{}^2\sigma^2_{\bar{\Theta}_2} + 2C_1C_2COV(\bar{\Theta}_1,\bar{\Theta}_2)\right)u''(w-\mu_Y)}{2u'(w-\mu_Y)}\right]$$

$\frac{\partial\Pi(C_1,C_2)}{\partial C_1} = \left[\frac{\left(C_1\sigma^2_{\bar{\Theta}_1} + C_2COV(\bar{\Theta}_1,\bar{\Theta}_2)\right)u''(w-\mu_Y)}{u'(w-\mu_Y)}\right]$. if we
set $\frac{\partial\Pi(C_1,C_2)}{\partial C_1} = 0$,

$$\frac{\left(C_1\sigma^2_{\bar{\Theta}_1} + C_2COV(\bar{\Theta}_1,\bar{\Theta}_2)\right)u''(w-\mu_Y)}{u'(w-\mu_Y)}$$
$$= 0$$

$$-\frac{u''(w-\mu_Y)}{u'(w-\mu_Y)} = \frac{C_1\sigma^2_{\bar{\Theta}_1}}{C_2COV(\bar{\Theta}_1,\bar{\Theta}_2)}$$

$\frac{2(\Sigma^+-\mu_Y)}{\mu_2} = \left[-\frac{u''(w-\mu_Y)}{u'(w-\mu_Y)}\right]$. Thus the new aversion coefficient is defined as below

$a(w,\mu_Y) = \frac{2(\Sigma^+-\mu_Y)}{\mu_2} =$
$\frac{C_1\sigma^2_{\bar{\Theta}_1}}{\left(C_2COV(\bar{\Theta}_1,\bar{\Theta}_2)\right)}$ *Result1*

$$\Sigma^+ = \mu_Y + \frac{\mu_2 C_1\sigma^2_{\bar{\Theta}_1}}{2\left(C_2COV(\bar{\Theta}_1,\bar{\Theta}_2)\right)}$$

$\lim_{C_1\to0}\frac{\partial\Pi(C_1,C_2)}{\partial C_1} =$

$$\lim_{C_1 \to 0} \left[\frac{(C_1\sigma^2_{\bar{\Theta}_1} + C_2 COV(\bar{\Theta}_1,\bar{\Theta}_2))u''(w-\mu_Y)}{u'(w-\mu_Y)} \right]$$

$$\lim_{C_1 \to 0} \frac{\partial \Pi(C_1,C_2)}{\partial C_1}$$

$$= \frac{C_2 COV(\bar{\Theta}_1,\bar{\Theta}_2)u''(w-\mu_Y)}{u'(w-\mu_Y)}$$

$$= -\frac{C_2 COV(\bar{\Theta}_1,\bar{\Theta}_2)C_1\sigma^2_{\bar{\Theta}_1}}{C_2 COV(\bar{\Theta}_1,\bar{\Theta}_2)}$$

$$\lim_{C_1 \to 0} \frac{\partial \Pi(C_1,C_2)}{\partial C_1} = -\sigma^2 C_1 \bar{\Theta}_1 \text{ or}$$

$$\lim_{C_1 \to 0} \frac{\partial \Pi(C_1,C_2)}{\partial C_1}$$

$$= \frac{-2(\Sigma^+ - \mu_Y)C_2 COV(\bar{\Theta}_1,\bar{\Theta}_2)}{\mu_2}$$

Taking the second derivative, we have

$$\frac{\partial^2 \Pi(C_1,C_2)}{\partial C_1^2} = \left[\frac{\sigma^2_{\bar{\Theta}_1}}{u'(w-\mu_Y)} \right]$$

$$\frac{\partial \Pi(C_1,C_2)}{\partial C_2} =$$

$$\left[\frac{(C_2\sigma^2_{\bar{\Theta}_2} + C_1 COV(\bar{\Theta}_1,\bar{\Theta}_2))u''(w-\mu_Y)}{u'(w-\mu_Y)} \right]$$

$$\lim_{C_1 \to 0} \frac{\partial \Pi(C_1,C_2)}{\partial C_2} =$$

$$\lim_{C_1 \to 0} \left[\frac{(C_2\sigma^2_{\bar{\Theta}_2} + C_1 COV(\bar{\Theta}_1\bar{\Theta}_2))u''(w-\mu_Y)}{u'(w-\mu_Y)} \right]$$

$$\lim_{C_1 \to 0} \frac{\partial \Pi(C_1,C_2)}{\partial C_2} = \frac{C_2\sigma^2_{\bar{\Theta}_2}}{u'(w-\mu_Y)}$$

$$\frac{\partial^2 \Pi(C_1,C_2)}{\partial C_2^2} = \left[\frac{\bar{\Theta}_2\sigma^2}{u'(w-\mu_Y)} \right]$$

Theorem
If $\bar{Y} = C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2$ with $E(\bar{\Theta}_1) = E(\bar{\Theta}_2) = 0,$ then

$$\frac{\partial \Pi(C_1,C_2)}{\partial C_1} = 0 \text{ and } \frac{\partial \Pi(C_1,C_2)}{\partial C_2} = 0$$

Proof
$\bar{Y} = C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2$ with $E(\bar{\Theta}_1) = E(\bar{\Theta}_2) = 0$
Recall that the risk premiumΠ must satisfy the condition that
$Eu(w + \bar{Y}) = u(w - \Pi)$ and hence
$Eu(w + C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2) = u(w - \Pi(C_1,C_2))$
Differentiating both sides we have

$$\frac{\partial Eu(w + C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2)}{\partial C_1}$$

$$= \frac{\partial u(w - \Pi(C_1,C_2))}{\partial C_1}$$

$$\frac{\partial Eu(w + C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2)}{\partial C_2}$$

$$= \frac{\partial u(w - \Pi(C_1,C_2))}{\partial C_2}$$

Since expectation and differentiation operators can be swapped then

$$\frac{E\,\partial u(w + C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2)}{\partial C_1} = \frac{\partial u(w - \Pi(C_1,C_2))}{\partial C_1} \text{and}$$

$$\frac{E\,\partial u(w + C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2)}{\partial C_2}$$

$$= \frac{\partial u(w - \Pi(C_1,C_2))}{\partial C_2}$$

$$\frac{E(\bar{\Theta}_1)\,\partial u(w + C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2)}{\partial C_1} =$$

$$-\frac{\partial u(w - \Pi(C_1,C_2))}{\partial C_1}\frac{\partial \Pi(C_1,C_2)}{\partial C_1} \text{and}$$

$$\frac{E(\bar{\Theta}_2)\,\partial u(w + C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2)}{\partial C_2}$$

$$= -\frac{\partial u(w - \Pi(C_1,C_2))}{\partial C_2}\frac{\partial \Pi(C_1,C_2)}{\partial C_2}$$

$$\frac{E(\bar{\Theta}_1)\,\partial u(w + C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2)}{\partial C_1} =$$

$$-\frac{\partial u(w - \Pi(C_1,C_2))\left[\frac{(C_1\sigma^2_{\bar{\Theta}_1} + C_2 COV(\bar{\Theta}_1,\bar{\Theta}_2))u''(w-\mu_Y)}{u'(w-\mu_Y)}\right]}{\partial C_1}$$

and

$$\frac{E(\bar{\Theta}_2)\,\partial u(w + C_1\bar{\Theta}_1 + C_2\bar{\Theta}_2)}{\partial C_2} =$$

$$-\frac{\partial u(w - \Pi(C_1,C_2))}{\partial C_2}\left[\frac{(C_2\sigma^2_{\bar{\Theta}_2} + C_1 COV(\bar{\Theta}_1,\bar{\Theta}_2))u''(w-\mu_Y)}{u'(w-\mu_Y)}\right]$$

By the conditions$E(\bar{\Theta}_1) = 0$ and $E(\bar{\Theta}_2) = 0$

$$\left[\frac{(C_1\sigma^2_{\bar{\Theta}_1} + C_2 COV(\bar{\Theta}_1,\bar{\Theta}_2))u''(w-\mu_Y)}{u'(w-\mu_Y)}\right]$$

$$= 0$$

$$\left[\frac{(C_2\sigma^2_{\bar{\Theta}_2} + C_1 COV(\bar{\Theta}_1,\bar{\Theta}_2))u''(w-\mu_Y)}{u'(w-\mu_Y)}\right] = 0,$$

$$\frac{\partial \Pi(C_1,C_2)}{\partial C_1} = 0 \text{ and } \frac{\partial \Pi(C_1,C_2)}{\partial C_2} = 0$$

Suppose the limiting process above fallswithin the neighbourhoodof small risks, it may be inferredthat insurance companyhaving high absolute risk aversion a(w)will not be willing to cover small risks, because the minimum expected payoff $E(w - Y)$which will make the risk acceptable will be larger. It is clear in Clark, Frijters and Shields (2008);Deprez and Gerber (1985) that a(w)is a measure of the degree of risk aversion of the insurance agent and consequently from actuarial point of view a(w) is a measure of the degreeof concavity of the utility function where the instantaneous speed at which marginal utilityis decreasing that is$u'' < 0$ is evaluated.When utility preferences elicitsprudence, income uncertainties reduces current consumption and saving increases. It is prudence that informs individuals to treat future uncertain income with utmost care not expend as much currently as they would if future income is certain. The saving which results from the knowledge that the future is randomly uncertain isthe precautionary saving measure. The income received after retirement is a direct application of prudence.In Leland (1968), precautionary saving requires convex marginal utility in addition to aversion to risk. Kimball (1990);Kimball and Weil (2009) proposed forces of intensity about precautionary saving motive, a measure of absolute prudence and relative prudence

$$a'(t) = \frac{u'(t)u'''(t) - u''(t)u''(t)}{[u'(w)]^2}$$

$$a'(t) = \frac{u'(t)u'''(t) - u''(t)u''(t)}{[u'(t)]^2}$$

$$= \frac{u'(t)u'''(t) - [u''(t)]^2}{[u'(t)]^2}$$

At maximum, $a'(t) = 0$ and $u'(t)u'''(t) - [u''(t)]^2 = 0$

$$u'(t)u'''(t) = u''(t)u''(t)$$

$$\frac{u'''(t)}{u''(t)} = \frac{u''(t)}{u'(t)}$$

$p(t) = -\frac{u'''(t)}{u''(t)}$is called absolute prudence and $A(t) = \frac{p(t)}{t}$ is the relative prudence substituting $u''(t) = -u'(t)a(t)$ in $a'(t)$, we have

$$a'(t) = \frac{u'(t)u'''(t) - [u''(t)]^2}{[u'(t)]^2}$$

$$= \frac{u'(t)u'''(t) - [a(t)]^2[u'(t)]^2}{[u'(t)]^2}$$

$$= \frac{u'''(t) - u'(t)[a(t)]^2}{u'(t)}$$

Again, $a'(t) = 0$,then $u'''(t) - u'(t)[a(t)]^2 = 0$

$$u'''(t) = u'(t)[a(t)]^2$$

$$a(t) = \pm\sqrt{\frac{u'''(t)}{u'(t)}} = -\sqrt{\frac{u'''(t)}{u'(t)}}$$

$$= \text{provided } u'''(t) > 0$$

If $a'(t) < 0$,then $u'(t)u'''(t) - [u''(t)]^2 < 0 \Rightarrow u'(t)u'''(t) < [u''(t)]^2$
It is worthy of note that the policy holder's utility is a decreasing function if for every risk, the amount of premium with which he would exchange the risk for insurance coverage is relatively higher than his assets. The condition just described involves the third derivative of utility function especially when $a'(t)$ is less than zero.

Aversion to Risk among Insurance Agents with Same Assets
Suppose $u_n$is a concave transformation of function u_i , $i = 1,2,\ldots, (n-1)$: ∃an increasing and concave function $f(u)$with $\frac{df}{du} > 0$ and $\frac{d^2f}{du^2} \leq 0$such that for all w
$u_j(w)$
$= f(u_1, u_2, u_3, u_4, \ldots, u_{n-2}, u_{n-1}), a_{u_j}(w)$
$\geq a_{u_i}(w)$
We assume that there are n insurance agents,$u_1, u_2, u_3, u_4, \ldots, u_n$who have the same arbitrary asset w. An insurance agent

u_1 will be more risk-averse than any another agent u_2, insurance agent u_2 will be more risk-averse than any another agent u_3, Insurance agent u_i will be more risk-averse than any another agent u_j for $j = i + 1$ and $i \neq j, i = 1, 2, 3, 4, \ldots, (n - 1)$ with the same initial asset if given any risk which is undesirable for the insurance agent u_i is also undesirable for insurance agent u_j, so that the risk premium of any risk Y is bigger for any other insurance agent u_j than for insurance agent u_i. The condition holds independently of the common initial asset level w of the insurance agents. If the condition above is limited to small risks then it is required that

$$\frac{-u_n{''}(w)}{u_n{'}(w)} \geq -\frac{u_{n-1}{''}(w)}{u_{n-1}{'}(w)}$$

$$\geq -\frac{u_{n-2}{''}(w)}{u_{n-2}{'}(w)}$$

$$\geq \ldots \geq -\frac{u_2{''}(w)}{u_2{'}(w)}$$

$$\geq \frac{-u_1{''}(w)}{u_1{'}(w)}$$

$$a_{u_n}(w) \geq a_{u_{n-1}}(w) \geq a_{u_{n-2}}(w)$$
$$\geq \ldots \geq a_{u_2}(w)$$
$$\geq a_{u_1}(w)$$

for all w. Suppose that the insurance agents are restricted to small risks, then u_j is more risk-averse than u_i if function $a_{u_j}(w)$ is uniformly bigger than $a_{u_i}(w)$ so that u_j will be more concave than u_i by reason of aversion to risk. This condition means that $u_j(w)$ is a concave transformation of $u_i(w)$ and consequently $\exists$ an increasing and concave function f such that

$$u_n(w) = f(u_1, u_2, u_3, u_4, \ldots, u_{n-2}, u_{n-1})$$

$$\frac{\partial u_n(w)}{\partial w} = \frac{\partial f}{\partial u_1}\frac{\partial u_1}{\partial w} + \frac{\partial f}{\partial u_2}\frac{\partial u_2}{\partial w}$$
$$+ \frac{\partial f}{\partial u_3}\frac{\partial u_3}{\partial w}$$
$$+ \frac{\partial f}{\partial u_{n-2}}\frac{\partial u_{n-2}}{\partial w}$$
$$+ \ldots$$
$$+ \frac{\partial f}{\partial u_{n-1}}\frac{\partial u_{n-1}}{\partial w} \quad (1)$$

$$\frac{\partial^2 u_n(w)}{\partial w^2} = \left[\frac{\partial u_1}{\partial w}\right]^2 \frac{\partial^2 f}{\partial u_1{}^2} + \frac{\partial f}{\partial u_1}\frac{\partial^2 u_1(w)}{\partial w^2} +$$
$$\left[\frac{\partial u_2}{\partial w}\right]^2 \frac{\partial^2 f}{\partial u_2{}^2} + \frac{\partial f}{\partial u_2}\frac{\partial^2 u_2(w)}{\partial w^2} +$$
$$\left[\frac{\partial u_3}{\partial w}\right]^2 \frac{\partial^2 f}{\partial u_3{}^2} + \frac{\partial f}{\partial u_3}\frac{\partial^2 u_3(w)}{\partial w^2} +$$
$$\left[\frac{\partial u_4}{\partial w}\right]^2 \frac{\partial^2 f}{\partial u_4{}^2} + \frac{\partial f}{\partial u_4}\frac{\partial^2 u_4(w)}{\partial w^2} +$$
$$+ \left[\frac{\partial u_{n-2}}{\partial w}\right]^2 \frac{\partial^2 f}{\partial u_{n-2}{}^2} + \frac{\partial f}{\partial u_{n-2}}\frac{\partial^2 u_{n-2}(w)}{\partial w^2} +$$
$$\ldots + \left[\frac{\partial u_{n-1}}{\partial w}\right]^2 \frac{\partial^2 f}{\partial u_{n-1}{}^2} + \frac{\partial f}{\partial u_{n-1}}\frac{\partial^2 u_{n-1}(w)}{\partial w^2}$$

$$(2)$$

Dividing (2) by(1) when taking $n = 2$ and by mutual comparison we have

$$\frac{d\log_e\left[\frac{\partial u_2(w)}{\partial w}\right]}{dx} = \left[\frac{\partial u_1}{\partial w}\right]\frac{d\log_e\left[\frac{\partial f}{\partial u_1}\right]}{du_1}$$
$$+ \frac{d\log_e\left[\frac{\partial u_1}{\partial w}\right]}{dw}$$

$$a_{u_2}(w)$$

$$= a_{u_1}(w) + \left[\frac{\partial u_1}{\partial w}\right]\frac{d\log_e\left[\frac{\partial f}{\partial u_1}\right]}{du_1},$$
$$a_{u_n}(w) \geq a_{u_{n-1}}(w)$$
$$a_{u_{n-1}}(w) \geq a_{u_{n-2}}(w)$$
.
.
.

$$a_{u_2}(w) \geq a_{u_1}(w)$$

The Aversion Integral

Now $a(w) = -\dfrac{\frac{du{'}(w)}{dw}}{\frac{du(w)}{dw}}$ implies

$-\int_0^w \frac{d \log_e u'(z)}{dz} = \int_0^w a(z) \, dz.$ This is called the aversion integral hence

$\log_e u'(w) - \log_e u'(0) = -\int_0^w a(t) \, dt$

$\int_0^w a(t) \, dt = \lim \sum a(t) \, \Delta t_k = \log_e u'(0) - \log_e u'(w) > 0$

this is the risk aversion integral which converges and represents the difference of logarithm of utility function computed at two different points in the interval [0 w].

Now, $\int_0^w a(t) \, dt$ represents the total area under the curve of intensity $a(t)$ for $0 \le t \le w$ and can be numerically evaluated simply by invoking Newton-cotes formula with 2n number of strips and $(2n + 1)$ number of $a(t)$ values. The risk aversion integral is the length of width $(W - 0)$, multiplying the mean value of the aversion co-efficient function within the interval $(0, w)$, $\int_0^w a(t) \, dt = wf(\alpha), 0 < \alpha < w$. The average value of the aversion coefficient $a(t)$ is the sum of the weighted functional values divided by the sum of the weights where the weights are

$W = W_0 + W_1 + W_2 + \ldots + W_n$ and $w = 2nh$,

$W_0 = 1, W_1 = 4, W_2 = 2, \ldots$

$W = 1 + 4 + 2 + 4 + 2 + 4 + 2 + 4 + \cdots + 1,$ up to $(2n + 1)$ times

$2 + 4 + 2 + 4 + 2 + 4 + \cdots \quad (2n) \text{times} =$

$2 + 2 + 2 + 2 + \ldots (n \text{ times}) + 4 + 4 + 4 + 4 + \cdots .. (n \text{ times}) =$

$\left\{ \sum_1^n 2 \right\} + \left\{ \sum_1^n 4 \right\} = 2n + 4n = 6n$

Thus dividing the interval $(0, w)$ by 2n strips, we have

$\int_0^w a(t) \, dt = \frac{h}{3} \{ a_1 + 4a_2 + 2a_3 + 4a_4 + 2a_5 + \cdots + 4a_{n-2} + 2a_{n-1} + 4a_n +$

$a_{n+1} \} - \frac{w(h^4) f^{(4)}(t)}{180}, 0 \le t \le w,$ where a_i are the functional values of aversion co-efficient at the i-th point $w_n = nh$

$\frac{w}{6n} = \frac{h}{3}$

$\log_e u'(0) - \log_e u'(w) = \frac{h}{3} \{ a_1 + 4a2 + 2a3 + 4a4 + 2a5 + \ldots + 4an{-}2 + 2an{-}1 + 4an + an{+}1 - w(h4)f4(t)180$ implies that

$\{ a_1 + 4a_2 + 2a_3 + 4a_4 + 2a_5 + \cdots$
$\qquad + 4a_{n-2} + 2a_{n-1}$
$\qquad + 4a_n + a_{n+1} \}$
$\qquad - \frac{w(h^4) f^{(4)}(t)}{180}.$

$\qquad = \log_e \left\{ \frac{(u'(0))}{(u'(w))} \right\}^{\frac{3}{h}}$

$2 \sum a_i + 4 \sum a_i + a_1$
$\qquad - \frac{w(h^4) f^{(4)}(t)}{180}$

$\qquad = \log_e \left\{ \frac{(u'(0))}{(u'(w))} \right\}^{\frac{3}{h}}$

From above, we have $\int_0^w a(t) \, dt = \log_e \left\{ \frac{(u'(0))}{(u'(w))} \right\} \Rightarrow \left\{ \frac{(u'(0))}{(u'(w))} \right\} = e^{\int_0^w a(t) dt}$ given that $u'(.) \ne o(1)$ that is, does not vanish.

In the trivial case where $u'(0) = 1$, (14) now becomes,

$u'(w) = e^{-\int_0^w a(t) dw}$. This is the gradient function for the utility functional $u(.)$, again from (13),

$u'(w) = e^{-\int_0^w a(t) dw}$

$\qquad = 1 - \int_0^w a(t) \, dw$

$\int_0^w a(t) \, dt = -\int_0^w \frac{(u''(t))}{(u'(t))} \, dt$

$-\int_0^w a(t)(u'(t) \, dt = \int_0^w (u''(t) \, dt$

$\qquad = u'(w) - u'(0)$

$u'(w) = u'(0) - \int_0^w a(t)(u'(t) \, dt$,

integration by part yields,

$$u'(w) = u'(0) - \left\{ a(w)u(w) \right.$$
$$- a(0)u(0)$$
$$\left. - \int_0^w u(t)a'(t)\,dt \right\}$$

$$u'(w) = u'(0) + a(0)u(0) + \int_0^w a'(t)u'(t)\,dt - a(w)u(w).$$

$$a(w) =$$
$$\frac{u'(0) + a(0)u(0) + \int_0^w a'(t)u'(t)dt - u'(w)}{u(w)},$$

$$u(w) > 0$$

This establishes another form of risk aversion function. Therefore

$$u'(0) + a(0)u(0) + \int_0^w a'(t)u'(t)\,dt$$
$$- a(w)u(w)$$
$$= 1 - \int_0^w a(t)\,dw$$

Solutions to the Second Order Linear Differential Equations

Whenever the risk aversion function $a(w)$ is given and it is required to determine the corresponding utility function, then we find a function $u(w)$ which will satisfy the equation $G(w, u, u', u'') = 0$ that is $u'' = g(w, u, u')$ and such that $u(\pi) = 0$, $u'(\pi) = 1$ are the boundary conditions

$$a(w) = -\frac{u''(w)}{u'(w)} = -d\log_e u'(w)$$
$$a(w) = -d\log_e u'(w)$$
$$\int_\pi^t a(w)dw = -\int_\pi^t d\log_e u'(w)\,dw$$
$$= -[\log_e u'(t)$$
$$- \log_e u'(\pi)]$$
$$= -[\log_e u'(t)]$$
$$= \operatorname{colog}_e u'(t)$$

$$u'(t) = e^{-\int_\pi^t a(w)dw}$$

$u(t) = \int_\pi^w e^{-\int_\pi^t a(w)dw}dt$ so that

$u(w) = \int_\pi^w \left(e^{-\int_\pi^t a(w)dw} \right) dt$ for $(w - \pi > 0,$

$$u(w) = \int_\pi^w \left(e^{-\int_\pi^t kdw} \right) dt$$
$$= \int_\pi^w e^{k\pi - kt}\,dt$$
$$= \frac{e^{k\pi - kt}}{-k} \Big|_{t=\pi}^{t=w}$$

$$u(w) = \frac{e^{k\pi - k\pi}}{k} - \frac{e^{k\pi - kw}}{k}$$
$$= \frac{1}{k} - \frac{e^{k\pi - kw}}{k}$$
$$= \frac{1}{k}$$
$$- \frac{1}{k}\left(e^{k\pi - kw} \right)$$

$$u(w) = \frac{1}{k} - \frac{1}{k}(1 + k\pi - kw)$$
$$= \frac{1}{k} - \frac{1}{k} - \pi$$
$$+ w = w - \pi$$

$u(w + \pi) = w$, so $u'(w) = u'(w + \pi)$ implies $(w + \pi)$ is equivalent to w

So for $k \geq 0$, $u(w) = w - \pi$

If aversion $a(w) = k$ where k is a constant, then a change in assets may not necessarily result in a corresponding change in preference among risk. Again from the earlier discussions above

Theorem: The differential equation is solvable

$u''(w) + a(w)u'(w) = 0$, under the boundary condition $u(\pi) = 0$ and $u'(\pi) = 1$, where $\pi \in [0, w]$

Recall that maximum premium $\Sigma^+ = \mu_Y + \frac{\mu_2}{2}a(w)$, assuming real constants μ_Y, μ_2 and Σ^+. This second order differential equation has a two-parameter family of solutions. To obtain a unique solution, we invoke the standard boundary conditions.

$$2u'(w)\mu_Y - \mu_2 u''(w) = 2u'(w)\Sigma^+$$
$$\sigma^2_Y u''(w) + 2[\Sigma^+ - \mu_Y]u'(w) = 0$$ subject to the following standard

boundary conditions $u(\pi) = 0$ and $u'(\pi) = 1$, where $\pi \in [0, w]$

$$u''(w) + \frac{2[\Sigma^+ - \mu_Y]}{\mu_2} u'(w) = 0$$

The auxiliary equation is $s^2 + \frac{2[\Sigma^+ - \mu_Y]}{\mu_2} s = 0$

$$s\left[s + \frac{2[\Sigma^+ - \mu_Y]}{\sigma^2_Y}\right] = 0$$

$$s = 0 \text{ or } s = \frac{2[\mu_Y - \Sigma^+]}{\mu_2}$$

$$u(w) = k\, e^{\frac{2[\mu_Y - \Sigma^+]w}{\mu_2}}$$

$$u(\pi) = 0$$

$$k\, e^{\frac{2[\mu_Y - \Sigma^+]\pi}{\mu_2}} = 0 \text{ and } k = 0$$

$$u'(w) = k\frac{2[\mu_Y - \Sigma^+]}{\mu_2} e^{\frac{2[\mu_Y - \Sigma^+]w}{\mu_2}}$$

$$u'(\pi) = k\frac{2[\mu_Y - \Sigma^+]}{\mu_2} e^{\frac{2[\mu_Y - \Sigma^+]\pi}{\mu_2}}$$

$$= 1$$

$$K = \frac{\sigma^2_Y}{2[\mu_Y - \Sigma^+]}\, e^{\frac{-2[\mu_Y - \Sigma^+]\pi}{\mu_2}}$$

$$u(w) =$$

$$\frac{\sigma^2_Y}{2[\mu_Y - \Sigma^+]} e^{\frac{2[\mu_Y - \Sigma^+]w - 2[\mu_Y - \Sigma^+]\pi}{\mu_2}}, \mu_Y > \Sigma^+ \qquad \text{result2 ,}$$

Reduction of Order

In actuarial literature, we are permitted to reduce the order of the aversion so as to apply a simple numerical procedure using the transformation

$$u'(w) = f(w)$$
$$u''(w) = f'(w)$$
$$a(w) = -\frac{f'(w)}{f(w)}$$

$$f(t + y) = f(y) + t\frac{df(t + y)}{dy}$$
$$+ \frac{t^2}{2!}\frac{d^2f(t + y)}{dy^2}$$
$$+ \frac{t^3}{3!}\frac{d^3f(t + y)}{dy^3}$$
$$+ \frac{t^4}{4!}\frac{d^4f(t + y)}{dy^4}$$

$$f(y - 2) = f(y) - 2\frac{df(y)}{dy}$$
$$+ 2\frac{d^2f(y)}{dy^2}$$
$$+ \frac{4}{3}\frac{d^3f(y)}{dy^3}$$
$$+ \frac{2}{3}\frac{d^4f(y)}{dy^4}$$

$$f(y + 2) = f(y) + 2\frac{df(y)}{dy}$$
$$+ 2\frac{d^2f(y)}{dy^2}$$
$$+ \frac{4}{3}\frac{d^3f(y)}{dy^3}$$
$$+ \frac{2}{3}\frac{d^4f(y)}{dy^4}$$

$$f(y - 1) = f(y) - \frac{df(y)}{dy} + \frac{1}{2}\frac{d^2f(y)}{dy^2}$$
$$- \frac{1}{6}\frac{d^3f(y)}{dy^3}$$
$$+ \frac{1}{24}\frac{d^4f(y)}{dy^4}$$

$$f(y + 1) = f(y) + \frac{df(y)}{dy} + \frac{1}{2}\frac{d^2f(y)}{dy^2}$$
$$+ \frac{1}{6}\frac{d^3f(y)}{dy^3}$$
$$+ \frac{1}{24}\frac{d^4f(y)}{dy^4}$$

$$f(y-2) - f(y+2) = -\left[4\frac{df(y)}{dy}\right.$$
$$\left. + \frac{8}{3}\frac{d^3f(y)}{dy^3}\right]$$

$$f(y-1) - f(y+1)$$
$$= -\left[2\frac{df(y)}{dy}\right.$$
$$\left. + \frac{1}{3}\frac{d^3f(y)}{dy^3}\right]$$

$$8f(y-1) - 8f(y+1)$$
$$= -\left[16\frac{df(y)}{dy}\right.$$
$$\left. + \frac{8}{3}\frac{d^3f(y)}{dy^3}\right]$$

$$f(y-2) - f(y+2)$$
$$- [8f(y-1) - 8f(y+1)]$$
$$= -\left[4\frac{df(y)}{dy}\right.$$
$$\left. + \frac{8}{3}\frac{d^3f(y)}{dy^3}\right]$$
$$- \left[-16\frac{df(y)}{dy}\right.$$
$$\left. - \frac{8}{3}\frac{d^3f(y)}{dy^3}\right]$$

$$f(y-2) - (y+2) - 8f(y-1) + 8f(y+1)$$
$$= -4\frac{df(y)}{dy}$$
$$- \frac{8}{3}\frac{d^3f(y)}{dy^3}$$
$$+ 16\frac{df(y)}{dy}$$
$$+ \frac{8}{3}\frac{d^3f(y)}{dy^3}$$

$$f(y-2) - f(y+2) - 8f(y-1)$$
$$+ 8f(y+1)$$
$$= 12\frac{df(y)}{dy}$$

$$f(y-2) - f(y+2) - 8f(y-1) + 8f(y+1) = 12\frac{df(y)}{dy}$$

$$\frac{df(y)}{dy} = \frac{f(y+2) - f(y+2) - 8f(y-1) + 8f(y+1)}{12} \text{but}$$

by the reduction of order

$$a(y) = -\frac{f'(y)}{f(y)}$$
$$= \frac{u'(y+2) - u'(y-2) + 8u'(y-1) - 8u'(y+1)}{12u'(y)}$$

Effect of Non Actuarially Neutral Risk $\overline{Y}$

The condition arises when $E(Y) \neq \mu_Y$, that is when the insurance premium is not equal to the expected claim.

$$E[u(w - Y)]$$
$$= E[u(w - \mu_Y)] + u'(w - \mu_Y)E(Y - \mu_Y)$$
$$+ \frac{u''(w - \mu_Y)E(Y - \mu_Y)^2}{2}$$

$$u(W - \Sigma^+) = u(w - \mu_Y) + u'(w - \mu_Y)(\mu_Y - \Sigma^+)$$

$$E[u(w - \mu_Y)] + au'(w - \mu_Y)E[(Y - \mu_Y)]$$
$$+ \frac{au''(w - \mu_Y)E(Y - \mu_Y)^2}{2}$$
$$= u(w - \mu_Y) + u'(w - \mu_Y)(\mu_Y - \Sigma^+)$$

$$u(w - \mu_Y) + u'(w - \mu_Y)E[(Y - \mu_Y)]$$
$$+ \frac{u''(w - \mu_Y)\sigma^2_Y}{2}$$
$$= u(w - \mu_Y)$$
$$+ u'(w - \mu_Y)(\mu_Y - \Sigma^+)$$

$$u'(w - \mu_Y)E[(Y - \mu_Y)]$$
$$+ \frac{u''(w - \mu_Y)\sigma^2_Y}{2}$$
$$= u'(w - \mu_Y)(\mu_Y - \Sigma^+)$$

$$E[(Y - \mu_Y)] + \frac{u''(w - \mu_Y)\sigma^2_Y}{2u'(w - \mu_Y)}$$
$$= (\mu_Y - \Sigma^+)$$

$$\Sigma^+ = \mu_Y - E[(Y - \mu_Y)] - \frac{u''(w - \mu_Y)\sigma^2_Y}{2u'(w - \mu_Y)} \qquad \text{result3}$$

.

Thus the risk premium is just enough to offset the actuarial value $E[(Y - \mu_Y)]$ of a small risk premium $\overline{Y}$ where the policy holder will be indifferent between having $\overline{Y}$ and not having it when the actuarial value is proportionately a(w) times half the variance of $\overline{Y}$

Conclusions

In this paper, structural model have been developed which is built upon the existing work by incorporating assumptions such as that the aversion co-efficient has a convergent integral, that is $\int a(y)dy < \infty$ and that u(.) possess derivatives of all orders.Meaningful mathematical risk construct describing the likelihood for evidence based utility calculations can be arrived having the potential for new actuarial insight as a consequence. Risk aversion is the parameter describing the amount of satisfaction or utility preference derivable from money or goods. The conventional way of estimating aversion co-efficient when applied to purchase insurance employs Taylor's series expansion about the utility of the initial wealth. The implication here is that there should be infinitesimally small deviation from the wealth so that it will not be necessary to evaluate the structural form of the utility and as a result, there is no need to cross-check whether the aversion to risk has been manipulated when utility of two outcomes are contrasted. The Risk aversion derived here through analytic method is a function of insurance maximum premium, individual wealth and probability of loss.Actuaries suggest that the degree of decision maker response as a function of aversion intensity to a positive change in relative wealth provided that the absolute wealth remains constant depends on the accompanying change in the weightings assigned to the relative wealth and consequently a constant weight may cause aversion to risk intensity to increase. However an increase in the weightings assigned to relative wealth will reduce the aversion to risk. This paper finds applications in insurance of self protection for increased risk aversion, evaluating utility preferences of inequality aversion and aversion preferences in equilibrium asset pricing model.

Competing Interests
All authors have declared that there is no competing interest

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Assessment of the Impact of National Poverty Eradication Programme on Rural Households in Kano State, Nigeria

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Abstract

This study assessed the impacts of National poverty Eradication programme (NAPEP) on rural households in Kano state, Nigeria. Cross sectional data was utilized for the study. Questionnaires were administered to 720 respondents selected based on multi stage sampling techniques on 12 selected rural local government areas. Descriptive statistics, logit model and ordered logit were employed to ascertain the impact of poverty alleviation on rural households in Kano state. The results indicate that: with regards to socioeconomic characteristics, majority of the respondents were male with most of them being married with mean age of 38.25years, with significant number of them formally educated to atleast secondary school level of education. Variables such as gender, age, level of education, occupation and dependents were important determinants of the programme awareness. Also, the variables age, level of education, unemployment and NAPEP awareness were important in determining the impact of the programme in the study area. The results also, show that politics, implementation, sectorial biased, and funding were the problems that hindered the success of the programme in Kano state. The results also indicate that provision of education; soft loans, social amenities and subsidy to agricultural inputs are important tools for fighting poverty in the study area. The study concludes that NAPEP has not impacted very much on rural poverty in the study area. The study therefore recommends among others that more awareness of the programme, sensitized politics should be improved in implementation of the programme and government should increase investment in education in order to curtail the menace of poverty in the study area and the country at large.

Keywords: NAPEP, Ordered logit/probit, Kano State
JEL Codes: E26, E27

Introduction

Despite the implementation of several ambitious programmes and projects which had been adopted in the past to check the increasing rate of poverty in Nigeria, most of these projects failed to achieve their specified objectives and targets. The collapse of DFRRI and Better Life for Rural Women among others, stand as unique examples. This is largely because many of the programmes were not well designed, formulated or implemented in a

co-ordinate manner (Kayode, 2012). Most of them relied solely on government subventions for their operations resulting in financial problems during periods of declined revenues and other bureaucratic delays. Dakye and Mundi (2013), affirmed that widespread corruption and mismanagement of the programme by the coordinators aggravate the level of poverty in the country. Furthermore, with the coming of Obasanjo's government, Poverty Alleviation Programme (PAP) was established in 1999 in order to address the issue of poverty in the country. By 2001, National Poverty Eradication Programme (NAPEP) was established to replace PAP. Available evidence has shown that the programme has not been up to expectation. Some international poverty alleviation programmes have failed owning largely to inadequate finance particularly in the area of counterpart funding. Similarly, lack of commitment on the part of the executors of the various programmes has constituted a number of problems. Also, some aspect of public spending, even though concealed with good intention, have not been adequately targeted and judiciously directed at fighting poverty (Egware, 1997, Ogwuminke and Akinnibosum, 2013). Therefore, the paper seek to assessed the impact of National Poverty Eradication programmed on rural household in Kano State.

Literature Review

Shawulu, et al (2008) conducted a study on the appraisal of the impact of National Poverty Eradication Programme (NAPEP) in Jalingo Local Government Area of Taraba States Nigeria, with view to measure the success or failure of the programme since 1999 to date. They employed stratified and random sampling techniques, 100 respondents were selected from different scheme of NAPEP. A Focus Group Discussion (FGD) was also used to assess expert opinions on the impact of the programme. Questionnaires were used to elucidate needed information from all groups of respondent. The simple percentages score and student t-test were used analysis. The results shows that most beneficiaries of the programme fall within the age bracket of 15-30 years, while 40.4% of the non-beneficiaries had no access to any formal education. Analysis of dependency ratio also shows that 32.1% of the non-beneficiaries had between 7-9 dependents while 42.5% of the benefiting respondents had between 4-6 dependents. A greater percentage (71.4%) attested to the fact that benefiting from programme has a political angle to it. The t-test result reveals that there is strong positive relationship between income of beneficiaries before and after enrollment in the programme. The research concludes that the programme needs to be re-designed in order to address some critical poverty issues.

Binta (2006) conducted a study to assess the performance of the NAPEP programme and its impact on alleviation of poverty, with a special focus on FCT, Abuja. Data were collected through NAPEP bulletins progress reports and questionnaires administered on the staff and beneficiaries of NAPEP programme in FCT Abuja. The study found out that the programme is bedeviled by some problems, which are militating against its success. These includes poor monitoring of the programme irregular payment of beneficiaries and training of officers, lack of commitment on the part of both participant and the organizers, non-involvement of Non-Government Organizations (NGO's) bureaucratic bottlenecks, among others. The study found out that in spite of the level of employment opportunities generated by NAPEP, it has not enhanced the level of productivity and economic wellbeing of the beneficiaries. The study, therefore, recommend that the National Poverty

Eradication Programme (NAPEP) in FCT, Abuja and Nigeria at large should be properly funded and this fund should be made available in good time. Also, government should involve the poor, who are the stakeholders from the planning to the implementing stages of the programmes among others.

Ntunde& Oteh (2011)conducted a study to evaluate the impact of Poverty Eradication Programmes in Nigeria. It tries to assess their effectiveness in helping to improve the lives of the poor. Primary data were collected from adult male and female residents in Enugu state. The analysis showed that most of the poverty reduction effort had no significant impact on the lives of the poor. Even those that were recorded effective had negligible impact on the populace to have reduced poverty. The study enumerates among others inadequate funding mismanagement of resources and inadequate infrastructure as problems stifling most poverty alleviation programmes in Nigeria. The study recommend in addition to establishing these poverty alleviation programmes in Nigeria, should strive to move away from import dependent economy to an expert oriented one. The study however lacks generality and inferential statistical techniques- thus limited in methodology and lacks generality.

Luka (2012) conducted a study to assess poverty eradication and youth empowerment with special focus on Bomo village. The study aims at finding the impact of NAPEP on Poverty Eradication and Youth Empowerment. Data was collected through interviews and questionnaire administered on the staff and inhabitants of Bomo village. The study found out that the programme was bedeviled by some problems which are militating against its success. This include poor and inadequate funding of the programme, irregular payment of

beneficiaries, bureaucratic bottleneck, poor monitoring of the programmme, high level of corruption, and lack of commitment on both the participant and the organizers of the programme. In addition, to all these problems, the study found out that NAPEP has made very little impact in Bomo Village thus insignificant to create change. However, the study lacks generality and limited in methodology.

Olayemi (2011) examined the impact of government poverty reduction programmes on the multidimensional poverty of rural Nigeria by using the 2006 core welfare indicator survey (CWIS) data. She employed fuzzy set approach to compute the multidimensional poverty index of rural Nigeria. She also used Tobit regression to examine the impact of poverty alleviation programmes on multidimensional poverty index of rural Nigeria. The result shows that the multidimensional poverty index for rural Nigeria is 0.3796 and also reflected that some development programmes had negative impact on multidimensional poverty index of rural Nigeria. The study recommended that provision of health centre or rehabilitation of the existing one is important in reducing multi-dimensional poverty of the rural dwellers among others.

Yakubu& Abbas (2012) conducted a study on National Poverty Eradication Programme (NAPEP) and Poverty Alleviation in Rural Nigeria. The study aims at analyzing the framework of NAPEP in order to ascertain the impact of the programme on the people of Giwa local government area of Kaduna state. Purposeful and simple random sampling technique was used to sample 220 respondents in the study area. Data was collected from the respondents using interview schedule and a total of 179 questionnaires were used for the analysis. The results revealed the failure of poverty

alleviation programmes with special reference to NAPEP in Giwa Local Government. Hence, they recommends that NAPEP as an agency of the government with sole aim of coordinating all poverty alleviation efforts in the country should work in harmony with other ministries and agencies that are stakeholders in the fight against poverty, provision of credit facilities and skills training should be one of the central focus in poverty eradication and government should adopt a holistic approach to poverty alleviation in the country.

Muhammed et al (2017) conducted study titled an assessment of poverty alleviation in Kaduna state which was intended to assess the impact, implementation and evaluating the effectiveness of NAPEP in relation to the policy and strategy formulation, coordination, monitoring, control, funding and utilization of human and material resources. The study utilized the survey research and questionnaire administered on 240 respondents interviewed primarily and secondary sources of data collected and analyzed. It was found that NAPEP has not alleviated the rate of poverty in Kaduna state and the reason adduced includes: underfunding of the programme, nonchalant attitude of political and public office holders, shortage of manpower and corruption which is a general phenomenon in Nigeria. Based on above findings the study recommends that NAPEP and other stakeholders should develop a multi-dimensional approach towards poverty alleviation programme, and efforts should be made by government to increase funding and fight corruption.

Tersoo (2013) conducted a study on Assessment of National Poverty Eradication Programme on Wealth creation in Benue State. The study used exploratory survey for the collection of data through structured questionnaire administered on one hundred and nine (109) respondents selected from beneficiaries and key officials of NAPEP in six local government areas of Benue State. The study adopted descriptive statistics to analyze the data collected. The findings of the study suggest that the strategies employed by NAPEP have not made significant impact in improving the lives of beneficiaries in study area. The results also show that there were structural detects in implementation strategies adopted by NAPEP. The study, therefore, recommends that poverty reduction strategies should be constructively structured to effectively target the poor who are the actual beneficiaries among other things. This study however, is limited to one state and constraint in methodology employed which is not a robust one.

In their study on the impact of anti-poverty programme on development of rural areas of Nigeria,Dakyes& Mundi (2013) used a sample size of 500. The respondents were selected using systematic sampling technique. The data were analyzed using descriptive statistics. The results showed that NAPEP has little positive impact on the well-being of the labour force due to alleged high rate of corruption among leaders and leakage of benefits to un-intended beneficiaries. In addition the results showed that poverty has serious setback on the development of the study area and by extension rural areas of Nigeria. However, the study is limited only to one local government in a state (Mungu Local Government, Plateau State). Therefore, it lacks generalization and methodology used was not a robust one.

Magnus & Sunday (2012) conducted a study on the role of infrastructure on poverty reduction in the rural areas of Edo state, Nigeria. The objective of their study was to identify the types of distribution

and impacts of those facilities on the lives of the people. Data used were obtained from the field survey through questionnaires interview and personal observation and also secondary sources including published and unpublished materials. The study emphasized the use of descriptive statistic which includes use of tables, proportions and percentages. The study revealed that few infrastructural facilities were located in the study area which was however not equitably distributed. The study also showed that these facilities had impacts in the lives of the people of the study area. .

Aliero*et al* (2012) carried out a study on the impact of IFAD poverty intervention programme on rural poverty reduction in Sokoto state. The study sourced data from primary source using questionnaire to collect a cross sectional data from area where IFAD intervention programmes were found in the study areas. The logit regression model was used to established the relationship between the likelihood of being poor and access to IFAD programme and projects and the various factors (predictor variables) affecting the household poverty status. The results indicate that educational attainment can reduce the prevalence of poverty and chances of being poor. The study further indicates that the relationship between gender and rural poverty is positively insignificant. This study is however limited in its scope because it is only concern with the local government in one state therefore, there is the need for further research/study in other states of the country.

Gap Identified From Literature
It is obvious while reviewing the literature there are some specific gaps that need to be filled or bridge in relation to this study. Most of the studies reviewed in the work concentrate on using descriptive statistics but this study employs both descriptive

and inferential statistics that is making the study more robust. Another gap identified is that most of the studies reviewed were conducted elsewhere; therefore, this study bridges the gap by conducting a study in Kano state. Also, most of the literatures were concerned with issue of poverty generally but this work gives more attention to rural poverty. Finally, the scope of the most studies reviewed shows narrow scope but this study used a wider scope.

Theoretical Framework
Most studies on poverty and its alleviation through increased output and enhanced income that existed in the past, have over the years been down played for more critical basic needs. This approach emerges based on the recommendation of World Employment Conference of international Labour organizations in 1976, which was further articulated and popularized by the World Bank.The basic needs were introduced because the World Bank argued that the only way to eliminate absolute poverty on a permanent basis is to increase the productivity of the poor.

There are two objectives of the basic need approach. The World Bank and other organizations realize the provision of basic goods and services as a precondition for increasing the productivity and income of the poor, enabling them to contribute more objectively to national development. Others argue that the objective is to ensure the access of the poor to bundles of essential goods and services for its own sake, (for the poor to live a meaningful life) and as basic human rights.

Basic needs may be interpreted in terms of minimum specified quantities of such things as food, clothing, shelter, water and sanitation necessary to prevent ill health, under nourishment etc. This interpretation is in line with neoclassical paradigm,

which assumes that consumers are better judges of their basic needs. Third interpretation believes that consumers are not rational economic agent; this suggests a more interventionist interpretation where public authorities decide not only the design of public services such as water supply, sanitation and education but also guide private consumption in the light of public consideration. The fourth interpretation emphasizes the non-economic, non–material aspects of human autonomy and embrace individual and group participation in the design, formulation and implementation of projects and in some case political mobilization. This interpretation emphasizes on basic human needs. It is imperative to distinguish between basic needs and basic human needs. Basic human needs in addition emphasize on participation and contains some political and non-economic goals and perception.

Methodology

The Study Area

Kano state is the Centre of Commerce, an economic nerve centre of northern Nigeria with most politically active and sophisticated peoples in the northern part of the country. Created along with eleven other states, Kano formally came to being on April 1, 1968. The state is arguably the most homogeneous in the Nigerian Federation with a population of over 12 million people (K-SEEDs, 2005). Kano state is located 12^037'N, 9^029'E, 9^033' and 7^043' W. It is bordered on the east by Jigawa state to the south by Kaduna state, to the west by Katsina.

The inhabitants of the state are mainly Hausa/Fulani while other tribe and ethnic groups are of minority. As a result, Kano is regarded as composition state life expectancy in Kano state is 51years for male and 52.2 years for females. The infant mortality rate is 110 per 1000, live

birth and maternal mortality rate, on the other hand, is 1700 per 100,000 (K-SEEDS, 2005).

Kano state has agriculture as its rural population activities, involving at least 75% of the rural population. Before the oil Boom of 1970s, Kano state was the main producer of groundnuts (producing at least 50% of the country's total output).

Sample Size and Sampling Techniques

The sample size of this study is determined based on Kreijcie and Morgan (1970). The appropriate sample size provided by Kreijcie and Morgan (1970) is 384 sample size. However, for this study a total of 720 sample was utilized which is almost a double of the sample size as curtained in the table of Kreijcie and Morgan (1970). This is because of the estimation of response rate of 50% which was suggested by scholars and was equally used by many previous studies.

A sample of twelve (12) rural local governments out of the thirty six (36) rural local governments were selected, hence, the total of seven hundred and twenty sample questionnaires were evenly distributed.

In acquiring an appropriate sample size, a multi-stage random sampling technique was employed in order to maximize the benefit of random sampling method. The first stage involves a systematic random sampling of twelve (12) local government areas. Second stage is the random selection of six political wards from each of the twelve (12) local government areas selected making a total of seventy two (72) political wards. The last stage is the random selection of ten (10) households from each of the selected wards making a total of seven hundred and twenty (720) respondents.

Model Specification

In order to determine the impact of NAPEP programme on the rural household as poverty determinants in Kano state, the study employed the used of ordered logit and ordered probit model.

The reason for using these models is attributed to the nature of the dependent variable which is in form of category, in this case the dependent variable in Lakert scale therefore in category.

The model is expressed as: $Y_i^{\propto} = X_i\beta + \mu_i$

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_9X_9 + \mu_i$

$NIA = \beta_0 + B_1GEN + B_2AGE + B_3MST + B_5HHH + B_6OCC + B_7DPD + \beta_8INC. + \beta_9NAPA$

Where;

NIA is ordered dependent variables at it represent the NAPEP impact assessment on rural households.

NIA = 1 If a household is not satisfied about NAPEP 1

NIA = 2 if a household is satisfied with NAPEP

NIA = 3 if a household is neither satisfied nor dissatisfied

NIA = 4 if a household is highly dissatisfied

X_i represents the set of explanatory variables. While some are continuous include others categorical.

Gender = X_1 - Gender of respondent (1 male, 0 = otherwise)

Age = X2 - Age of the respondent which was measured on interval scale since most people do not like to reveal their real age.

Marital Status = X_2 - Marital status of the respondents (1 = married 0 = otherwise)

Schooling = X_4 – Education of respondent

Household had = X_5 – Head of household in term of financial responsibility.

Occupation = X_6 – Occupation of the respondent

Respondents = X_7 – Number of dependent of the respondents

Income threshold = X_8 – Income threshold of the respondents

NAPEP awareness = X_9 – if the respondents is aware of the NAPEP program

β_0 is the intercept parameter

μ_i is the random term which captured the impact of other variables not included in the model

For the ordered logit, μ_i is logistically distributed i.e. the error term in the model is assumed to have a logistic distribution. While for the ordered probit model, μ_i is standard and normally distributed.

That is, μ_i is assumed to follow both a normal and logistic distribution for the Oprobit and Ologit respectively.

Model 3

In attempts to find out the determinants of rural poverty as has been reviewed in literature found by many researchers such as Oni. *et al* (2008), Olorunsanya*et al* (2011), Yelwa*et al* (2013), Sharif (2009), Igbalajobi*et al* (2013), Olawuyi and Adetunji (2013) adopted the use of ordinary least square multiple regression model as well as logit and probit model to determine the factors responsible for rural poverty. However, this study employed the used of ordered logit and probit the models, since the dependent variable is ordered in form of category.

The model is specifying as follow:

$Y = Y_i^{\propto} = X_i\beta + \mu_i$ …...………………….1

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_9X_9 + \mu_i$…………2

The above can be expressed as;

$SPV = \beta_0 + \beta_1AGE + \beta_2GEN + \beta_3MST + \beta_4HSZ + \beta_5SCH + \beta_6LOH + B_7OCP + B_8FEX + \beta_9LOW + B_9LIO + \beta_{10}DEP +$

β_{11}FSZ + β_{12}TRA + β_{13}TRM + β_{14}SSEV + B_{15}HTN + β_{16}FME + e_i…………………3

Where

AGE	= X_1 – Age of respondents
GEN	= X_2 – Gender of respondent
MST	=X_3-Marital status of respondent
HSZ	= X_4- Household size
SCH	=X_5- Education of respondent
LOH	= X_6 – Loan history
OCP	= X_7 - Occupation
FEX	= X_8 -Food expenditure
LOW	= X_9 -Land ownership
DEP	= X_{10} –number of dependents
FSZ	= X_{11} – Farm size
TRA	= X_{12} – Transport access
TRM	= X_{13} – Tranport mode
SSEV	= X_{14} – Social services
HTN	= X_{15} – HOUSING TENURE
FME	= X_{16} – Farming experience

Results

OLogit and Oprobit of Impact of NAPEP Programme

The estimation was performed in two ways: first, where the respondents are aware of the program (NAPEP) and secondly, where the data is not restricted by whether the respondents are aware of the programme or not.

Case I: Where the respondents are aware of the programme.

In this the total number of observations are 297 respondents.

The estimated result of the ordered logit indicate that being an unemployed respondents increases the log odd of dissatisfaction with NAPEP programme higher by about 1.03 unit compared to a farmer. This revealed that if a respondent is unemployed is likely to be highly dissatisfied with NAPEP programme compared to farmer. In other words, the program has impact to those respondents who were already in any employment like (farming). This shows that the NAPEP program has no impact on capacity building and unemployment.

Similarly the result of the marginal effect of occupation coefficient indicates that there is a negative and significant relationship between NAPEP overall impacts of rural poverty by about - 12.1% compared to that of employed respondents like farmer. This further revealed that, the probability of dissatisfaction with NAPEP Program of unemployed respondents is higher by about 12.1% compared to that of farmer. The finding, of this result shows that NAPEP programme has not impacted much on the poverty of the respondents,in the study area. This result is in line with works of Abbas (2016),Yakubu and Abbas (2014),Iwuoha and Obi (2012), which revealed that NAPEP programme has not impacted on the poverty of the rural populace.

Case II: where the model is estimated without considering whether the respondents is aware or not about the programme (NAPEP).

The variable (schooling) represents the education attainment of the respondents such as non-formal, primary, secondary, tertiary and none. Based on the result, the estimated coefficient indicate that a respondent that was able to obtain education up to primary school have lower log odd of being dissatisfying with the impact of NAPEP programme compared to non-formal education by about 0.75 units at 1% level of significant. This implies that if a respondent has obtained education up to primary school the chances of being satisfied with NAPEP programme in reducing poverty is minimum.

Table 4.6: Estimated Ologit and Oprobit on the Overall Impact Assessment of the NAPEP Programme

VARIABLES	(1) ologit1	(2) margins1	(3) ologit2	(4) margins2	(5) oprobit1	(6) Margins3	(7) oprobit2	(8) Margins4
Gender	-0.345	0.0502	-0.0584	0.00886	-0.185	0.0475	-0.0306	0.00830
	(0.337)	(0.0492)	(0.202)	(0.0307)	(0.192)	(0.0494)	(0.120)	(0.0325)
Age	0.0139	-0.00202	0.0132*	-0.00200*	0.00846	-0.00218	0.00775*	-0.00210*
	(0.0126)	(0.00184)	(0.00758)	(0.00115)	(0.00732)	(0.00188)	(0.00445)	(0.00121)
marital_status	-0.162	0.0236	0.0804	-0.0122	-0.103	0.0266	0.0457	-0.0124
	(0.264)	(0.0384)	(0.168)	(0.0255)	(0.141)	(0.0362)	(0.0976)	(0.0265)
2.primary	-0.455	0.0659	-0.749***	0.114**	-0.212	0.0542	-0.401**	0.110**
	(0.469)	(0.0701)	(0.273)	(0.0457)	(0.266)	(0.0685)	(0.160)	(0.0469)
3.secondary	-0.287	0.0394	-0.493**	0.0694**	-0.161	0.0400	-0.249*	0.0644*
	(0.392)	(0.0519)	(0.224)	(0.0316)	(0.229)	(0.0553)	(0.132)	(0.0341)
4.tertiary	-0.262	0.0358	-0.599**	0.0870**	-0.127	0.0312	-0.329**	0.0877**
	(0.410)	(0.0539)	(0.256)	(0.0380)	(0.237)	(0.0567)	(0.154)	(0.0421)
5.none	0.201	-0.0235	-0.180	0.0229	0.180	-0.0379	-0.0811	0.0194
	(0.569)	(0.0648)	(0.224)	(0.0289)	(0.331)	(0.0675)	(0.129)	(0.0311)
household_head	-0.0511	0.00743	-0.137	0.0207	-0.0747	0.0192	-0.0597	0.0162
	(0.523)	(0.0761)	(0.285)	(0.0432)	(0.292)	(0.0750)	(0.169)	(0.0457)
2.civil servant	0.0365	-0.00586	-0.188	0.0296	-0.00313	0.000889	-0.129	0.0365
	(0.342)	(0.0551)	(0.227)	(0.0361)	(0.196)	(0.0556)	(0.137)	(0.0393)
3.trader	0.297	-0.0441	-0.237	0.0377	0.237	-0.0609	-0.121	0.0341
	(0.391)	(0.0574)	(0.219)	(0.0356)	(0.219)	(0.0554)	(0.128)	(0.0366)
4.others	-0.119	0.0199	-0.0730	0.0111	-0.0527	0.0153	-0.0346	0.00948
	(0.637)	(0.109)	(0.443)	(0.0688)	(0.395)	(0.116)	(0.261)	(0.0722)
5.not employed	1.029**	-0.121**	0.331	-0.0449	0.640**	-0.134**	0.222	-0.0545
	(0.463)	(0.0535)	(0.244)	(0.0324)	(0.259)	(0.0528)	(0.144)	(0.0345)
Dependents	0.00184	-0.000267	-0.0124	0.00188	0.000444	-0.000114	-0.00745	0.00202
	(0.0279)	(0.00407)	(0.0177)	(0.00269)	(0.0157)	(0.00404)	(0.0103)	(0.00280)
income_threshold	-1.77e-06	2.57e-07	-3.61e-07	5.47e-08	-8.80e-07	2.26e-07	-1.00e-07	2.72e-08
	(2.30e-06)	(3.35e-07)	(1.87e-06)	(2.83e-07)	(1.35e-06)	(3.48e-07)	(1.11e-06)	(3.01e-07)
o.napep_awareness	-	-			-	-		
napep_awareness			-0.541***	0.0820***			-0.275***	0.0746***
			(0.161)	(0.0242)			(0.0953)	(0.0257)
Constant cut1	-1.629**		-1.824***		-0.970**		-0.990***	
	(0.732)		(0.427)		(0.421)		(0.251)	
Constant cut2	0.158		-0.752*		0.112		-0.357	
	(0.727)		(0.423)		(0.419)		(0.250)	
Constant cut3	1.693**		0.474		1.028**		0.384	
	(0.734)		(0.420)		(0.420)		(0.248)	
Constant cut4	3.097***		1.702***		1.762***		1.089***	
	(0.769)		(0.426)		(0.432)		(0.250)	
Observations	297	297	684	684	297	297	684	684

Note Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Source: Author's estimates usingstata 13.0 (2017).

Similarly, the result further shows that respondents with level of education up to secondary school have lower log odd of being dissatisfied with NAPEP programme by about 0.49 units compared to those respondent in the category of primary education at 5% level of significant. This implies that if respondents attended school up to secondary level the satisfaction of NAPEP programme is lower when compare with those who attended primary school only. Also, the results further revealed that a respondent with education up to tertiary level has a lower log odd of being dissatisfied with NAPEP programme by about 0.59 units compare to those respondents who possess secondary education at 5% significant level. This shows that those who secured education up to tertiary level have higher chance of getting employment than those in the other categories of education, therefore, are not easily stricken by poverty. This further shows that the level of education obtained by respondents is inversely related to the impact of NAPEP programme on rural poverty in the study area.

The result of the estimate of marginal effect of this variable (education) is found to be statistically significant at 5% level for categories of this variable. The discrete effect of education indicates that a respondent who attended school level up to primary has higher probability of being impacted by NAPEP programme by about 11.4% when compared to those respondents who are in category of non-formal education. Similarly, the marginal effect of respondents with secondary education has lower probability of being dissatisfied with NAPEP programme by about 6.9% when compared with those respondents with non- formal education. Likewise, the marginal effect of respondents with tertiary education has a higher probability of being dissatisfied with NAPEP programme by about 8.7%

when compared with the respondents with secondary education. This shows that the higher the level of education the lower the impact of NAPEP programme, this is attributed to the important role education play in fighting poverty. This finding is in line with study of Adama and Kenneth (2015).

On NAPEP awareness, the estimate coefficient of this variable indicates that the respondents that are aware of NAPEP have lower log odd of being dissatisfied with impact of the program by about 0.54 units compare to otherwise. This implies that even if a respondent was aware of NAPEP, the impact of the programme is minimal. This further shows that, the programme has failed to address the menace of poverty in the study area and indicates the failure of NAPEP programme in achieving its function of eradicating poverty. This study corroborate with work ofAbbas (2016), Iwuoha and Obi (2012), Yakubu and Abbas (2014) which revealed that NAPEP program has not impacted on the poverty of the rural populace.

The estimated of the discrete effect of this variable indicates that the respondents that were able to be aware of the NAPEP programme have lower probability of being impacted by about 8.2% compared to otherwise. This further indicates that being aware of the NAPEP programme does not implied increasing the probability of the impact of the programme on the rural poverty in the study area.

Conclusion and Recommendation
Poverty has always been a major socioeconomic problem in many societies. This study investigated the determinant of rural poverty in Kano state and the role of NAPEP in combating this socioeconomic menace. Moreover the study identified the socioeconomic characteristics of rural households in Kano state, which may directly or indirectly impact on their living

standard. From the analysis of results the study concluded that, most of the rural poor are not even aware of NAPEP program for the simple reason that the program does not benefit them in a known way. By extension therefore, the programme does not significantly improve their living conditions.

It is also concluded that politization of NAPEP, ineffective implementation and poor funding are the major reasons for its poor performance. Moreover the impact NAPEP manifests mostly in male civil servants who have attained a considerable level of education at young age. Additionally, the study concluded that default on loan; unemployment and poor access to transportation fertilities exacerbate the level of poverty in the rural areas of Kano state. However, provision of jobs, goods transportation facilities particularly roads and reviewing the land ownership system in the areas would help in reducing the level of poverty in the areas, particularly that most of the dwelers are farmers.

Given the findings of this study, the following recommendations can be suggested:

1. Since majority of the respondents were not aware of the programme concerned stakeholders should amplify the awareness campaign on the program through radio, pictures and drama using the local language.
2. Both the male and female genders should be involved in the decision making process on the programme policy formulation.
3. The government and private organizations as wells as NGOs should increase their efforts of access to free education to both males and females in order to increase the programme awareness.
4. The government should increase investment in the programme and follow it up with a stringent supervision and monitoring to ensure its effectiveness.
5. The program should extend to creating good road networks for cars, tricycle and motorcycle loans should be made available to the rural dwellers in order to reduce their poverty.

Therefore, implementation of the above mentioned recommendations will undoubtedly go a long way in improving the standard of living of the rural populace and consequently reduce the incidence of poverty to a very low level in Kano State, Nigeria.

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Mandatory IFRS Adoption and Real Earnings Management of Deposit Money Banks in Nigeria

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Abstract

Real earnings management can be influenced by change in financial reporting framework, such as mandatory IFRS adoption. This study examines the effect of mandatory IFRS adoption on real earnings management of Deposit Money Banks (DMBs) in Nigeria using difference-in-difference (D-in-D) design.Panel data regression analysis based on the D-in-D model is used in analysing the data collected fromsecondary sources. The findings of this study based on the difference-in-differences approach are thatthere is no significant effect of mandatory IFRS adoption on real earnings management of DMBs in Nigeria, although, there is an increase in the real earnings management after the mandatory adoption.The difference in the real earnings management of mandatory adopting banks in the post-mandatory IFRS adoption period compared to pre-mandatory IFRS adoption period is not significant.The study recommends thatto reduce accrual-based and real earnings management after mandatory adoption of IFRS by mandatory adopting banks, Financial Reporting Council of Nigeria (FRC) should increase legal enforcement of IFRS, backed by Section 64 of the FRC of Nigeria Act 2011 as it is obvious by the findings of this study that management of DMBs still engage in manipulating earnings through discretionary accruals and abnormal real costs.

Keywords: Mandatory IFRS Adoption, Real Earnings Management, Quality of Financial Reporting, Difference-in-Differences

JEL Codes: M4, M42, M48

Introduction

A number of business failures were experienced globally in the recent past. These businesses were mostly companies that were quoted on stock exchanges and regulated by the relevant statutory authorities. A few cases were the failures of Enron and WorldCom in the United States of America, Parmalat in Italy, and Allied Irish Bank (AIB) and National Irish Bank (NIB) in the Ireland since 2001(Ebert & Griffin, 2009). In Nigeria, the cases of Cadbury (Nigeria) Plc overstating its accounts of 2002 to 2005, and failed banks of 1994 and 2008/2009 are examples. Different factors were responsible for these corporate failures but the prominent amongst them were bad corporate governance framework and inadequate institutional framework, which

includes inadequate framework for financial reporting (Dibra, 2016; Moxey & Berendt, 2008).

More often, regulations and reform in financial reporting are implemented after well-publicised corporate scandal (Haslam & Chow, 2016). For instance, the number of corporate scandals that took place in the United States between 2000 and 2001 through creative accounting practices eroded trust in financial reports, thereby giving way for the promulgation of Sarbanes-Oxley Act in 2002 with the main aim of restoring the integrity of financial reporting (Cohen, Dey, & Lys, 2008). The global financial crisis of 2007/2008 has shown how incredibly weak the checks and balances in the public capital markets can be, leading to several financial reporting regulations by International Accounting Standards Board (Hoogervorst, 2012). Another reason for financial reporting reform is the globalisation of contemporary financial markets where cross-border listing takes place. Hoogervorst (2012) affirms that one of the main reasons for the IFRS adoption by different countries – developed and emerging, is the global interconnectivity of modern financial markets.

In Nigeria, the banking reform championed by the Nigerian apex bank, Central Bank of Nigeria (CBN) in the mid-2009 included accounting reform in a policy statement. The reform issues were that all banks and their subsidiaries must change and adopt common financial year end for the year 2009 and beyond to enhance comparability (Central Bank of Nigeria, 2009), and all banks should adopt IFRS by the end of 2010 (Alford, 2010). This was followed by the announcement in 2010 of the Roadmap to the Adoption of IFRS in Nigeria.

The main objective of IASB is to develop a globally acceptable set of financial reporting standards, which is of high quality called IFRS. The expectation here is that the adoption of IFRS should enhance the quality of financial reporting by reducing earnings management (Barth, Landsman, & Lang, 2008). The anticipated outcome of financial reporting reform, especially the adoption of IFRS by different countries – developed and emerging has sparked-off different research on the effect of the adoption of IFRS on the desired outcome, basically earnings management.

This study focuses on the Nigerian situation, therefore, the review of Nigerian empirical studies on the effect of IFRS adoption on earnings management (Adzis, 2012; Dang, Zubairu, & Ame, 2018; Hassan, 2015; Iyoha, 2011; Nnadi, n.d.; Nnadi & Nwobu, 2016; Onalo, Lizam, & Kaseri, 2014; Onalo, Lizam, Kaseri, & Innocent, 2014; Ozili, 2015; Tanko, 2012) reveals some gaps. Firstly, most of the studies on earnings management focus on accrual-based earnings management (absolute discretionary accruals) as a metric for earnings management. Whereas several metrics for earnings management exist, such as real earnings management, income smoothing, small positive earnings, accrual ratio, loan loss provision, managing earnings towards a target, etc. However, all the metrics with the exception of real earnings management are accrual-based that have been examined in previous studies in Nigeria. It is established by prior studies on earnings management that before the adoption of IFRS, accrual-based earnings management increases and same decreases after IFRS adoption. Whereas real earnings management decreases preceding the adoption of IFRS and increases after the adoption of IFRS (Doukakis, 2014; Halabi, 2016; Halabi & Zakaria, 2016). Secondly, most of the Nigerian studies consider only the quoted Deposit Money Banks (DMBs). Whereas all banks are considered as public interest entities by

virtue of the provision of Section 77 of the Financial Reporting Council of Nigeria (FRC) Act 2011. Lastly, the review reveals the non-use of difference-in-differences (D-in-D) research design. Current studies on the effects of IFRS adoption on real earnings management around the world adopt the use of D-in-D research design (Chen, Ng, & Tsang, 2015; Doukakis, 2014; Hong, Hung, & Lobo, 2014; Li & Yang, 2016), because of its ability to test the effect of pre- and post-IFRS adoption on real earnings management of different treatment and non-treatment (control) groups. Therefore, the use of D-in-D research design for a Nigerian study will bridge the gap in existing empirical literature in Nigeria as reviewed. However, to fill the gaps in the existing empirical literature, this study intends to examine whether mandatory adoption of IFRS has any effect on real earnings management of deposit money banks in Nigeriausing difference-in-differences design. To the best of this study's review, there is an inadequacy of literature within the real earnings management research in Nigeria. This study follows the study of Dang et al.(2018), which focuses on the effect of mandatory IFRS adoption on accrual-based earnings management in the Nigerian deposit money banks using difference-in-differences design. In the light of the above research problem, one objective and hypothesis have been developed to give direction to this study. The objective of this study is to examine the effect of mandatory IFRS adoption on real earnings management of DMBs in Nigeria and the hypothesis of the study is stated as follows:

H_0: Mandatory IFRS adoption has no significant effecton real earnings management of DMBs in Nigeria.

This study is specifically important to regulatory authorities, both primary and secondary regulators. The peculiarities in this study, that is the utilization of the difference-in-differences design, financial and non-financial data as control variables, and using real earnings management based on Roychowdhury(2006) model made this study important to push the frontier of knowledge.The remaining part of this paper comprises of literature review, methodology, results and discussions, and conclusion and recommendations. Some of these sections have subsections for clearer perspective of this study.

Literature Review

Conceptual Framework
Financial reporting standards, otherwise known as accounting standards, are a set of accounting theories that creates a framework, which ensures accounting practice complies with the requirement of conformity and uniformity(Glautier, Underdown, & Morris, 2011; Godfrey, Hodgson, Tarca, Hamilton, & Holmes, 2010; Hendriksen, 1982; Russell, 2006). Simply put, accounting standards are rules or principles that govern the manner in which specific business transactions of incorporated companies are recorded and reported to the public in corporate financial statements. Accounting standards establish and maintain a common language for communicating financial information. These standards are used by management/directors in preparing financial reports in compliance with section 335 of CAMA 2004.

In Nigeria, financial reporting standards were called Statement of Accounting Practices (SASs) prior to 2011 but are now called Financial Reporting Standards (FRSs), made up of IFRS, International Standards on Auditing (ISA), International Public Sector Accounting Standards (IPSAS), etc. The Financial Reporting Council of Nigeria (FRC) Act 2011, Section 77 defines Financial Reporting

Standards (FRS) as "accounting, auditing, actuarial and valuation standards issued by the Council under this Act." It was stated in the Report of the Committee on Roadmap to the Adoption of IFRS in Nigeria that Nigeria starts the transition process from Nigerian Generally Accepted Accounting Principles (NGAAP) to IFRS by the year 2010 with legislative changes, awareness, training, impact analysis and transition adjustments for Significant and Public Entities (SPEs). In 2011, it was expected that IFRS opening Statement of Financial Position would have been prepared by SPEs before finally preparing the first set of IFRS financial reporting by SPEs in 2012. These processes involving the SPEs are categorized by the report as Phase 1 of the roadmap (Deloitte Global Services Limited, 2013). However, DMBs are part of the SPEs and were therefore expected to mandatorily adopt to IFRS fully by 2012. The mandatory position of the IFRS adoption by 2012 was backed by the promulgation of FRC of Nigeria Act 2011.

Biddle, Hilary, and Verdi(2009) refer to quality of financial reporting as the accuracy and precision to which financial reporting delivers information about the anticipated cash flows to stock investors on the company's operations. IASB(2010) defines financial reporting quality as the attributes that meet the objectives of financial reporting and in addition meet the qualitative characteristics of financial reporting as stated in the conceptual framework. According to Mainoma and Adejola(2010), the financial reports must "present fairly" of a company's financial position, financial performance and cash flows, which is also termed as the faithful representation of the financial reports. Faithful representation is one of the fundamental qualitative characteristics as stated in IFRS Framework. However, distortion of faithful representation of financial reports that leads to lack of credibility of financial reporting is termed as earnings management.

Healy and Wahlen(1999) assert that"Earnings management occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers." Earnings can be managed through discretionary accruals (accrual-based earnings management) or through deviations from normal business activities (real earnings management). For the purpose of this study, the focus will be on real earnings management.

Real earnings management is a situation where companies could choose to manage earnings through movingaway from the normal business activities regardless of the fact that this may affect the future economic performance of the company negatively(Roychowdhury, 2006).Deviations from normal business activities can be divided into two – first, deviations from operating and investing activities, such as altering research and development costs (R&D), reducing prices to boost sales volume, increasing inventory to lower the cost of goods sold which influence earnings, and altering selling, general and administrative costs(Roychowdhury, 2006). Secondly, deviations from financing activities, which include granting stock options where earnings are below targets as compensation, engaging in debt-to-equity swap, etc.

Investors and users are interested in a high financial reporting quality information, and this quality is ascertained from having a high quality of earnings that is known as one of the most important indicators of the capital market efficiency (Herath & Albarqi, 2017). IFRS adoption contributes

to the improvement of financial reporting quality if it reduces earnings management practices. Păşcan(2015) affirms this position and reiterates that the relationship between the adoption of IFRS and earnings management is explained by Barth et al.(2008). Stating that the adoption of IFRS eliminates certain financial reporting options, thereby bringing down management discretion, decreasing the degree of earnings management practices that are opportunistic in nature and thus improving financial reporting quality.

Empircal Review

Cai, Rahman, and Courtenay (2008) examine the effect of IFRS adoption on earnings management using regression analysis. The findings show a decrease in earnings management under IFRS in countries adopting IFRS and that strong enforcement countries have less earnings management. This is not unconnected with the mandatory IFRS adoption in those strong enforcement countries.

Ta (2014) analyses the effects of IFRS adoption on earnings persistence, earnings predictability, persistence of earnings components, cash flow predictability, accruals quality, value relevance, earnings smoothness, conservatism, and timeliness using difference-in-differences design. The study finds that earnings quality has been impacted positively by the adoption of IFRS in Canada. On the contrary, Doukakis (2014) finds that mandatory adoption of IFRS has no substantial effect on both real earnings management and accrual-based earnings management after investigating the effect of mandatory IFRS adoption on both real earnings management and accrual-based earnings management using difference-in-differences design. However, there are differences in conclusions reached by these two studies on difference-in-differences design, therefore, there is a

need to confirm the effect of mandatory IFRS adoption on both accrual-based and real earnings management, considering Nigerian DMBs data. Most of the studies on earnings management focus more on the accrual-based earnings management with only a few extending to real earnings management (Cohen et al., 2008; Doukakis, 2014; Halabi, 2016; Halabi & Zakaria, 2016).

Halabi (2016) seeks to investigate how country-specific factors shape accounting quality on both accruals and real earnings management under IFRS within 23 countries between 2007 and 2010, the global financial crisis period using regression analysis. The results among others indicate that overstating earnings through accruals is less pronounced in economies with powerful investor protection, strict enforcement, and wide capital markets, and that managing earnings upward utilizing actual actions is greater in such countries under the IFRS. Further, the results show that companies engage in both types of earnings management at the same time. In a similar study, Halabi and Zakaria (2016) examine whether country-specific factors affect earnings quality using both accruals and real earnings management as proxies in 23 economies mandatorily using IFRS between 2007 to 2011 using regression analysis. The study finds that companies engage in both accruals earnings management and real earnings management as shown in earlier study. They also find that accrual-based earnings management is substantially and indirectly associated to financial reporting standards enforcement, strong investor protection, and strong capital market, while real earnings management is directly and substantially associated to the same aforementioned factors. Both studies show that accrual-based earnings management reduces after IFRS adoption and real earnings management increases after IFRS

adoption. Cohen et al. (2008) have similar conclusion, considering the effect of promulgation of Sarbanes Oxley Act (SOX) 2002 on earnings management in the United States.

Cohen et al. (2008) investigate the occurrence of both accrual-based and real earnings management practices in pre- and post-Sarbanes Oxley Act (SOX) enactment. The study documents that there has been a steady increase in accrual-based earnings management practices in the period preceding the enactment of SOX in 2002, then a substantial reduction in the accrual-based earnings management after the enactment of SOX. Conversely, there has been a reduction in real earnings management practices in the period preceding SOX enactment and substantial improvement of the real earnings practices post SOX enactment, suggesting that occurrences of earnings management by companies changed from accrual-based earnings management to real earnings management after the enactment of SOX. The four foreign studies reviewed above show similar findings, that is accrual-based earnings management increases and real earnings management decreases before tightening of financial reporting framework, such as IFRS and SOX. Alternatively, accrual-based earnings management declines and real earnings management increases after the adoption of IFRS or promulgation of SOX. Therefore, there is a need to confirm these results using the Nigerian case.

Nigerian studies on the effects of IFRS adoption on earnings management are very scanty and all the studies focus on accrual-based earnings management(Dang et al., 2018; Hassan, 2015; Iyoha, 2011; Nnadi & Nwobu, 2016; Nyor, 2012; Onalo, Lizam, & Kaseri, 2014; Onalo, Lizam, Kaseri, et al., 2014; Ozili, 2015; Tanko, 2012), therefore, there is the need to enrich the Nigerian empirical literature in order to push the frontier of knowledge in this area.

From the foregoing,majority of the studies on IFRS adoption and earnings management have focused more on accrual-based earnings management and a few studies have been carried out on the effect of IFRS adoption on real earnings management but ended up with different conclusions. Most of the studies used the Roychowdhury model to determine the real earnings management as suggested in some studies (Cohen et al., 2008; Cohen & Zarowin, 2010; Doukakis, 2014; Halabi, 2016; Halabi & Zakaria, 2016). These studies try to ascertain the substituted effect of IFRS adoption or change in financial reporting reform on both accrual-based earnings management and real earnings management. Dang et al.(2018) find no significant effect of mandatory IFRS adoption on accrual-based earnings management in the Nigerian deposit money banks using difference-in-differences design. Similarly, this current study, using similar data intends to examine the effect of mandatory IFRS adoption on real earnings management in the Nigerian deposit money banks using the D-in-D design. However, it is expected that after the adoption of IFRS or any financial reporting reform, accrual-based earnings management reduces and real earnings management increases, as the reverse outcome is expected prior to the IFRS adoption or financial reporting reform. Contrary to expectation, Dang et al.(2018) show insignificant increase in accrual-based earnings management of mandatory adopting banks in Nigeria after the mandatory IFRS adoption. However, there is the need to test the outcome of the same data on real earnings management based on Roychowdhury model.

Theoretical Framework
There are different assumptions, motivations and philosophies explaining

the adoption of IFRS by countries, encapsulated as theories influencing IFRS adoption by this study. Several theories influence the adoption of IFRS by countries but the one adopted by this study is discussed here,that is the Decision-Usefulness Theory.

Decision-Usefulness Theory was propounded in 1966 by the American Accounting Association (AAA) Committee to Prepare a Statement of Basic Accounting Theory (American Accounting Association. Committee to Prepare a Statement of Basic Accounting Theory, 1966). According to the Committee, decision usefulness of financial reporting information to users is the best postulate to use in choosing a measurement method in financial reporting.Dandago and Hassan(2013) describe Decision-usefulness Theory as an approach usually adopted to satisfy the information requirements of the primary users of the financial reports of the reporting entities, who are investors and creditors. Decision-usefulness Theory tries to build up an empirical and unbiased technique that will aid in the selection of the optimum choices of accounting measurements and disclosures by standard setting bodies. The theory affirms that good financial reporting standards are those that give the right financial reporting information that will aid users make informed decisions.

Methodology
This study uses a control sample of voluntary IFRS adopting banks and utilizes a difference-in-differences (D-in-D) design to examine the effect of mandatory IFRS adoption on real earnings management as utilized by similar studies (Chen et al., 2015; De George, 2013; den Besten et al., 2015; Doukakis, 2014; Florou et al., 2017; Hong et al., 2014; Li & Yang, 2016; Mazboudi, 2012; Ta, 2014). The difference-in-differences (D-in-D) design is a quasi-experimental research design used to understand the effect of a change in the economic environment, such as IFRS adoption for corporate economic players orgovernment policy, such as enactment of statutes (Roberts, 2009).

According to prior studies the D-in-D approach is suitable when testing the effect of a sharp change in financial reporting framework, such as mandatory IFRS adoption (Chen et al., 2015; Doukakis, 2014) or Sarbanes-Oxley Act 2002 in the US (Cohen et al., 2008) on financial reporting quality. This should have two groups of cross sections (control and treatment groups) and two time periods of before the change in financial reporting framework and after the change in financial reporting framework. Applying D-in-D to this study, DMBs will be divided into two groups; treatment group tagged mandatory adopting banks and control group tagged voluntary adopting banks (see Appendix A). Whereas, IFRS adoption periods will constitute 2009 to 2011 as pre-mandatory IFRS adoption period and 2012 to 2016 as post-mandatory IFRS adoption period (see Appendix A).

The population of this study constitutes all listed and significant public interest entities (PIEs), other public interest entities (OIEs) and small and medium scale enterprises (SMEs) that are enumerated in the Roadmap to IFRS Adoption in Nigeria to transit and adopt to IFRS within 2010 to 2014. However, the research sample of this study consists of the companies under the significant PIEs group. DMBs are significant PIEs because they are mostly quoted on the floor of the Nigerian Stock Exchange (NSE) and are all regulated by CBN. Therefore, they were all expected to fully mandatorily adopt IFRS by 2012 reporting year. The sample is arrived at after applying

purposive sampling technique (Kothari, 2004). Considering data availability requirement, the study arrives at the final test sample size of 128 bank-year observations (16 Banks and 8 years sample period). This is made up of 48 observations in the pre-mandatory IFRS adoption period and 80 observations in the post-mandatory IFRS adoption period. The type of data for this study will be panel data on deposit money banks for the sample period of 2009-2016. These data are financial reporting data obtained from secondary sources, which are published internal and external documents on DMBs financial reporting system. The internally published documents are annual report and accounts of DMBs and other related information from the banks. The external documents include NSE Fact Book. The reputation and recognitions of both internal and external secondary sources (organizations) enhance the reliability and suitability of the data obtained for this study.

Real earnings management metric is less prevalent in the accounting literature until recently. It is defined as managerial actions not consistent with normal business practices undertaken with a view to manipulate earnings (Roychowdhury, 2006). Some of the examples of real earnings management activities include managerial discretionary expenses and activities, such as R&D, share repurchases, sale of profitable assets, sales price reductions, interest rates reductions in banks, derivative hedging, debt-equity swaps and securitization (Zang, 2012).

Following prior studies (Cohen et al., 2008; Cohen & Zarowin, 2010; Doukakis, 2014; Halabi, 2016; Halabi & Zakaria, 2016; Roychowdhury, 2006; Zang, 2012; Zhao, Chen, Zhang, & Davis, 2012), this study adopts Roychowdhury 3 models of real earnings management, namely production costs or costs of revenue for service industry, cash flow from operations and discretionary expenses (Roychowdhury, 2006). The aggregate of the three models as specified below make up total real earnings management after ascertaining the abnormal cost of revenue, cash flow from operations and discretionary expenses.

$$RC_{it}/Assets_{it-1} = a_0 + \beta_1\, 1/Assets_{it-1} + \beta_2\, Rev_{it}/Assets_{it-1} + \beta_3\, \Delta Rev_{it}/Assets_{it-1} + \beta_4\, \Delta Rev_{it-1}/Assets_{it-1} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots..1$$

$$CFO_{it}/Assets_{it-1} = a_0 + \beta_1\, 1/Assets_{it-1} + \beta_2\, Rev_{it}/Assets_{it-1} + \beta_3\, \Delta Rev_{it}/Assets_{it-1} + \varepsilon_{it}\, .2$$

$$DISX_{it}/Assets_{it-1} = a_0 + \beta_1\, 1/Assets_{it-1} + \beta_2\, Rev_{it-1}/Assets_{it-1} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots..3$$

Where RC_{it} = costs of revenue, defined as the sum of interest expense and the change in loans and advances from year t-1 to year t; CFO_{it} = cash flows from operations taken from the statement of cash flows; $DISX_{it}$ = discretionary expenses defined as selling, general and administrative expenses for year t. All other variables are as previously defined. The abnormal costs of revenue (*ABN_RC*), abnormal cash flows from operations (*ABN_CFO*), and abnormal discretionary expenses (*ABN_DISX*) expected to capture real earnings management are computed as the difference between the actual values and the normal levels predicted by equations (1), (2), and (3).

$REAL_{it}$ represents real earnings management for bank i in year t in the model specified in equation 4. The first variable of interest of this study is MANDATORY, a dichotomous variable that takes the value of 1 for banks that did not apply IFRS until compliance became mandatory in 2012. The second variable of interest is POST, a dichotomous variable that equals 1 for observations from 2012. Lastly, the most important variable of interest that is expected to capture any

incremental change in financial reporting quality for mandatory IFRS adopting banks is MANDATORY*POST, which is the interaction term in the models.

However, prior studies (Huifa Chen & Lin, 2010; Cohen et al., 2008; Cohen & Zarowin, 2010; den Besten et al., 2015; Doukakis, 2014; Halabi, 2016; Halabi & Zakaria, 2016) document that real earnings management is affected by factors such as return on equity (ROE), revenue (REV), deposit liabilities (DEP), non-performing loans (NPL), bank size (SIZE), leverage (LEV), interest coverage (COV), big 4 auditing firms (BIG4), going concern statement, (GOING), foreign direct investment (FDI) and economic growth (ECO). These factors are the financial and non-financial control variables, which are firm-level and country-level attributes to be included in the model. The model to be tested for the hypothesis stated earlier is specified here based on the D-in-D design. These model

is specified in equation 3 and the variables are defined in Appendix B

$$REAL_{it}=\beta_0 \ +\beta_1 MANDATORY_{it}+\beta_2 POST_{it} \\ +\beta_3 MANDATORY_t \ *POST_{it} \ +\beta_4 ROE_{it} \\ +\beta_5 REV_{it}+\beta_6 DEP_{it}+\beta_7 LLP_{it}+\beta_8 SIZE_{it}+\beta_9 \\ LEV_{it}+\beta_{10}COV_{it}+\beta_{11}BIG4_{it}+\beta_{12}GOING_{it} \\ +\beta_{13}FDI_{it}+\beta_{14}ECO_{it} +\varepsilon_{it} ....(4)$$

Result

Table 1 presents the descriptive statistics of the model variables and their statistical differences between pre-mandatory IFRS adoption period and post-mandatory IFRS adoption period. Panel A in table 1 presents the descriptive statistics of voluntary adopting banks, being the control group of the D-in-D design. In panel A in table 1, the means of the dependent variable, real earnings management is not significantly different across the pre-mandatory IFRS adoption period and post-mandatory IFRS adoption period.

Table 1: Descriptive Statistics

Panel A: Descriptive Statistics of Voluntary Adopting Banks

Variable	Pre-Mandatory Adoption			Post-Mandatory Adoption			Group Difference		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Mean Diff	t-statistics	p-value
real	12	0.1651	0.2635	20	0.0474	0.1	0.1177	1.4843	0.1617
roe	12	0.14	0.0768	20	0.2055	0.0956	-0.0655	-2.1273	0.0426
rev	12	0.1892	0.2628	20	0.216	0.1503	-0.0268	-0.3234	0.7508
dep	12	0.9233	0.2034	20	0.9195	0.1549	0.0038	0.0562	0.9558
llp	12	0.9658	0.6032	20	1.4555	2.4366	-0.4897	-0.8561	0.4009
size	12	8.3733	0.2414	20	8.572	0.2508	-0.1987	-2.2208	0.0360
lev	12	0.0358	0.0294	20	0.071	0.0459	-0.0352	-2.6424	0.0130
cov	12	4.405	1.3354	20	3.878	1.2104	0.527	1.1188	0.2756
big4	12	1	0	20	1	0	0	-	-
going	12	0	0	20	0.35	0.4894	-0.35	-3.1986	0.0047
fdi	12	0.1567	0.0098	20	0.226	0.0704	-0.0693	-4.3362	0.0003
eco	12	4.7333	0.0261	20	4.816	0.023	-0.0827	-9.0688	0.0000

	Panel B: Descriptive Statistics of Mandatory Adopting Banks								
	Pre-Mandatory Adoption			Post-Mandatory Adoption			Group Difference		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Mean Diff	t-statistics	p-value
real	36	0.0667	0.2896	60	-0.0884	0.142	0.1551	3.0025	0.0043
roe	36	-0.0028	0.6175	60	0.0445	0.5531	-0.0473	-0.3774	0.7070
rev	36	0.3461	1.775	60	0.1357	0.2458	0.2104	0.7073	0.4840
dep	36	1.0664	0.2478	60	0.9685	0.2194	0.0979	1.9548	0.0548
llp	36	1.2553	2.5805	59	0.8532	1.1627	0.4021	0.8818	0.3827
size	36	7.8822	0.3807	60	7.8335	0.4034	0.0487	0.5936	0.5545
lev	36	0.1125	0.2575	60	0.073	0.0476	0.0395	0.9111	0.3682
cov	36	4.2953	2.3886	59	3.7053	1.4287	0.59	1.3428	0.1853
big4	36	0.9167	0.2803	60	0.9167	0.2787	0	0.0000	1.0000
going	36	0	0	60	0	0	0	-	-
fdi	36	0.1567	0.0096	60	0.226	0.0692	-0.0693	-7.6441	0.0000
eco	36	4.7333	0.0253	60	4.816	0.0226	-0.0827	-16.1133	0.0000

Source: Authors' Computation using STATA (2018)

In panel B of table 1, the dependent variable, real earnings managementpresents a significant difference in their means between the pre-mandatory IFRS adoption period and post-mandatory IFRS adoption period. This means that mandatory IFRS adoption by these bank haschanged the banks real earning management quality of financial reporting when comparing their means.

Table 2 reports the results of the D-in-D regression model for mandatory IFRS adoption and real earnings management in the Nigerian DMBs. The D-in-D regression model in Table 2 is fitted at 0.01 level of significance. The model tests the hypothesis (H_{01}) for this study. In Table 2, the coefficient of MANDATORY*POST is positive and not significant at 0.05 level of significance. This suggests an insignificant increase in real earnings management for mandatory adopting banks from the pre-mandatory IFRS adoption period to post-mandatory IFRS adoption period. Table 2 also shows that there is aninsignificant and positive difference between pre-mandatory adoption period and post-mandatory adoption period for real earnings management with POST p-value of 0.261.

To test the hypothesis (H_0), the p-value of the test variable MANDATORY*POST in Table 2 is utilized. The p-value of the interactive term (MANDATORY*POST) is 0.996 at 0.05 level of significance, therefore, the null hypothesis (H_{01}) is not rejected. Meaning that mandatory IFRS adoption has no significant effect on real earnings management quality of financial reporting of DMBs in Nigeria. The positive direction of the relationship is in line with*a priory* expectation.

Table 2: D-in-D Regression Results

Panel A: D-in-D Regression Model

Random-effects GLS regression			Number of obs		=	127
Group variable: banknum			Number of obs group	=		16
R-sq:	within =	0.3729	Obs per group:		min =	7
	between=	0.7727			avg =	7.9
	overall =	0.4286			max =	8
				Wald chi2 (14)	=	83.99
corr(u_i, X) =	0(assumed)			Prob > chi2	=	0.0000

Real	Coef.	Std. Err.	Z	P>z	[95%	Conf. Interval]
Mandatory	-0.0462	0.0647	-0.71	0.475	-0.1730	0.0806
Post	0.1002	0.0891	1.12	0.261	-0.0745	0.2750
mandatory*post	0.0005	0.0825	0.01	0.996	-0.1613	0.1622
Roe	0.0581	0.0340	1.71	0.087	-0.0084	0.1246
Rev	-0.0463	0.0340	-1.36	0.173	-0.1129	0.0203
Dep	-0.1143	0.0897	-1.27	0.202	-0.2901	0.0615
Llp	0.0167	0.0094	1.77	0.076	-0.0018	0.0352
Size	0.0311	0.0529	0.59	0.557	-0.0727	0.1348
Lev	-0.0368	0.2260	-0.16	0.871	-0.4799	0.4062
Cov	-0.0026	0.0104	-0.25	0.801	-0.0230	0.0177
big4	0.0877	0.0718	1.22	0.222	-0.0531	0.2284
Going	0.0999	0.0867	1.15	0.249	-0.0701	0.2699
Fdi	0.3104	0.3492	0.89	0.374	-0.3739	0.9947
Eco	-3.5306	0.7585	-4.65	0.000	-5.0171	-2.0440
_cons	16.5827	3.5389	4.69	0.000	9.6466	23.5187

sigma_u	0		
sigma_e	0.180015		
Rho	0	(fraction of variance due to u_i)	

Source: Authors' Computation using STATA (2018)

This finding is consistent with the findings of some prior studies (Doukakis, 2014; Halabi, 2016) and inconsistent with the findings of some other prior studies (Cohen et al., 2008; Cohen & Zarowin, 2010; Halabi & Zakaria, 2016). Considering the expected substituted effect of mandatory IFRS adoption on accrual-based earnings management and real earnings management, this study,

which follows the study of Dang et al (2018), finds that real earnings management increases after mandatory IFRS adoption but is not significant. This contradicts the expected substituted effect, where, using similar data the findings of Dang et al (2018) also show increase in accrual-based earnings management after the mandatory IFRS adoption in the Nigerian deposit money banks.

Conclusion and Recommendations

It is established in this study that mandatory IFRS adoption has no effect on the real earnings management quality of financial reporting of DMBs in Nigeria. The difference in the real earnings management of mandatory adopting banks in the post-mandatory IFRS adoption period compared to pre-mandatory IFRS adoption period is not significant. The implication of this conclusion is that the mandatory IFRS adoption in 2012 increases real earnings management of mandatory adopting banks relatively to the voluntary adopting banks, but the increase is not statistically significant. It is established in prior literature (Cohen et al., 2008; Halabi, 2016; Halabi & Zakaria, 2016) that accrual-based earnings management decreases after a change in financial reporting framework and real earnings management increases after a change in financial reporting framework, such as mandatory IFRS adoption, Sarbanes-Oxley Act 2002, etc. Ineffective legal enforcement and monitoring by the FRC could be a possible reason for the statistically insignificant results exhibited here. Legal enforcement and monitoring of IFRS adoption is not statistically tested here to incorporate its effect on real earnings management. Mandatory IFRS adoption does not come with enforcement mechanisms and it may not really represent the mandatory adopter' inherent preference, and so that may hinder the incentives to improve financial reporting quality (Ernst and Young, 2006)

To enable the study achieve its significance, the following recommendations arising from the findings and conclusions are provided.

1. To reduce accrual-based and real earnings management after mandatory adoption of IFRS by mandatory adopting banks, FRC should increase legal enforcement of IFRS, backed by Section 64 of the FRC of Nigeria Act 2011 as it is obvious by the findings of this study that management of DMBs still engage in manipulating earnings through discretionary accruals and abnormal real costs.

2. Regulatory authorities, such as FRC and CBN should employ accrual-based earnings management Modified Jones model and the Roychowdhury abnormal models to evaluate the improvement of the mandatory IFRS adoption on accrual-based earnings management and real earnings management respectively. These may improve their monitoring and evaluation mechanisms as required in Sections 52 and 58 of FRC of Nigeria Act 2011 and Sections 32 to 34 of the Banks and Other Financial Institutions Act (BOFIA) 2004.

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Appendix A: Control and Treatment Groups for D-in-D

S/N	Voluntary Adopting Banks (Control Group)	Code	S/N	Mandatory Adopting Banks (Treatment Group)	Code
1	Access Bank Plc	ACCESS	1	Citibank Nigeria Limited	CITIBANK
2	Guaranty Trust Bank Plc	GTB	2	Stanbic IBTC Bank Plc	STANBIC
3	Zenith Bank Plc	ZENITH	3	Sterling Bank Plc	STERLING
4	Ecobank Nigeria Plc	ECOBANK	4	Unity Bank Plc	UNITY
			5	Wema Bank Plc	WEMA
			6	Diamond Bank Plc	DIAMOND
			7	Fidelity Bank Plc	FIDELITY
			8	First City Monument Bank Plc	FCMB
			9	First Bank of Nigeria Ltd	FBN
			10	Skye Bank Plc	SKYE
			11	Union Bank of Nigeria	UBN
			12	United Bank for Africa	UBA

Source: Authors' Compilation (2018)

Appendix B: Definition of Independent Variables

Variable	Code	Definition	Expected IFRS Effect	Source
		Test Variables:		
Mandatory Adopting Banks	MANDATORY	1 if bank did not use IFRS until it became mandatory and 0 otherwise	+	(Chen et al., 2015; Doukakis, 2014)
Pre- or Post-Mandatory Adoption Period	POST	1 for observations from 2012 and 0 otherwise	+	(Chen et al., 2015; Doukakis, 2014)

Variable	Code	Definition	Expected IFRS Effect	Source
Interaction Term	MANDATORY *POST	1 for mandatory adopting bank in the post-adoption period and 0 otherwise	+	(Chen et al., 2015; Doukakis, 2014)
		Control Variables:		
Firm-Level Attributes:				
Profitability	ROE	Return on equity	+	(Doukakis, 2014; Sarea & Al Nesuf, 2013)
	REV	Revenue growth, computed as annual % change in gross earnings	+	(Doukakis, 2014; Iyoha, 2011; Mohammed & Lode, 2015)
Liquidity	DEP	Depositors liabilities as a % of current assets	-	(Mohammed & Lode, 2015; Onalo, et al., 2014)
	NPL	Non-performing loan per share	-	(Mohammed & Lode, 2015; Onalo, et al., 2014)
Capital Structure	SIZE	Bank size as natural log of market value of equity	+	(Barth et al., 2008; den Besten et al., 2015; Devalle et al., 2010; Onalo et al., 2014; Tanko, 2012)
	LEV	Leverage as a % of fixed interest capital to total capital	-	(Barth et al., 2008; den Besten et al., 2015; Tanko, 2012)

Variable	Code	Definition	Expected IFRS Effect	Source
	COV	Interest coverage ratio	+	(Halabi, 2016; Halabi & Zakaria, 2016)
Corporate Governance	BIG4	1 if bank is audited by big 4 auditing firm and 0 otherwise	+	(Beest, Braam, & Boelens, 2009; Rad & Embong, 2013; Vrentzou, 2011)
	GOING	1 if bank's financial report has going concern statement and 0 otherwise	+	(Beest et al., 2009; Braam & Beest, 2013; Mbobo & Ekpo, 2016)
Country-Level Attributes:				
Globalisation	FDI	Foreign direct investment as a % RGDP	+	(Okpala, 2012; Saidu & Dauda, 2014)
Economic Growth	ECO	Natural log of RGDP	+	(Alsaqqa & Sawan, 2013; Okpala, 2012)

Source: Authors' compilation (2018)

Key Success Factors of Entrepreneurial Development Programmesand Performance of Micro Enterprises

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Abstract

Entrepreneurship development programmes (EDPs) play important roles in wealth creation and employment generation. Despite these relevance, previous studies on entrepreneurship development programmes were largely qualitative as well as on small and medium enterprises, thus disregarding studies on micro enterprises. This is in spite of the fact that micro enterprise comprises the largest proportion of business firms in Nigeria and Bauchi state in general. The aim of this paper is to examine the factors that help entrepreneurship development programmes contribute to the performance of micro enterprises. The study was quantitative and a sample of 26 micro firms in carpentry/furniture and wielding/fabrication were selected from Members of National Association of Small Scale Industrialists (NASSI, Bauchi branch). Multiple regression was used to analyze data collected from questionnaire administration. The study found a significant relationship between infrastructure and the performance of micro enterprises; EDP funding and the performance of micro enterprises; and entrepreneurs education level and the performance of micro enterprises. However, the study did not find any significant relationship between multiple taxation and the performance of micro enterprises. More surprisingly, there was no significant relationship between EDP capacity building and the performance of micro enterprises. The study recommends for single digit bank loan to micro enterprises as well as loan guarantee scheme by entrepreneurship development agencies. Government should design tax incentive programmes for micro enterprises. There is also need for capacity building to be targeted and tailored base on specific requirement of group of micro firms.

Introduction

Entrepreneurship development programme is a strategy adopted by both government and private agencies to promote the development of micro, small, and mediumenterprises. Of interest to this study is the growth of micro enterprises. These micro firms have significant relationship with wealth creation, employment generation and economic development (Abugu, 2009). Despite increased interest in the study of

entrepreneurship development programmes, previous studies have concentrated on evaluating the successes of the programmes and investigation small and medium firms. Most researchers misconceived that the micro cannot be studied because not only they belong to the informal sectors, but also because they are too small. As a result, most entrepreneurship development programmes targeting this sector are fragmented and therefore, difficult to achieve the objectives.

In addition, previous studies on entrepreneurship development programmes were extensively qualitative. Thus, results from empirical research are continuously crucial to help micro enterprises overcome challenges confronting them. On top of that, previous studies have been conducted in isolation and did not integrate the different elements of entrepreneurship development programmes such as funding, capacity building, and infrastructure into a single framework. Marsillac & Roh (2014) argue that the integration of constructs and concepts will lead to better performance of a system. In this regard, empirical studies to harmonize fragmented studies are crucial for entrepreneurship development programmes. Thus, the aim of this study was to assess the contribution of entrepreneurship development programmes on the performance of micro enterprises.

Literature Review

Entrepreneurship Development Programmes in Micro Enterprises

It is paramount to study entrepreneurship development programmes in micro ventures because in manyeconomies there are only few large enterprises, followed by a large number of medium and small enterprises, whereas micro businesses dominate the economic landscape of most countries. Osagie (2012) cut data from a collaborative survey conducted by Small and Medium Enterprises Development Agency (SMEDAN) and the National Bureau of Statistics (NBS), and shows that the number of Micro, Small, and Medium Enterprises (MSMEs) in Nigeria stood at 17,284,671 in 2010, with total employment in the sector put at 32,414,884. This industrial structure engages a significant proportion of the population from both rural and urban areas and thus promotes economic empowerment. The large number of micro businesses, the pressure and competition they face from small, medium and large enterprises, their contribution to economic growth, and their high rate of failure demands that this industrial structure and the industrialists be engaged in formal studies.

An entrepreneurship development programme posits that individuals can be developed to become successful entrepreneur by changing their mindset through an organized and systematic capacity building programme (Afrin, Islam, and Ahmed, 2010). According to Nawaser, Khaksar, Shakhsian, and Jahanshahi, A.A. (2012), a comprehensive approach to the promotion of entrepreneurship at a national and local level rests on two primary pillars which are interlinked: (a) Strengthening of entrepreneurial skills and (b) improvement of the entrepreneurial framework conditions.

The main objectives of an entrepreneurship development programme are to identify and train potential entrepreneurs, to develop necessary knowledge and skills among the participants, to impart basic managerial understanding and to provide post-training assistance (MIT, 2012). In line with these objectives, the Nigerian's entrepreneurship development programmes aim to provide vocational

skills development/training and advisory services; and also to facilitate and guarantee external financing to micro enterprises.

According to Aminu (2012) some of the agencies which aid entrepreneurial development in Nigeria are Central bank of Nigeria; Universities, polytechnics, and research institutions (1962); industrial development centres (1964); Raw Materials Research and Development Council (1988); small Scale Industries Credit Scheme (SSICS) (1971); National Association of Small Scale Industries (NASSI), National Directorate of Employment (NDE) (1986); National Credit Guarantee Scheme (2004); Small and Medium Enterprises Equity Investment Scheme (2001); and Small and Medium Scale Enterprise Development Agency (SMEDAN) .

In July, 2001, the national council on industries at its 13th meeting (NCI -13) in Markurdi, Benue state define micro/cottage industry as an industry with a total capital employed of not more than 1.5 million, including working capital but excluding cost of land, and or a labour size of not more than 10 workers (Ogechukwu and Latinwo, 2010). The Small and Medium enterprise Development Agency of Nigeria (SMEDAN) in 2007 defines a micro enterprise as a business with less than 10 people with an annual turnover of less than 5 million Naira and total assets, excluding land and buildings of not more than 10 million Naira.

The way entrepreneurship is being handled cause for serious attention. We are living in a culture where many thoughts entrepreneurship is for the dropout and those who have not gone to school. Where the educated are targeted, we seems to be concern about short-term Entrepreneurship development programmes is a strategy adopted by both government and private agencies to promote the growth of micro and small enterprises. The small and medium enterprises development (SMEDAN) is the sole voice of micro, small and medium enterprises (MSMEs). **The mandate of SMEDAN as contained in the enabling Act can be summarized as follows:**

i. Stimulating, monitoring and coordinating the development of the MSMEs sub-sector;

ii. Serving as vanguard for rural industrialization, poverty reduction, job creation and enhanced livelihoods;

iii. Linking MSMEs to internal and external sources of finance, appropriate technology, technical skills as well as to large enterprises;

iv. Promoting and providing access to industrial infrastructures such as layouts, incubators, industrial parks;

Working in contact with other institutions in both public and private sector to create a good enabling environment of business in general, and MSME activities in particular. There are many national and international partners, working to promote the startup and growth of businesses across sectors of the Nigerian economy. These partners are National Poverty Eradication Programme (NAPEP), Federal Ministry of Agriculture and Rural Development, Raw Materials Research and Development Council (RMRDC), Nigeria Export-Import Bank (NEXIM), Federal Ministry of Labour and Productivity, Bank of Industry (BOI), Industrial Training Fund (ITF), Nigerian Association of Chambers of Commerce, Industry, Mine and Agriculture (NACCIMA), and International Development Partners (World Bank, JICA, GTZ, DFID, ADB, UNDP, UNIDO

However, are we really getting it right considering the large number of strong but unemployed youth population?

The question is why our entrepreneurial development strategy crawling. They are face with the following challenges: Limited access to finance, poor record keeping, Lack of entrepreneurial education, lack of specific technical skills, lack of conducive environment, poor state of infrastructure, unavailability of incubator, insecurity on the road, communal clashes, youth restiveness, lack of access to market, lack of standardization of product, inadequate linkage to local & international supply chain, low access to information, lack of exit/succession plan, and unfair competition with dumped products.Despite these challenges, Nigerians are resilient and perseverance amidst bad business environment. They are motivated by a lot of factors including: the desire to become their own boss, the need to address philanthropic causes, a willingness to risk in order to gain, a drive to innovate and create new products or services, and push and pull factors.

Measure of Micro Firm's Performance
Organizational performance are measured by many criteria. In general, the literature suggests that organizational performance is commonly measured in terms of effectiveness, efficiency, growth and productivity. Montanari, Morgan and Bracker (1990) suggested that organizational effectiveness may be measured in terms of financial measures, operational measures as well as behavioural measures. Financial measures such as profitability and growth can be used to assess the financial performance of an organization. Secondly, the operational measures such as productivity, resource acquisition, and efficiency and employee reaction can be adopted to assess the effectiveness of the work flow as well as work support in organizations. Third, behavioural effectiveness measures such as adaptability, satisfaction, absence of strain, development and open communication can be adopted to determine individual performance.

Theoretical and research Framework
This study is grounded on theory of entrepreneurship development proposed by Kittim, Arvola, and Venesaar (2011). Kittim, Arvola, and Venesaar(2011)shows that entrepreneurial training incorporates the theory of whether entrepreneurs are born or made, and also the theory of achievement and locus of control. Sanderock (2001) argues that entrepreneurship can be taught, but it must be relative to the economic environment of the proposed knowledge application. Krishnaveni, and Sripirabaa, (2008) maintain that effective capacity building programs tend to be comprehensive, customized, and competence-based. From a more balance viewpoint, Streeter et al (2002) reasons that although entrepreneurship can be taught, such education should reflect the essential tools and commercial processes allied with the core entrepreneurial activities associated with the venture. These theories are used to explain relationships in the research framework on figure 1.

Figure 1: Research Framework of the Study
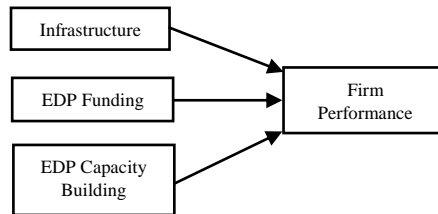
Hypotheses Development

Relationship between infrastructure and firm performance
Conducive business environment provides strong incentives for micro firms to grow and take advantage of opportunities, be innovative, entrepreneurial, and productive. However, in Nigeria,

dysfunctional physical infrastructure such as epileptic electric power outages and high costs of electricity affect the operations of micro carpentry and wielding businesses (Love, Irani, and Edwards, 2004; Kuratko, 2003; Sagagi, 2005; Sanni, 2009). These problems directly increases the expenses of running micro firms (Akinlua, and Akintunde, **2008;**Gnanadhas, Venkateswaran, and Rathiha, 2008; Puhakka, 2012).

Thirty percent of Nigerians businesses not being competitive are based on infrastructure. Insufficient supply of electricity to results in a shrinking industrial base (Hezekiah and Agbool, 2011; Ismail and Guilia, 2010).Hezekiah and Agboola (2011) study showed that if the power problem is removed, Nigeria will at least gain 30% competitiveness in production. In fact power generation through generators increase production cost of Nigerian manufacturers' (Okafor and Mordi, 2010). Based on the arguments and theories of locus of control and achievement, the following hypothesis is proposed:

H1: There is a relationship between infrastructure and the performance of micro enterprises

Relationship between EDP funding and firm performance
An efficient financial system allocates financial resources quickly and cheaply for productive uses. Access to finance, and to a lesser extent the cost of finance, are perceived by Nigerian firms as primary constraints to innovation (Ismail and Guilia, 2000). The challenge of weak access is further aggravated for micro businesses. Access to finance seems to be more of a problem in less industrialized states (60 percent) compared to more industrialized (49 percent) in Nigeria. For example, 77 percent of the firms in Bauchi perceive accessibility to finance as a major constraint. It is striking to note that the

formal financial sector—banks and other financial institutions—are only utilized by 1 percent of Nigerian businesses. Nigerian entrepreneurs rely predominantly on internal funds and retained earnings (70 percent) as well as on purchases on credit from suppliers and advances from customers (25 percent) (Ismail and Guilia, 2000). Based on the argument and theory of achievement and locus of control, the following hypothesis is proposed:

H2: There is a relationship between EDP funding and the performance of micro enterprises

Relationship between EDP capacity building and firm performance
The real wealth of a nation is its entrepreneurs and if they have education and technical skills, they can take over the global markets. Capacity building changes the skills and behaviours of micro owners (Gómez-Haro, Aragón-Correa, Cordón-Pozo, 2011). Entrepreneurship development is hinged around three critical areas of capacity building such as creation of programmes, seminars and trainings which provide skills and competences of starting and running a business (Osalor, 2009). Many of the micro entrepreneurs are have little formal education (Sanni, 2009). This makes it difficult for them to grasp the basic methods and technology necessary to manage enterprises successfully as well as seize business opportunities that could lead to growth and expansion. There is also a brain drain in micro business sector because technically proficient individual seek employment and venture opportunities in white collar public and private enterprises (Osalor, 2009). Based on the argument and theory of whether entrepreneurs are born or made, the following hypothesis is proposed:

H3: There is a relationship between capacity building and the performance of micro enterprises.

Methodology

A cross-sectional survey research design was adopted for this study. The population of the study comprised of 51 micro enterprises involved in carpentry/furniture and wielding/fabrication in Bauchi State of Nigeria. The list was obtain from the database of the Nigerian Association of Small Scale Industrialists (NASSI). Stratified and simple random sampling were used to select the firms that participated in the study. Data were analyze through multiple regression. Thedependent variable of the study was firms' performance. Firm's performance was measured by five (5) items such as sales, profitability, efficiency,

effectiveness and growth. While the independents variables were infrastructure, EDP funding was measured by bank loan and adequate capital; while EDP capacity building was measured by training and new improved equipment, willingness to pay and participate in training, training and customer survey, application of training skills, training environment, and insightful training programme.

Results

Organization data of the study is depicted below:

Table 1: Organizational Data

Descriptive Statistics		
Variables	Frequency	Per cent
Types of business		
Carpentry/Furniture	13	54.2
Wielding/Fabrication	11	45.8
Number of years in Business		
1-4 Years	4	16.7
5-8 Years	4	16.7
9-13 Years	8	33.3
14 years and over	8	33.8
Educational Qualification of the Business Owner		
Primary School Certificate	2	8.3
Senior School Certificate	16	62.5
Diploma/NCE	6	25.0
Degree/HND	1	4.2
Number of Workers in Organization		
1-5 Workers	3	12.5
6-10 Workers	12	50.0
10 Workers and above	9	37.5
Sources of Business Ideas		
Family	7	29.2
Customers	3	12.5
Training Institutions	10	41.7
Friends	4	16.7
Competitors	0	0

The questionnaire indicated a high reliability of .764 for the 14 constructs of the questionnaire. This is supported by the work of Hinton, Brownlow, McMurry, and Cozens (2004) who point that 0.70 to

0.90 shows high reliability. The overall reliability of the construct is depicted on table 1 below.

Table 2: Reliability-Item Total Statistics

Items	Scale mean if item is deleted	Scale variance if item deleted	Corrected item total correlation	Cronbach's Alpha if item deleted	Mean	Standard Deviation
Technology (Internet)	44.04	56.911	.206	.771	2.25	1.422
Electricity supply	44.17	58.667	.151	.774	2.13	1.296
Generator	43.42	50.514	.490	.738	2.87	1.513
Adequate capital	43.50	57.478	.294	.758	2.79	1.062
Bank loan	44.08	49.906	.541	.731	2.21	1.474
Willingness to pay and participate in training	41.67	60.928	.282	.760	4.63	.495
Training programme is insightful	42.42	52.601	.678	.724	3.88	.992
Training environment	43.08	53.732	.497	.738	3.21	1.141
Application of training skills	42.29	56.824	.356	.752	4.00	1.022
Training on customer survey	42.58	55.471	.361	.752	3.71	1.197
Training equipment	42.17	55.971	.523	.741	4.13	.850
Training programme is insightful	42.42	52.601	.678	.724	2.25	1.422

Table 3: Models Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 Infrastructure	.780[a]	.608	.549	.38699
2 EDP Funding	.581[a]	.338	.275	.49080
EDP Capacity Building	.531[a]	.282	.029	.56801

a. Model 1: Predictors: (Constant), Infrastructure: Technology (Internet), Electricity, Generator
b. Model 2: Predictors: (Constant), EDP Funding: Bank Loan, Adequate Capital,
c. Model 5: Predictors (Constant), EDP Capacity building: Training and new improved equipment, Willingness to pay and participate in training, training and customer survey, application of training skills, training environment, insightful training programmes
d. Dependent Variable: Performance

The R values 0.780[a], 0.581[a], 0.702[a] and 0.531[a] on table D1 indicated the correlation coefficients between the entered independent variable (infrastructure, EDP funding, and EDP capacity building) and the dependent variable (performance) respectively. Infrastructure, EDP funding, and EDP capacity building) account for .608, .338, and .282 of the variance in the dependent variable (performance). However, since the items measuring infrastructure, EDP funding, and EDP capacity building are not many, it is advisable to consider their adjusted R^2 .549, .416, and .029 respectively

Table 4: The ANOVA[b]

	Model	Sum of Squares	Df	Mean Square	F	Sig.
Model 1 Infrastructure	1 Regression	4.643	3	1,548	10.334	.000[a]
	Residual	2.995	20	.150		
	Total	7.638	23			
Model 2 EDP funding	2 Regression	2.580	2	1.290	5.355	.013[a]
	Residual	5.059	21	.240		
	Total	7.638	23			
Model 3 Multiple taxation	2 Regression	2.10	1	.210	.628	.438[a]
	Residual	7.428	21	.338		
	Total	7.638	23			
Model 4 Entrepreneur education level	2 Regression	3.759	3	1.253	6.640	.003[a]
	Residual	3.879	20	.194		
	Total	7.638	23			
Model 5 EDP capacity building	3 Regression	2.154	7	.359	1.113	.3.96[a]
	Residual	5.385	16	.323		
	Total	7.638	23			

1. *Model 1: Predictors: (Constant), Infrastructure: Technology (Internet), Electricity, Generator*
2. *Model 2: Predictors: (Constant), EDP Funding: Bank loan, Adequate capital*
3. *Model 5: Predictor (Constant), EDP Capacity building: Training and new improved equipment, Willingness to pay and participate in training, Training and customer survey, Application of training skills, training environment, insightful training programme.*
4. *Dependent Variable: Performance*

The ANOVA table 4 demonstrates that this significant relationship with p value for infrastructure = .000[a]. Thus, the relationship is statistically explained in ANOVA as: F (3, 20) = 10.334; p < .01 for infrastructure. The ANOVA table 4 further demonstrates that this significant relationship with p value for infrastructure = .013[a] is significant. Thus, the relationship is statistically explained in ANOVA as: F (2, 21) = 5.355; p < .05 for EDP funding. Similarly, the ANOVA table 4 suggest non-significant relationship with p value of .398[a]. As p < .05, the predictor EDP capacity building is not a significant predictor of performance of micro enterprises. Thus, the relationship is statistically reported in ANOVA as: F (7, 16) = 1.113; p < .05 for EDP capacity building.

Table 5: Coefficients[a]

Model	Unstandardized Coefficient		Standardized coefficient	t	Sig
	B	Std Error	Beta		
Model 1: (Constant)	2.767	.259		10681	.000
Technology (Internet)	.108	.057	.267	1.904	.071
Electricity supply	.058	.062	.131	.935	.361
Generator	.281	.054	.737	5.243	.000
Model 2: (Constant)	3.013	.325		9.264	.000
Adequate capital	.189	.096	.348	1.960	.063
Bank loan	.182	.069	.465	2.619	.016

Model	Unstandardized Coefficient		Standardized coefficient	t	Sig
	B	Std Error	Beta		
Model 5: (Constant)	2.455	1.434		1.712	.105
Willingness to pay and participate in training	-.035	.308	-.030	-.113	.911
Insightful training programmes	.064	.261	.110	.246	.809
Application of training skills	.087	.200	.158	.433	.671
Training and customer survey	.079	.118	.164	.670	.512
Training and new improved equipment	.083	.210	.122	.395	.698

The table above showed the extent at which the independent variables such as infrastructure, EDP funding, and EDP capacity building contribute to the performance of micro enterprises. The Unstandardized coefficients B column gives the contributing coefficients of the independent variables. The standardized beta column showed the contribution that the individual independent variables make to the model. The largest contributor of infrastructure is from the use of generator with a beta of .737 at $p < .000$. The largest contributor of EDP funding is from the accessibility to bank loan which has a beta value of .465 at $p < .005$. Lastly, the largest contributor of capacity building even though not having significant relationship with performance is from from the use newspapers, magazines, and trade publication which has a beta value of .47 at $p < 0.05$

From the results of the study it was found that the probability of firms' performance increases with availability of infrastructure and EDP funding. These factors are statistically significant at .000 and .003 respectively. Infrastructure was significant at $p < .001$ while EDP funding and entrepreneurial education level were statistically significant at $p < .005$.

However, EDP capacity building is not statistically significant to the performance of micro enterprises. Surprisingly, EDP capacity building which is a major focus of entrepreneurship development programmes has no relationship with performance. It was confirmed that it is not because capacity building is not important but because the training programme are not custom target with regard to firm specificity. These findings have important implications for policy and it supports the theory that states the entrepreneurs is 'born not made'.

Conclusion
The study revealed that entrepreneurship development programmes support the performance of micro enterprises. In line with the objectives, the study recommends that micro industrialists should integrate the use of internet technology in their day-to-day activities; own a generator in order to ensure continuous production when there is break in electricity supply; open and maintain current account with formal financial institutions in order to benefit from their services. Moreover, government should develop strategies to make capital accessible to micro enterprises through a credit guarantee scheme as well as to persuade formal

lending institutions to serve micro firms. On capacity building programmes, micro firms owners should be train on newly developed concepts and best practices; small amount of fees should be charged on capacity building services organized by private consultants while free training services should be provided by government; capacity building programmes should be delivered or use local language in conducting entrepreneurial training.

The study has important implication for owners of micro enterprises, policy makers, government agencies, private sector and individuals intend to create enabling environment for micro enterprises. The study will contribute to the existing body of knowledge by extending the evaluative and qualitative studies on entrepreneurship development programmes in empirical studies. The study also extends theories of entrepreneurs are born or made, theory of achievement, and theory of locus of control to explain the concept of entrepreneurship development programmes.

Suggestion for Further Research
The results and findings of this research should be used with caution due to the small sample of the study. The researcher calls for similar studies covering Northeast region of Nigeria. There is also need for similar studies in other micro firms such as bakeries and pastries, fruits processing, restaurants, tailoring, hairdressing and barbing, and blocks and bricks firms. Furthermore, there is need for studies on strategic entrepreneurship development among micro entrepreneurship. Strategic entrepreneurship is simply the integration of entrepreneurial (i.e., opportunity-seeking behaviour) and strategic (i.e., advantage-seeking) perspectives in developing and taking actions that will result in superior firm performance. Strategic entrepreneurship will introduce micro industrialists to ideas such as opportunity discoveries, innovation, networks, internationalization, organizational leaning, and growth.

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Adoption of E-Tax System among Corporate Income Taxpayers' in Nigeria

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Abstract

This paper examined factors affecting the adoption of e-tax system. It introduces "system affordability" as variables that manifest the taxpayers' fundamental belief in the e-tax system, and analyzed the effect of taxpayers' self-efficacy on the behavioral intention to adopt e-tax system. A total of 500 questionnaires was administered to the respondent with 420 returned. Out of which 30 were removed as a result of missing data. In all 390 completed questionnaires were used to complete the analysis. Path analysis was employed to identify the component structure and structural equation modeling and to examine the variables relationship. The finding strongly supports diffusion innovation theory in predicting the behavioral intention to adopt e-tax system. It is concluded that taxpayers' self-efficacy has positive significant effect on the behavioral intention through system compatibility, system complexity and system affordability.It is recommended that tax authority should organize training to make the adopter familiarize with the innovation in order to increase the level of taxpayers' self-efficacy.

Keywords: System compatibility, System complexity, System affordability, E-tax system and taxpayers' Self-efficacy
JEL Codes: G10, G11

Introduction

Traditional tax filing system is the most popular method used by the taxpayers in filing their tax return in Nigeria.For decades developed countries such as, United State Canada and the Great Britain have tried to by introducing e-tax system to improve tax administrators' effectiveness, government operation and reduce administrative cost.Tax administrators began to introduce a new innovation technology to be used in filing their income tax return due to its ability to test tax data automatically Santhanamery and Ramayah (2014). As the emergence of information technology is getting more popular which has brought fundamental changes to the method of filing income tax with calls for additional research involving e- tax system (Jenkins, 1996; Kisska-Schulze, 2014). E-tax system is define as "non-manual tax system" which comprises both internet and technology (Suhani & Othman, 2010; Tung & Rieck, 2005).

There are two ways of filing tax return in Nigeria, including the traditional tax filing system and the newly introduced e-tax system through the use of information technology. The e-tax system is normally

recognized by the users registering with the Federal Inland Revenue Service Board (FIRSB) where a unique identification number will be issued to the taxpayers. Traditional tax filing system the most popular method used by the taxpayers in filing their tax return in Nigeria. During the traditional method of filing taxpayers calculate the amount of tax to be paid, fill and print the form and submit it by hand to the tax office. In using the traditional filing system, taxpayers need know the principle and law related to the Nigerian tax system.

E-tax filing was introduced by the FIRSB in Nigeria in May 2009 called the Integrated Tax Automation System (ITAS) by the Federal Inland Revenue Service Board (FIRSB).

In spite the effort by the effort by the government to implement e-tax system, there is still low level of adoption from the taxpayers (Elsheikh & Azzeh, 2014). Therefore, there is the need to know why there is low level of adoption of e-tax system by justifying the factors that affect their corporate decision to adopt e-tax system (Salami, 2011). Thus, this concern is important in order to assist the tax authority in planning, creating more awareness, and promote the new innovation system in the context of Nigeria. There has been an increasing academic research that fused on the determinant of information technology acceptance and its utilization among users and also taxpayers (Adeyemi, 2013; Bojuwon, 2013). With these studies among other has used variables from Diffusion Innovation Theory (DIT) which was developed by Rogers (1983), and generally used in adoption study by the researchers. The justification for using the theory is because of it parsimony with empirical research (Yi-Shun, 2003). According to Negahban and Chung (2014) the determinant of behavioural intention to

adopt a specific system such as e-tax system may likely be influence by the system compatibility with the existing system, the level of the system complexity and the capacity of the taxpayers afford the system.

The main objective of this study is to extend the Diffusion Innovation theory in the context of e-tax system adoption. This paper proposed a new component factor system affordability to increase the understanding of corporate taxpayers' adoption behavioral intention to e-tax system. This paper also identifies taxpayers' self-efficacy as a factor that has significant effect by conceptualizing with the Diffusion Innovation Theory framework to adopt e-tax system. By examining the behavioural intention to adopt e-tax system from the perspective of the income taxpayers. The result of this paper would help the tax authority to plan and developed a better strategy for taxpayers adopt the e-tax system and also gives insights on how to improve e-tax system potential adopters.

Literature review

Diffusion innovation theory
The Diffusion Innovation theory has been validated as an influential framework to explain adoption of innovation related issues with the users (Moore & Benbasat, 1996). This theory is reported to be a robust theory for conceptualizing adoption acceptance and implementation of innovation (Nassuora, 2012). The robustness of the theory is due to level of its compatibility with the result of a previous study by Weng and Lin (2011). Diffusion Innovation Theory is defined as the process by which an innovation is adopted and gain acceptance by users of certain community or population (Rogers, 1983). Diffusion Innovation Theory proposes that adoption of new innovation system is strong-minded by adopters behavioural intention to adopt which in

turn determined by corporate beliefs about the system. These corporate belief in these study are suggested to base on the system compatibility with the existing system, the complexity of the system from the taxpayers understanding and the ability of the taxpayers to afford the system are contributing factor to explain the variance in the adopters behavioural intention.

Existing study using the DIT has found the inclusion of external factor in a model are important to show whether corporate difference has effect of the adoption or acceptance of an innovation (Hong & Zhu, 2006; Zhu & Kraemer, 2005). DIT has been applied to a wide range of information technology Liu, Darabi, Banerjee, and Liu (2007), but there are limited study to have examine taxpayers behavioural intention to adopt e-tax system by employing DIT framework with an additional external factor. Previous literature were aimed relatively on e-commerce, e-retailing and e-banking (Ayo, Adebiyi, Afolabi, & Ekong, 2008; Collier & Bienstock, 2006; Faloye, 2014; Khanifar & Molavi, 2012; Odumeru, 2003; Sparling, Toleman, & Cater-steel, 2007). However, cautiousness is essential to take place since we are relating the result from earlier generation of study to new technology environment. Not only has the emerging technology environment differed but the target adopters of e-tax system which may have diversified educational and economic background. As a result, it is essential to examine the adoption of e-tax system with different type of taxpayers in a different environment (Fu, Chao, & Farn, 2004).

One of the key importance of Diffusion Innovation theory is to understand adoption behaviour of a particular innovation by providing a framework to include external factor on a system adoption. Somewhat, a lot of important are attached to the inclusion of external factor

in a model which has also received more attention also in the context of Diffusion Innovation Theory research with corporate practice and differences, such as gender, age as a moderating factor. Consistent with the taxpayers practice from the traditional filing system literature Hussein, Mohamed, Ahlan, Mahmud, and Aditiawarman (2010) has found that variances exist due to corporate experience which is situational that account for a specific difference. Other study reflected that corporate differences may explicitly influence the adoption of information technology, with evident of the mixed finding obtained from the previous work that corporate differences have influence on information technology but not yet to be well understood (Agarwal & Karahanna, 1998; Agarwal & Prasad, 1998, 1999). Additionally, there has been limited empirical study to elucidate the influence of corporate taxpayers' difference in the adoption of e-tax system through the implementation of the software.

Although, researchers' on the adoption of information system has investigated the replicated some theory like Diffusion Innovation Theory and agreed with their prediction of adopting e-tax system by users. Arbore, Soscia, and Bagozzi (2014), but the fundamental factors of the theory of Diffusion Innovation Theory (DIT) construct do not fully show the specific variables that influences the any technology at the adoption stage that may affect its implementation (Kelly, Lawlor, & Mulvey, 2010). As noted by (Cao, Jones, & Sheng, 2014; Karp & Fletcher, 2014; Kisska-Schulze (2014); Rogers, 2002) future adoption of need to address how other factors influences the adoption of any new innovation. Conversely, factor influencing the adoption of e-tax system are likely to differ with the context and target user (Chu & Wu, 2004; Mahadeo, 2009; Wang, 2014). Studies has reveals

that trust has remarkable influence on the preparedness of customers to involve in an online transaction because of their personal and sensitive information (Briggs, Simpson, & De Angeli, 2004; Humphrey, Mansell, Paré, & Schmitz, 2003). Hence, system compatibility and system complexity may not be able to explain the taxpayers' behavioural intention to adopt e-tax system. As a result, it becomes important to introduce additional factor that can enhanced and predict the adoption of e-tax system with the existing factors.

The adoption context of e-tax system is quite different from a stand-alone application. Studies such as (Karp & Fletcher, 2014; Kisska-Schulze, 2014; Negahban & Chung, 2014; Santhanamery and Ramayah (2014)) reveals that system compatibility of internet has a an influence on the adopters willingness to adopt with confidence as a result of the model to examine the taxpayers self-efficacy with corporate difference.Therefore, the system affordability and taxpayers self-

efficacy is included to the framework which is not in Diffusion Innovation Theory to improve and apprehend the taxpayers behavioral intention to adopt e-tax system. In conclusion, the simplicity of DIT and the newness of e-tax system with the group of respondents, it is extended DIT can be applied with confidence as theoretical model to examine the influence of taxpayers' self-efficacy on the adoption of e-tax system through system compatibility, system complexity and system affordability.

Model and hypotheses development
The model established in this study is shown in figure 1. The anticipated model include taxpayers self-efficacy based on corporate taxpayers difference and three other factor (system compatibility, system complexity and system affordability) from the DIT model, the inclusion of the factor are buttressed by previous study in information system related paper. Figure 1below is the empirical model developed for this study.
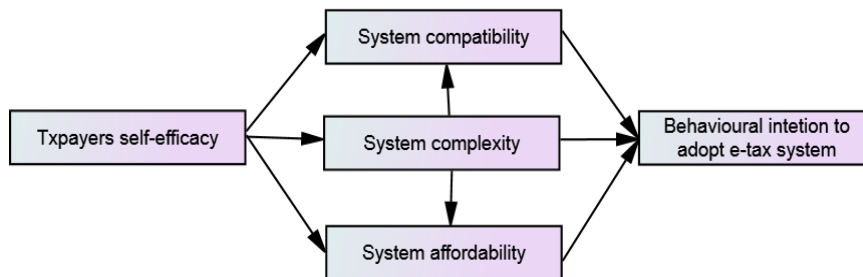

Figure 1 Computer self-efficacy

Generally, existing study has suggested a positive association between taxpayers understanding with usage and acceptance outcome of innovation(Santhanamery & Ramayah, 2014; Zhu & Kraemer, 2005). The factor system self-efficacy has been examined in information technology related literature (Barnett, Pearson, Pearson, & Kellermanns, 2014; Zmud,

1979). Taxpayers' self-efficacy is defined as the decree of corporate ability to adopt an innovation (Chu & Wu, 2004). The proposed relationship between the external factors (system self-efficacy) and system compatibility is based on the theoretical argument by (E. M. Rogers, 1976). It was postulated that computer anxiety that turn to also influence the system compatibility,

system complexity and system observability on the taxpayers' behavioural intention to adopt e-tax system.

- H1a: Taxpayers self-efficacy have positive relationship with system compatibility toward taxpayers' behavioural intention to adopt e-tax system.
- H1b: Taxpayers self-efficacy have positive relationship with system complexity toward taxpayers' behavioural intention to adopt e-tax system.
- H1c: Taxpayers self-efficacy have positive relationship with system affordability toward taxpayers' behavioural intention to adopt e-tax system.

System complexity
System complexity is the degree to which an innovation is perceived as relatively challenging to apprehend(Chang, 2005). The operational view of system complexity are been examined with four underlying variables which include, the level of system efficiency in dealing with the data, the functionality of the system, quality of the interface, and it capacity to accommodate higher number of user at the same time(Yi-Shun, 2003). Thus, to examine the effect of system complexity on taxpayers behavioural intention it is also important to examine the relationship that exist between system to adopt e-tax system it is important to examined relationship between system compatibility and system complexity with the system affordability.

Existing study using DIT believe that when an innovation is perceived to be complex the less the adoption rate will be. Complexity is found to have a significant effect on adoption of innovation evidence from the field of information system (Moore & Benbasat, 1991; Venkatesh &

Davis, 2000). Correspondingly, the adoption of online tax system by the taxpayers are been perceived to be complex during the adoption of the system with low network connectivity and the process to be followed in filling their personal data at first. Thus, complexity is employee to examine it effect on the taxpayers' behavioural intention to adopt e-tax system. Thus, this study hypothesized that system complexity will have positive relationship on system compatibility, system affordability and on taxpayer's behavioral intention to adopt e-tax system**.**

- H2: system complexity has a positive relationship with system compatibility to adopt e-tax system.
- H3: system complexity has a positive relationship with system affordability to adopt e-tax system.
- H4: system complexity have a positive relationship with taxpayers' behavioral intention to adopt e-tax system.

System compatibility
System compatibility is the process by which an invention is perceived as reliable with the present structure, experience and values within the system (Rogers, 1983). It refers to the compatibility of the innovation with the prevailing system which includes the software and hardware. The lack of system compatibility in the application of any innovation by an organization can affect its implementation(Atif, Richards, & Bilgin, 2012; Sahin & Rogers, 2006). In all, the first factor that is belief to predict the taxpayer behavioural intention to adopt e-tax system are hypothesized to be the system compatibility, system complexity and system affordability. Hence, the factors are influenced by and external factors.

Extensive study over the past years has provides evidence of significant effect that system compatibility has on taxpayers behavioural intention to adopt e-tax system Compatibility is the process by which an invention is perceived as reliable with the present structure, experience and values within the system (Rogers, 1976, 1986, 2002). It refers to the compatibility of the innovation with the prevailing system which includes the software and hardware. The lack of compatibility in the application of any innovation by organization can affect its implementation (Atif et al., 2012; Sahin, 2006). Compatibility of a new system depends on how fast in the integration of the new system to the existing practice (Tornatzky & Johnson, 1982; Tornatzky & Klein, 1982). It is one of the measures of perceived innovation characteristic in DIT construct developed by (E. M. Rogers (1986)). The adoption of a new system like the online tax system will be adopted by the taxpayers when is compatible with their values, belief and custom. The application of Internet in the tax environment is one of the emerging areas of innovation that has become part of the taxpayers who usually pay tax through the online tax system.

- H5: system compatibility has positive relationship with taxpayers' behavioural intention to adopt e-tax system

System affordability
Besides the system compatibility and system complexity the adoption of e-tax system possibly will be influences by the adopters' system affordability. The majority of e-tax system adopters are relatively ignorant about the system they are trying to adopt. However, when the taxpayers are requested to describe how they adapt to a system giving the situation at hand, it promptly become difficult for

them to give their opinion on the innovation they adopt.

- H6: System affordability have a positive relationship with taxpayers' behavioral intention to adopt e-tax system.

Methodology
This paper employed a quantitative method of analysis were the questionnaire was administered to the income taxpayers in Nigeria. In understanding the respondents, the first analysis was the analysis of the taxpayers' demographic profile. The data for this paper was collected using survey questionnaire which was administered to 500 taxpayers out of which 420 was returned was return with 390 usable and 30 of the collected data was discarded as a result of missing data. The questionnaire comprises of 19 items related to the four factors adapted and used in these studies. *Path analysis was employed to* identify the component structure and structural equation modeling to examine the variables relationship.The instrument is given with seven-point Likert scale ranging from 1= strongly disagree, 2= slightly disagree, 3= disagree, 4= neutral, 5 agree, 6= slightly agree and 7= strongly agree.

Demographic profile
A total number of N= 500 questionnaire was administered to the respondent, out of which N=420 was filed and return. Of the total N= 420 retuned questions N= 30 were deleted as a result of outliers and missing data related issues with online 390 questionnaire were usable to carry out the analysis. The respondents profile shows that majority of the respondents are male with N=232 (59.5%) while N=158 were females with N=158 (40.5%). On the base of the respondent age group, Majority of the respondents were age between 31-40 years with N=215 (55.1%) followed by age between 20-30 years with N=86 (22.1%), age between 41-50 years are with

N=73 (18.7%) and finally age above 51 with N=16 (4.1%) respectively. Based on the age response it indicates that the youth are the major users of the system because their knowledge on the use of internet with and they are youth with more energy and doing business. The educational background majority of the respondent are graduate with N=147 (37.7%), diploma with N=115 (29.5%), school certs with

N=102 (26.2%), and postgraduate are with N=26 (8.3%). The reason for these percentage is that majority of the adopters are youth that need to start their life but with limited job opportunity most decided to have their personal business. Based on the demographic result it shows that majority of adopters are still young. Table 1 below exhibit the detail.

Table 1. Demographic profile analysis

Gender	Male	232	59.5
	Female	158	40.5
	Total	390	100
Age	20 to 30 years	86	22.1
	31 to 40 years	215	55.1
	41 to 50 years	73	18.7
	51 and above	16	4.1
	Total	390	100
Educational Background	School certificate	102	26.2
	Diploma	115	29.5
	Graduate	147	37.7
	Post-graduate	26	6.7
	Total	390	100

Data analysis and findings

Measurement model
A confirmatory factor analysis was conducted using AMOS 20.0 to test the measurement model. Five goodness-of-fit measures were used to assess the overall model fit with the Normed chi-square (CMINDF) degree of freedom (DF), goodness-of-fit (GOF), Normalized fit index (NFI), comparative fit index (CFI) and root mean square residual (RMSEA). The result are higher than the acceptable value of 0.90 for (NFI, GFI, CFI) and RMSEA within the acceptable value of 0.08 as suggested by Hair, Ringle, and Sarstedt (2011) Thus, we therefore proceed to evaluate the instrument with the measure of reliability, convergent and discriminant validity.

The reliability and convergent validity was appraised using composite reliability (CR)

and average variance extracted. The analysis of the resultant coefficient is comparable to that of cronbach alpha, except for that it accounts for the real loading of the items relatively more assuming with equal weight in determining their loading

Composite reliability for all the variables on the model were above 0.09. The average variance extracted based on the result were all higher than the minimum threshold of 0.05 (Byrne, 2013; Byrne, Shavelson, & Muthen, 1989; Hair et al., 2011). Further analysis in the measurement model shows the df = 142, Chi-square value = 355.879 given the normed chi-square value to CMIN/DF = 2.506, P-value =0.000, CFI= 0.957, NFI =0.930, TLI = 0.948 and RMSEA = 0.062 which met all the requirement that the hypothesized variables met the variance of

observation in the study to proceed to the next stage of analysis the structural model.

The evaluation of convergent validity was by examine the items loading and the square multiple correlation from the measurement model. It shows that all the items loading are greater than 0.60 given the evident of convergent validity as details in table 2. The square multiple correlation are with acceptable value greater than 0.20 (Byrne, 2013). Thus, all the variables in the measurement model had satisfactory reliability value and evidence of convergent validity.

The discriminant validity is to measure and share the variance that exist between the variables and the average variance extracted in each of the corporate variables. The analysis reveal that the shared variance among the variables were lower than the variance extracted of each of the variables. This gives the evidence of discriminant validity which is detailed in table 2.In conclusion, the analysis using confirmatory factor analysis for the measurement model demonstrated adequate reliability convergent and discriminant validity to proceed for the hypothesized structural model.

Table 2: Item loadings and squared multiple correlations of composite reliability and average variance extracted, and discriminant validity

Items	Items loading	SMC	CR	AVE
Taxpayers self-efficacy				
Tsef1	0.87	0.76		
Tsef2	0.90	0.81	0.88	0.66
Tsef3	0.83	0.69		
Tsef4	0.61	0.38		
System compatibility				
Scom1	0.70	0.50		
Scom2	0.71	0.50	0.87	0.62
Scom3	0.90	0.85		
Scom4	0.80	0.64		
System complexity				
Scox1	0.77	0.82		
Scox2	0.89	0.80	0.88	0.70
Scox3	0.84	0.79		
System affordability				
Saff1	0.82	0.68		
Saff2	0.80	0.80	0.85	0.65
Saff3	0.79	0.79		
Taxpayers behavioral intention to adopt				
Tbia1	0.82	0.67		
Tbia2	0.83	0.68	0.81	0.60
Tbia3	0.79	0.63		
Tbia4	0.78	0.61		
Tbia5	0.64	0.42		

Structural model

With the measurement model result that has demonstrated adequate goodness-of-fit indices through composite reliability, convergent validity and discriminant validity. Thus, we proceed by examining the path coefficient based on the hypothesed model using structural model. The goodness of fit indices used in the measurement model are applied in the structural model to examine the path relationship in addressing the hypotheses developed. The properties of examining the path are the standardized coefficient of the path the R-square and the variance explained by each of the construct hypothesed in the model shown in figure 2. As detailed in the in the model and with the expectation of our outcome hypotheses H4, H5 and H6 are statistically significant and practically important with path coefficient of   SCOM =0.21, SCOX =0.22 and SAFF= 0.53 on taxpayers behavioural intention to adopt e-tax system. The three factors (SCOM, SCOX and SAFF) accounted for 74% of the total variance with system complexity 0.58% contributing more with 0.1% higher than system compatibility 0.57% and system affordability with 0.29% as the least contributing factor to the taxpayers' behavioural intention to adopt e-tax system.

Additionally, hypothesis H2 and H3 developed between SCOX and SCOM, SCOX and SAFF were also statistically significant and practically important, system complexity had a positive relationship with both system compatibility 0.41 and system affordability 0.50.   As for the path hypothesized from the taxpayer's self-efficacy to the three factors SCOM, SCOX and SAFF adapted from the diffusion innovation theory, the finding shows statistically significant path coefficient value greater than 0.2. Hence, all the three hypotheses developed from the taxpayer's self-efficacy factors (H1a, H1b and H1c) on system compatibility, system complexity and system affordability were significant with 0.45, 0.37 and 0.54 respectively. The result shows that taxpayer's self-efficacy had a positive significant relationship with system compatibility, system complexity and system affordability towards the behavioural intention of taxpayers to adopt online tax system.   In conclusion the goodness-of-fit indices show that all the criteria to consider the adoption fit the data were within the acceptable threshold which include CMIN/DF = 2.737, p-value = 0.000, TLI =0.90, NFI = 0.923, CFI = 0.949 and RMSEA = 0.067. Figure 2 below exhibits the detail.
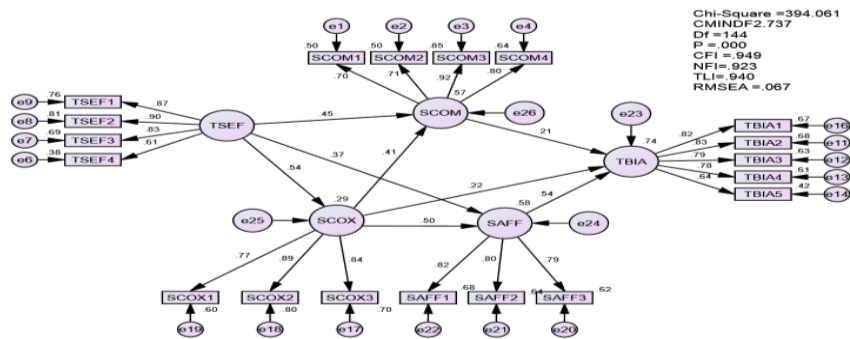

Figure 2: the hypothesized model

Implication for e-Tax System

This paper focused on Diffusion Innovation Theory to explain the practice by which taxpayer self-efficacy influenced the taxpayers' behavioural intention to adopt e-tax system. Existing literature had never been clear whether the factors relationship exemplified in DIT would likewise be relevant to more complex innovation like e-tax system. Thus, this paper strongly buttress the relevance of employing DIT to the emergent context of e-tax system adoption. Applying DIT as the theoretical framework, this paper introduced system affordability as a new variable that reflect the belief of adopters of e-tax system and examine the influence of taxpayers' self-efficacy on the taxpayers' behavioural intention to adopt e-tax system.

The result of this paper strongly buttresses the suitability of DIT to comprehend taxpayers' behavioural intention to adopt e-tax system. The statistical significant influence of system complexity and system affordability on the taxpayers' behavioural intention to adopt were observed with system complexity exerting the high effect than system compatibility. This paper also found the newly introduced variable to DIT system affordability to have a resilient influence on taxpayers' behavioural intention than the original variable (system complexity and system compatibility) in the context of e-tax system.

Given the fact that the adoption of e-tax system is voluntary with the respondent group coming from different background. The findings also provide indication of the significant influence of taxpayers' self-efficacy on the taxpayers' behavioural intention to adopt e-tax system through system compatibility, system complexity and system affordability. Consistent with the hypothesized model adopters who have higher taxpayer's self-efficacy are more likely to afford to adopt e-tax system. Our result are in line with prior study that found a significant direct effect between system self-efficacy with DIT variables(Elie-Dit-Cosaque, Pallud, & Kalika, 2011). Furthermore, the tax authority can impact the intention of adopter by creating more awareness by encouraging self-efficacy with the other DIT variable used in the study. For the tax authority to increase the level of taxpayers' self-efficacy there would be need for the authority to organize training to make the adopter familiarize with the innovation

Conclusion

This paper is an initiation to call for adopters' orientation in e-tax system. Utilizing the Diffusion Innovation Theory as the underpinning theory, the taxpayers' self-efficacy was integrated to the hypothesized model to have significant relationship with the taxpayers' behavioural intention to adopt e-tax system through system compatibility, system complexity and system affordability. It is now concluded that taxpayers' self-efficacy has positive significant effect on the behavioral intention through system compatibility, system complexity and system affordability. It is recommended that tax authority should organize training to make the adopter familiarize with the innovation in order to increase the level of taxpayers' self-efficacy.

Contribution to knowledge

The impact of this paper to adoption of innovation research are:

- It has successfully integrated Diffusion Innovation theory variables with and external factor (taxpayers self-efficacy) in a new context of e-tax system
- Taxpayers self-efficacy was found to a significant antecedent of system

compatibility, system complexity and system affordability in the adoption of e-tax system

- System affordability was found to be the most significant variable that determined the taxpayers' behavioural intention to adopt e-tax system.

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Child Labour as a Reflection of Poverty: Study in Dutse Metropolis, Jigawastate, Nigeria

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Abstract

This paper examined the manifestation of povertythrough child labour in Dutse, Jigawa State.The population of the study was exclusively child labourers. Both primary and secondary data were collected.The secondary sources ofdata include text-books, journal articles, conference proceedings e.t.c., which have been utilised during conduct of the study. The sample size for the study wasforty-eight (48) child labourers. In generating the primary data, forty-eight (48) interview sessions were conducted to provide an insight into the factors (not only limited to poverty) that motivate child labour in the study area and beyond.The sampling procedure was purposive sampling, and the sample size was forty-eight (48) subjects. The research was mixed research because in-depth interview was initially adopted to collect primary data and then subsequently transformed to quantitative form during data analysis, with some qualitative responses been complemented. Primary and secondary data sources were used. The responses received from these subjects led to the conclusion that, poverty and traditional beliefs are the principal predisposing factors for child labour in developing countries, such as Nigeria. The paper suggests that, gradual phase out of the phenomenon and fighting poverty are the best and effective strategies for checking child labour in developing nations like Nigeria.

Introduction

The concept of child labour is becoming one of many causes of concern in both industrialized and developing societies of the world. But as we are troubled with the menace of child labour in these parts of the world, one universal reality remains that social problems are social creation as they emanate in the social processes. It is therefore up to the academics, families, communities,policy makers and/or leaders to investigate the root causes of suchproblems. By so doing, the society has embarked on the journey to addressingthe issue in question as this is the best to develop a strategy foruprooting it. Before the paper delves into the topic of child labour, it is instructive to acknowledge the truth that the phenomenon has universal epidemiology. In other words, child labour recognizes no national or continental strata-developed, developing and underdeveloped countries have one form of child or another, though the rate and preponderance differ.

The idea of children working long days in factories bothers people who live in high-income nations because they think of childhood as a carefree time of learning and play (Macionis, 2009). In the same vein, Lloyd-Evans (2010:310) pointed out that:

In the 1990s, heightened concern over the future welfare of millions of the world's poorer children largely developed from media coverage of child-related issues, such as the murder of Brazilian street children by police, and increased documentation on child work by non-governmental organizations (NGOs) and international institutions such as the United Nations Children's Fund (UNICEF), the World Bank and the International Labour Organization (ILO).

International Labour Organization (ILO), at a meeting in Mexico City in 1999, also pointed out that child labour affects over 250 million children, 30 percent of which are in Latin America. According to the UNICEF (cited in Shah 2001)poverty is the most common factor contributing to child labour**.**The paper will therefore dwell on child labouras a reflection of poverty in Dutse, Jigawa state.In addition, the paper is designed to adopt mixed methodology with the use of survey (interview and then in presented in a frequency distribution table) to be presented to providefirst-hand bases and add empirical make-up to the paper.

Literature Review

There are many studies on the concept of child labour, some of which explained the phenomenon in the context of development (Lloyd-Evans, 2010), others on the effects (Nengha-Chakrisa, 2013) or consequences of the phenomenon on the future of the children (Shah, 2001; Watson, 2008;Lloyd-Evans, 2010) or on their educational achievement and performance (Bhalotra, 2013). This paper will narrow its focus by examining child

labour as originating from economic dilemma-poverty.

Child labour, like many social science concepts, is variously defined depending on the intensity and hazardous nature of an activity. Firstly, the concept of 'child' should be defined to objectively arrive at what constitutes child labour. Child can be historically conceptualized. According to historians, the emergence of childhood as a concept is traceable to the 17th Century. Before that period, not only in Africa, but in most of Europe, children were treated as miniature adults. That is why the topic of "apprenticeship" whereby child follows father or guardian to farm, work place to be trained as future potential future farmer, blacksmith, or butcher. Legal interpretation of 'child' today comes to delineate specific social roles appropriate to young people. In common, for instance, a child is one who had not attained the age of fourteen (14) years (Rios-Kohn, 2007). But definition of child is also not uniform. According to UN Convention on the Rights of the Child (CRC, cited in Gupta etal, 2001) every human being under 18 years is a child unless majority is attained earlier under national law.

Many global and local facts are made available to represent the picture of what childhood is in relation to economic and social policy, however they do not present a uniform picture (Brown, 2005). Hence, child labour can also mean different things to different people. The widely accepted definition of child labour is the one offered by the ILO (2014) which excludes certain works done by children from the child labour classification such as activities that involve helping parents, working to earn pocket money after school hours or during holidays without hazard. From this observation, we will discern that, if a work does not affect children's health and personal development or does

not interfere with their schooling is not regarded as something negative. Taking this into cognizance, ILO (2014) therefore defined child labour as "work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development". Work of this nature is what is referred to as hazardous labour.

Hazardous work is defined as work that jeopardizes the safety, health or morals of children, and its abolition has been the focus of international legislation since the implementation of Convention 182 on the elimination of the 'worst forms of child labour' by the ILO in 1999. In 2012, the ILO estimated that 215 million children across the world are trapped in child labour, with over 50% exposed to the 'worst forms of child labour' in mining or quarrying, slavery and forced labour, illicit activities such as prostitution, or armed conflict (Lloyd-Evans, 2010). It is obvious that socio-cultural variations account for differential role allocations child roles. Irrespective of socio-cultural differences, child labour applies to engagement of children in activities whether these be industrial or non-industrial but which are detrimental to their physical, mental, moral and social wellbeing and development (Guha-Roy, 2001). The U.S. Department of Labour (2007) revealed, some 200 million of the world's children work, half of them full time, earning about 50 Cents an hour.

Because there is growing concern on the excessive work for under 12s, as it harms their social development and, sometimes, prevents them from attending school, the decision to exclude domestic chores from some child labour classifications has been widely criticized due to excessive working hours and conditions experienced by many children. In line with the above, Nieuwenhuys (1994) raised a critical question on the basis of comparison between household labour and industrial labour, thus:

With an estimated 60% of working children engaged in agriculture, commentators have asked why unpaid household labour is considered to be morally 'neutral', compared to waged work in industry, when both can be equally detrimental to the development of children (quoted in Lloyd, 2010:312).

Poverty is a notable cause of child labour and it has many dimensions. It motivates child labour in especially the developing world. In addition, debt, bloated military budgets and structural adjustment programs imposed by the International Monetary Fund and the World Bank, have eroded the capacity of many governments to provide education and services for children, and have also pushed up prices for basic necessities (Shah, 2001).Poverty has always leads to immense social, political and economic constrains. Poverty, by definition, is a multidimensional state of deprivation involving lack of basic requirements, social and political exclusion and lack of education.

Poverty is a condition of having insufficient resources or income. In its most extreme form, poverty is a lack of basic human needs, such as adequate and nutritious food, clothing, housing, clean water, and health services. Extreme poverty can cause terrible suffering and death, and even modest levels of poverty can prevent people from realizing many of their desires. The Nigeria's poorest people-many of whom live in the northern part of this country are; Jigawa, Kebbi, Kogi, Bauchi, Kwara, Yobe, Zamfara, Gombe, Sokoto, and Adamawa they struggle daily for food, shelter and other necessities. They often suffer from severe malnutrition, epidemic disease outbreaks, famine and uprisings etc. (Usman, 2010).

Paradoxically, Nigeria's huge agricultural resource base offers great potential for growth. Despite Nigeria's plentiful agricultural resources and oil wealth, poverty is still a challenge in the country. Poverty is especially severe in rural areas, where up to 80 per cent of the population lives below the poverty line and social services and infrastructure are limited. The country's poor rural women and men depend on agriculture for food and income (IFAD,2013).

The selection of the study area is therefore not a coincidence, because poverty is reported by IFAD (2013) to be widespread in the northern Nigerian states, while Usman (2010) mentioned Jigawa state first state in the list of the poverty stricken states. Child labour is not only an economic compulsion of poor families; it is also the consequences of extreme social and economic exploitation. Poverty of the households may be due to several factors, such as inadequate income of the family;unemployed adults, where one or more of the adult member(s) of a household especially parent(s) is jobless; absence of scheme for family allowances, where there is no any family empowerment program (e.g. Family Support Program in Nigeria); and large family size, because the little income earned by a large household might be strained thereby making them living without proper savings, among others.

Admittedly, poverty is one of the determinants of growth or development. In order for society or nation to aspire for some reasonable level of development, the society should fight poverty, and by implication, combat other social problems like child labour.Industrialization, said World Bank (2008, cited in Macionis 2009) extends childhood and discourages children from work and other activities considered suitable only for adults. This is why child labour is uncommon in the United States and other high-income countries. In less economically developed nations of the world, however, children are a vital economic asset, and they typically begin working as soon as they are able. While the Liberian and Sierra Leonian scenarios are still in our memories, many soldiers in Iraq are still teenagers.

Globalization process culminated in socio-spatial disparities on the concept of child labour, Lloyd-Evans (2010) admits that, socio-spatial dimensions to child labour exists which explains why some forms of 'child work' are deemed to be more undesirable than others. This accounts for why definitions of certain hazardous 'child labour' on special parameters. He further buttressed on the argument raised by Jones (Lloyd-Evans, 2010), who states, societal views on child labour and related issues will depend on the meanings people attach to public 'spaces' and what they regard as appropriate places for children. In Latin America, for instance, millions of street children are perceived as delinquents and threats to social order. At the global scale, cities streets and industrial factories are seen as 'unnatural spaces' for child workers, while the private household space is deemed to be safe (Mackie 2009, cited in Lloyd-evans, 2010). The only public space deemed acceptable for children is school, irrespective of the nature and quality of education. Such conceptual dilemmas regarding children's spatial identities impact upon the development and implementation of global policies which address child labour.

As stated earlier, child labour takes many dimensions. In addition, the phenomenon occurs in multiple contexts. One of the contexts within which child labour takes place is *bonded labour*, which some sociologists regarded as 'a gray area between contract labour and slavery' (Henslin,2010:232). In his magnum opus,

Sociology: A Down-to-Earth Approach, James Henslin (2010) had an encounter with an Indian girl-child bonded labourer in the course of investigation. Henslin (2010:232), gave the narration, thus:

During my research in India, I interviewed an 8-year-old girl. Mashahury is a bonded labourer who was exchanged by her parents for a 2,000 rupee loan (about $14). To repay the loan, Mashahury must do construction work for one year. She will receive one meal a day and one set of clothing for the year. Because this centuries-old practice is now illegal, the master bribes Indian officials, who inform him when they are going to inspect the construction site. He then hides his bonded labourers. I was able to interview and photograph Mashahury because her master was absent the day I visited the construction site.

It is recorded by Scholastic (2014) that more than 250 million children between the ages of 5 and 14 work today. Of those, more than 80 million kids labour in extremely hazardous conditions. They weave carpets in dimly lit factories-at times, shackled to their looms. They crawl through cramped tunnels deep below the earth's surface hunting for gems and coal. And they struggle not to buckle under the crushing weight of bricks balanced on their heads. This cycle of unending labour is robbing young people of their childhoods-even in America. Officials estimate that more than 150,000 children work illegally on U.S. farms (Scholastic, 2014).

An overview of the life course reveals how society organizes human experience according to age-childhood, adolescence, adulthood and old age (Macionis, 2009). Our concern here is child's experience. Although it can differ across societies, child labour is most common in the nations of Africa and Asia. Macionis (2000)add that most athletic shoes used in the developed nations are manufactured in countries such as Taiwan and Indonesia where wages are far lower than they are in the United States and France. What is not stated on the shoes is that many are made by children who spent their days working in factories instead of going to school.

Methods

The target population is the entire children population of the study area: Dutse, Jigawa State.Purposive sampling technique was adopted and, in some cases, accidental sampling procedure was adopted to make up the sample size, forty-eight subjects (48). TheYadi/Gida Dubu/Yantifa, Takur Site/Takur Adua, Garu/Fagoje/and Danmasara are the areaswith preponderance of child labour within the Dutse metropolis and they were purposively targeted to select the samplerespondents. This was as a result of the difficulty faced during the data collection as most of the respondents were skeptical of giving an audience,neither were they cooperative enough to provide us with the required responses.

The few sample size is determined by the fact that interview is time-consuming. Primary and secondary data sources were used. In generating the primary data, eight unstructured interview and forty IDI (in-depth interview) were employed to provide an insight into the factors that motivate child labour in Nigeria and beyond. Of the eight interviews, four females-child and four male children were interviewed. The interview and IDI responses (together) are transformed and interpreted in a frequency distribution table and transcribed to form a mixed methodology (quantitative and qualitative). Secondary data sources (books, journal articles, conference proceedings, e.t.c.) were also utilized in the paper.

Results and Discussions
Foremost is the gender of the respondents. Each gender category has 50% (24 males and 24 females). All of the respondents' ages ranged from 10 to 15 years. Forty two percent (42%) of the respondents' fathers have business as their occupations.

Table 1.0: Occupations of the respondents' fathers (N=48)

Occupation	Frequency	%
Business/trading	20	41.7
Farming	12	25
No response	16	33.3
Total	48	100.0

Source: Fieldwork, 2014

From Table 1.0 it shows that, fathers on business or trading havetaken up the greatest figure of 20 (41.7%); fathers that relied on farming accounted for 16 (25%); while the children who could notrespond were 16 out of 48 (33.3%). From the table above, it is observed that none, but one, of the children in labour is lucky to have a father that works in any bureaucratic organization, be it public or private. If the parents know the how education pays someone who has it, they might not neglect their children or subject them to an activity that could hamper social and psychological development.

For the farmers, it is already observed by sociologists and economic anthropologists that, people in a simple agrarian community rejoice having many children because with too many hands, they can be able cultivate more land. Children in this socio-economic arrangement are trained apprenticeship at early ages and subsequently expected to assist parents at homes, at market and in the farmlands. The unresponsive column signifies two things:1) that the children of lower classes have communication inhibition. For instance, Bernstein (1961,cited in Haralambos and Heald, 2006) describes how differences in speech pattern set children of low-income families from that of high-income background based on "restricted code" and "elabourated code"for children belonging to working class and middle- or upper-class respectively; 2) that they are not contented with the strangers who stopped them in the street and began to ask themquestions on their personal lives(despite the efforts made by the researchers to explain there is no harm). Some of the children were thinking thatwe were security officerstrying to trap and take them to borstal homes.

Table 1.1: Respondents whoseparents had any educational background (N=48)

Responses	Frequency	Percentage
Yes	40	83.3
No	0	0
No response	8	16.7
Total	48	100.0

Source: fieldwork 2014.

The Table 1.1 is closely related to Table 1.0 because work in private or public sector is to a greater extent associated with formal education with at least primary leaving certificate to become a messenger or a cleaner or at most a degree to become a senior staff or administrative officer. Attending formal school does not only offer an opportunity for getting awhite or blue-collar job, it also shapes how parents

will rationally choose and prepare a better future for their children. It also became obvious that some parents are sending their children to informal school to become *almajiris* and usually ended up with neither the authentic Islamic knowledge nor developing the requisite

quality of employability in adulthood. The Table 1.1 shows that virtually all of the respondents' parents attended schools, 40(83%), while 8(16.7%) of them do not know whether or not their parents went to school.

Table 1.2:Type of school attended by respondents' parents (N=48)

Type of school	Frequency	%
Islamic	40	83.3
Western	-	-
No response	8	16.7
Total	48	100

Source: fieldwork, 2014

Table 1.2 shows that, 83.3% of the parents of the respondents have Islamic literacy and non has ever attended Western oriented schools (see Table 1.3).Perhaps, that is why majority of the working children are into informal Islamic schools,

especially the male children. The few girl-children who go to the Islamic schools are however not sent to other towns to get educated, but are working as vendors of pure water and other local commodities.

Table 1.3: Educational status of respondents (N=48)

Educational level	Frequency	%
Primary	12	25
JSS	4	8.3
Islamic school	21	43.8
No school	6	12.5
Drop out	5	10.4
Total	48	100.0

Source: fieldwork, 2014

Table 1.3 above shows that, 48% are in Islamic school, 12.5% are not going to school, and 10.4% have at once gone to school but dropped out when the research was conducted. Among those not going to one is female and when she was asked whether she will like to go to school, she gave positive response, "Yes!" And as

she was asked again, why then she is not going, she said:

I asked my father severally that, I want to go to the school, but he did not respond. I asked my mother too, but our mother does not want to risk the money I generated for her through selling these items (jallop rice, pure water, and locally made sweets)

Table 1.4:Respondents perception of work by child as appropriate or not (N=48)

Response	Frequency	%
Yes	33	68.8
No	15	31.2
Total	48	100.0

Source: fieldwork, 2014

Table 1.4 represents the responses of the children on whether they perceive their work as something appropriate. Sixty eight point eight percent (68.8%) of them sees it as appropriate, only few (31.2%) considered it inappropriate. The implication of these perceptions is that, it is difficult to fight child labour in these locations because both parents and their children are in support of the activity.

Table 1.5: Reason why the respondent is working (N=48)

Reason	Frequency	%
Assisting parents	12	25
Poverty/lack of money/to earn money	29	60.4
No response	7	14.6
Total	48	100.0

Source: fieldwork, 2014

Table 1.5 contains the most crucial responses because the study sought to examine whether or not child labour is a reflection of poverty. First raw revealed other fact than poverty which also perpetuates child labour in northern Nigeria and Africa at large. This fact is the willingness of the younger ones to render assistances to their parents as it accounts for 25% of the responses. The poverty as a cause of child labour took 60.4% and this can also be reflected in Guha-Roy's (2001) argument that, in developing countries a large number of children from poor families are victims of the exploitation of child labour. In the socio-economic context of a developing country child labour is often considered as necessary social evil resulting from economic necessity of a poor family.

The remaining (14%) declined to say a word in the discussions. However, research ethics are always at the heart of a good researcher, one thing observed during the data collection is that, depending on the circumstance, some truths are obtained when the investigator shows indifference or no serious concern in the interview, while in some cases the respondents give more cooperation if the researcher assures them confidence. In an interview with a cocoa seller in Dutse of Jigawa state, the child initially refused to talk, because he thinks the researcher is a law enforcement agent trying to pick him to borstal home. But he later said,

I used to go to school, but I do not go now... My father had divorced my mother and the second wife he married is maltreating, give me more hard labour than selling cocoa, such as fetching in a large bucket beyond my physical strength… I am flogged for no reason, and that if I do not come to market and sale this cocoa nut, I will suffer from hungry.
During the mid of our interview session, two of his friends and school mates came and they testified that, it is true. While the two children are going to school, they come to visit their primary school drop-out friend for leisure, an opportunity which the friend (the cocoa seller) does not enjoy.

Policy implications and Recommendations
Child labour is not an easy issue to resolve; while it seems noble to immediately withdraw investments and cooperation with firms and factories that employ child labour it may do more harms than good(Shah, 2001). To reduce worst child labour is to reduce poverty. However, there were many poverty alleviation programs in the country since 1980s, but poverty remains one of the major social problems in the country due deep-seated corruption, lack of good will by the policy makers and as a result, the

programs end up making the rich getting richer and poor getting poorer.

Agriculture was a viable sector of the informal economy of the country, but it is neglected and this culminated in the high rate of poverty in the country. The contribution of the agriculture was immense from pre-colonial era, through colonial times to the post-colonial, but the discovery of oil in the late 1950s resulted in relying on the oil. In order to reduce the rate of poverty and unemployment in Nigeria, agriculture must be taken so serious. This step will provide dual purposes: fighting the poverty or child labour and achieving food security in the country.

Special family empowerment schemes are needed to enlighten and make families economically buoyant. There were some programs which were directed towards family empowerment, such as BLPRW(Better Life Program for Rural Women) and later FSP (Family Support Program). These programs are well designed and their objectives are well articulated, lack of continuity syndrome of Nigerian leaders did not allow the programs to thrive. It is therefore important to bring one of them back to life in order to fight poverty-related child in Nigeria.

Gradual phase out is said to be a more preferable solution. Many of these children are from very poor families and work to pay for their family and/or their education. Depriving them of this income has led to some children seeking different, lower paid work, and even prostitution in some cases. Other ways with schemes to help children would likely be needed so that this labour can be phased out.

A commonly held assumption is that the most successful way of protecting children from harmful work is to exclude them from all employment, but critics argue

that, children should have a right to benefit from work that is appropriate to their age as it can be important for self-esteem, socialization and household maintenance. As a response to these, many NGOs and grassroots organizations have attempted to implement small-scale programs which recognize children as rational individuals who can be empowered to take control of their own lives. NGOs, such as Muslim Sisters Organization (MSO) are established to render nonprofit and selfless assistance to young people, orphans through vocational training and counseling (Sani, 2010). Grassroots initiatives, such as street drop-in centers endeavor to give children the opportunity to work in safe environments while also providing time for schooling and recreation.

6. Conclusion

The paper attempted to explain child labour as a dilemma posed by poverty in developing nations, where Dutse metropolis of Jigawa State, Nigeria was selected as a study area. However, the researchers did not directly asked the working children on whether poverty happens to be the reason for their plights during the interviews, majority of the children admitted that they engage in labour because of either forsome economic benefits or due to some socio-cultural factors. That is, they work to help augment their parents' incomes or their parents cannot sponsor their education or because their parents preferred sending them to traditional schools (almijirci) which exposes the children to further exploitation and abuses. In sum, the entire responses are manifestations of povertyand lack of awareness, because most of the Islamic education in the *almajiri* system is not in line with the authentic teaching of the Islam. Therefore child labour is conclusively said to be influenced by poverty and cultural beliefs

in the study area and, of course, other parts of the country.

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Modernisation Perspective: A Review of Nigerian Development

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Abstract

This article reviewed the tenets of modernisation perspective of development in the Nigerian context. Nigeria is presently bedeviled by developmentalchallenges, especially in economic aspect. To diagnose the development problem in the country, the article analysed the modernisation perspective to evaluate its strengths and weaknesses in explaining the pattern of development in Nigeria and other developing countries. The paper found that the modernization theory has influencedthe Nigerian government and the populace through variousattempts by adopt the economic models recommended by the developed countries and other international institutions, including World Bank and International Monetary Fund (IMF). There are various developmental agendas through intervention of Non-Governmental Organisations (NGOs) and international development agencies, such as International Fund for Agricultural Development (IFAD), United States Agency for International Development (USAID), Department forInternational Development (DFID), United Nations Development Programme (UNDP), and United Kingdom Agency for International Development (UKAID) in Nigeria. Similarly, democracy is embraced as it is deemed an ideal politicalsystem. However, such policies as Structural Adjustment Programme have not yielded any positive outcome. Instead, they brought continuous underdevelopment as poverty and unemployment rates have increased and life became unbearable to vast majority of Nigerians due cost of living. The article concluded that despite these interventions, development of Nigeria and other developing nations is possible when the leaders and the nationals are collectively committed towards this achievement. The article therefore enjoined the Nigerian leaders to complement the assistance of the foreign countries with their efforts through developing systematic economic policies, fighting the culture of corruption, embrace technology and industrialisation in order to attain the goal of development.

Introduction

Intense concern about the subject of development around the world is the main reason why the modernization represents the buzzword of the global agenda from the period immediately following

WorldWar II. The post-World War II was theperiod in which Western world began to be confronted with the challenge of rebuildingcountries, especially those that had been shattered by war. To successfully face this challenge, international institutions, such as theInternational Bank for Reconstruction and Development, later called World Bank, were established to accomplish the objectives of industrializing backward or less developed and war stricken countries.

Accompanying the growing concern on the subject of development was the emergence of modernization perspective. That is why the origin of modernization theories is usually traced to the aftermath of the Second World War (Tipps, 1973; Valenzuela,& Valenzuela, 1978; Rapley, 2007), yet Harrison (2005) believed that, the beginning of modernization theory can be traced to antiquity, when the notion of evolution was first used with reference to human society, however, it was not until the eighteenth century that the evolution of societies was studied in a systematic way.

The justification of Harrison's argument here is the dominant themes of perspectives that are foundationalto established sociological traditions, such as the evolutionary sociological ideas of Auguste Comte (1798-1857), Herbert Spencer (1820-1903), and Emile Durkheim(1858-1917), as well as the functional-conflict wings informed byGeorg Simmel (1858-1918) and Max Weber's (1967-1920, as cited in Ritzer, 2011), analysis of modern societydetermined by rationality.For the fact that Harrison (2005) showed some level of ambivalence by subsequent admittance that, two decades after the Second World War marked the beginning of application of the modernization perspectives for the benefit of the Third World, this article also adheres to the

major view that modernization perspective is an outcome of the Second World War.In line with this notion, Tipps (1973) also contends that theproximate origin of modernization theory may be traced to the response of American political elites and intellectuals to the international setting of the post-Second World War era.

In particular, the impact of the Cold War and the simultaneous emergence of Third World societies as prominent actors in world politics in the wake of the disintegration of the European colonial empires converged during this period to channel-for the first time, really-substantial intellectual interest and resources beyond the borders of American society, and even of Europe, into the study of the societies of Asia, Africa, and Latin America.Tipps (1973) observes that even the use of the term 'modernization' in its present connotation is of relatively recent origin, becoming an accepted part of the vocabulary of American, if not international, social science only in the decade of the 1960s. Despite its relatively rapid rise to currency, the popularity of the term does not appear to be matched by any widespread consensus concerning its precise meaning.Gradual and consistent process of social and cultural change considered as differentiation, a movement through defined stages from the simple to the complex, has marked Western social thought throughout and dominated the great eighteenth-century program to establish a science of man and society. Rather, this term is shorthand for a variety of perspectives that were applied by non-Marxists to the Third World in the 1950s and 1960s (Tipps, 1973).

The perspective is now the populous especially in the Western bloc, because they favour the propagation of the Western ideas. While the perspective achieved some substantial success in some areas, the dependency theorists who are

mainly from Latin America and Africa (with few from the Europe and North America, like Immanuel Wallerstein) emerged as the sharp contrast and response to the modernisation project. There are some countries among the Asian Tigers (Singapore and Thailand) that achieved development through application of the modernisation theses, but others achieved the development without necessarily doing away with their customs and traditions. For instance, Malaysia developed while their Islamic religion is still cherished and China did embrace some aspects of modernization side-by-side with their cultural heritage after the Cultural Revolution in 1911.

Consequently, modernisation became a recurring theme in attempt to shape the development policies of many nations. Vast majority of previously socialist states that leaned towards Marxist ideology have turned out to adopt modernisation, which is more or less a capitalism-oriented idea. Nigeria was not an exception The First National Development Plan (FNDP)(1962-68) had, as one of its cardinal objectives, the development of employment opportunity which would be accessible to all citizens. The Second National Development Plan (SNDP) used industrialization as envisaged in the industrial policy to create more employment opportunities (FRN,1970). Even the Third National Development Plan (3NDP) and the Fourth National Development Plan(4NDP) also have as one of their objectives, the reduction in the level of unemployment(Ana & Agu, n.d).

In view of this background, the article is set to review the relevance of modernization perspective in understanding Nigeria's development. The article is divided into five sections, the introductory remark being the first section. Section two discusses the modernization perspective; section three deals with the critique of the modernization perspective; section four discusses modernization perspective within the context of Nigerian development; and section five concludes the article.

Modernization Perspective
The modernization movement of the 1950s and1960s is an economic theory that is rooted in capitalism.The concept of modernization incorporates the fullspectrum of the transition and drastic transformation thata traditional society has to undergo in order to becomemodern. Modernizationis about Africa following the developmental footstepsof Europe (largely the former colonizer of Africa).According to modernity, policies intended to raise thestandard of living of the poor often consist ofdisseminating knowledge and information about moreefficient techniques of production (Matunhu, 2011).

Some development scholars argue that cultural values, attitudes, orientations andopinions are a key variable in determining economic progress. According to thisview, the developmental success of Western countries is based on the distinctivecultural institutions of Western civilization, and other countries should emulate theseas much as possible. In the 1960s, Gunnar Myrdal (1968) painted a picture of Asiabeset by abject poverty and corruption, which can only be rescued throughinternational development assistance and the widespread adoption of themodernization ideals and attitudes. In his account, 'modern man' is defined by a set ofattitudes including rationality, efficiency, orderliness, preparedness for change,energetic enterprise, integrity and self-reliance. Myrdal understood these 'modern'attitudes to be Western imports or impositions that would eventually displace thecultural traditions of Asia, albeit against popular resistance (Myrdal, 1968: 61–62 cited in Scheck, 2010).

Like other modernization theorists, he perceived modern attitudes and patterns ofsocial relations as a 'universal social solvent'.Agricultural societies can therefore be regarded as modern when they display specific characteristics. Theextent to which these characteristics are exhibited gives an indication of the degree of modernity that has been reached. The characteristics are cited succinctly byCoetzee *et al.* (2007: 31 cited in Matunhu, 2011) as:

(i) Readiness to accommodate the process oftransformation resulting from changes.

(ii) Continuous broadening of life experiences andreceptiveness to new knowledge.
(iii) Continuous planning, calculability and readinesstowards new experiences.
(iv) Predictability of action and the ability to exerciseeffective control.
(v) High premium on technical skills and understanding ofthe principles of production.
(vi) Changing attitudes to kinship, family roles, family sizeand the role of religion.
(vii) Changing consumer behavior and the acceptance ofsocial stratification.

The West desired to change Africa's development course in favor of theirs. The "enlightened" then tasked themselves with the responsibility of developing Africa along a new course. They claimed that Africa's development had to pass through distinct stages. The Rostowian theory identifies thestages as:

1. Primitive society: The stage is characterized by subsistence farming and barter trade.
2. Preparation for take-off: The characteristics of the stage are; specialization, production of surplus goods and trade. Transport infrastructure is developed to support trade. The stage encourages savings and investment

3. Take-off: At this stage industrialization increases and the economy switches from agriculture to manufacturing.

4. Drive to maturity: At this stage the economy diversifies into new areas and there is less reliance on imports.
5. Period of mass consumption: At this stage, the economy gears on mass production and service sector becomes increasingly dominating.

Critiques of the Modernization Perspective
There are a number of criticisms raised against the modernization perspective. Much of the post-war development thinking was strongly *Eurocentric* in that, often inappropriately theories and models were rooted in Western economic history and consequently structured by that unique, although historically important, experience (Hettne, 1995: 21). Rostow's unilinear model (1960, cited in Binns, 2014) is probably the best-known attempt to show how a country's economy and society progress through a series of stages, and is firmly based on the Euro-American experience. It was undoubtedly the most influential modernization theory to emerge in the early 1960s. It is interesting to note that Rostow entitled his book *The Stages ofEconomic Growth: A Non-communist Manifesto* and, his perception of the purpose the United States' promotion of economic development in the Third World was governed by a strongly anti-communist stance. Indeed, early in his book Rostow asserts that he is aiming to provide 'an alternative to Karl Marx's theory of modern history. The key element in Rostow's thinking was the process of capital formation, represented by five stages through which all countries pass in the process of economic growth (Binns, 2014).

Another set of criticisms has been directed against the notion that *tradition* and *modernity*represent two mutually

exclusive, functionally interdependent clusters of attributes. This notion may be broken down into two constituent assertions: first, that the attributes of tradition and modernity are mutually exclusive and, second, that the attributes of each are functionally interdependent. Several critics of the first assertion have pointed to the persistence of many 'traditional' values and institutions in supposedly modern industrial societies and to the importance of these institutions in shaping the development of these societies, while others have argued that in both 'modern' and 'modernizing' societies the dynamics of modernization have consisted not in the substitution of one set of attributes for another, i.e., of modernity for tradition, but rather in their mutual interpenetration and transformation. To assert that tradition and modernity are mutually exclusive is to impose, in the words of two critics, 'an imperialism of categories and historical possibilities' by artificially constructing an analytic gap which denies the possibility of innovation, mutual adaptation, and synthesis.

According to Tipps (1973), once these possibilities are acknowledged, modernization can no longer be equated simply with the destruction of tradition, for the latter is not a prerequisite of modernization-since in many instances 'traditional' institutions and values may facilitate rather than impede the social changes usually associated with modernization nor is it in itself a sufficient condition of modernization-since the destruction of tradition as, for example, by colonial domination may lead in directions other than modernity.

Although many attempts had been made to address the theoretical and practical disconnects between the western model of socio-cultural, economic and political changes as explicitly suggested by the modernisation theories, they had obviously failed to address the inherent weaknesses. Banuri (1987) opines that, accusationsof failures could similarly be disregarded as resultingfrom weaknesses not in the theory but in the application,because of the endurance of backward behavior, valuesand institutions in the countries concerned, or (at alater stage) from the inefficiency or veniality ofpoliticians and bureaucrats. Thus, the modernisation perspective is not always suitable for developing countries, such as Nigeria where rule of law is only applicable upon the masses and only few of the population seems to benefits from the economic robustness of the countries.

In addition, traditional/modern isunderstood to be a hierarchical relationship whereby traditional cultural traits aredestined to die out, or be 'bred out' of a people through more or less well-meaningpolicy interventions. Culture, in this view, isbounded and static, like a box handed down from one generation to the next that mustbe cast aside if it stands in the way of progress. Traditional societies exist outside ofhistory, and any society that resists modernization and clings to tradition will remainunderdeveloped. Only societies willing to give up their traditional values, institutionsand cultural practices, or which happen to possess cultural traits that are favorable tomodernization, will succeed in their quest for development (Schecks, 2014).

In the Third World context, many critics have argued that the 'scientific' approach to knowledge is not only far fromperfect, but that it might lead to problems which were avoided by more 'humanistic' approaches. One of themain criticisms of this view had been with regard tothe violent and undemocratic nature of modern scientificways of understanding the world. This approach hasoften been used to criticize modern science and technologyfor not serving the needs of

people (Banuri, 1987). This criticism arises out of thecounterpoint against the modernizing approach which is based on the inherent superiority of thescientific method of understanding and manipulating thephysical and social environment, these alternative viewspresent a challenge to their legitimacy.

Modernization Perspective: Review of Nigerian Development

The modernisation theories have contributed immensely in reshaping international developmental policies in which patterns of development of the Third World have been dramatically changed. Using the rubric of these theories, larger global economies of the world became actively involved in assisting many economically less developed countries in the Third world. More international donor organisations, such as United Kingdom's DFID (Department for International Development) and USAID (United State Agency for International Development), have been introduced to render foreign aids to the Third World countries.

Modernization perspective can be used to explain pattern of development in Nigeria. Because, using it, we can understand how foreign interventions through International Food and Agricultural Development (IFAD), Rural Economics and Enterprise Development (REED), United Nations Development Programme (UNDP), Department for International Development (DFID), United States Agency for International Development (USAID) and other development agencies are helping Nigeria towards achieving economic development through various development projects. These organisations have been deeply involved in interventions pertaining to agricultural development, rural development, reproductive health, gender and development, democratisation, education, environmental sustainability, and sustainable development.

Policies, such as Structural Adjustment Programme (SAP), have been defended by the World Bank in terms of reducing the restrictions that delay business and investments, reduction in interest rates due supply of money whichencourage firms to locate in disadvantaged geographic areas. This was done as the old system of approving locationhas been replaced by income tax concessions and higher depreciation rates (World Bank, 1994). Majorpolicies in this regard related to:

(a) holding down the level of public sector employment through attrition andfreezing of vacant positions except in the cases of critical skills;
(b) making wages a function of the scarcity values of skills;
(c) the establishment of DFRRI for self-employment when in actual fact, theNigerian economy did not seem to have any intimate capacity to create self-employment jobs (NCEMA, 2004:19).

However, SAP has not yielded any positive outcome to the life of the common man in the country. Instead, they brought continuous underdevelopment as poverty and unemployment rates have increased and life became unbearable to vast majority of Nigerians due cost of living.Incidentally, SAP recognized these problems but expected them to continue. As noted by Walker (2017), policy reform will be slow as efforts to introduce market-oriented reforms anddiversify the Nigerian economy away from oil come up against vested interests,ideological opposition and bureaucratic inefficiency. Also, Nigeria's democracy is expected to prove sufficiently robust to survive theinstability, but there are small risks that parts of the country becomeungovernable or elements of the army attempt a coup.

Conclusion

The article discussed modernisation as one of the perspectives of development which emerged after the Second World War.In conclusion, the article acknowledged the roles and the commitments of Non-Governmental Organisations (NGOs) and international development agencies, such as IFAD, USAID, DFID, UNDP, and UKAID in Nigeria, which are all influenced by these theories. But it is important to note thatthe perspective is not without many ills to the development of some developing countries, such as Nigeria. For instance, the democratization process copied from the west is not all good. The transition to democracy has made the country virtually ungovernable in many occasions, due to inter-communal clashes, religious conflicts, and the rise of terrorist and militia groups.

Despite the interventions of the developed countries, also,development in Nigeria and other developing nations is possible only if the leaders and the nationals are collectively committed towards the achievement of their nations. Therefore, Nigerian leaders shall complement the assistance of the foreign countries with good governance, and developing systematic economic policies, fighting the culture of corruption, embrace technology and industrialisation in order to attain the goal of development. There is also the need for reducing the over-dependence on foreign assistance, because this syndrome can lead to the country's perpetual underdevelopment.

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