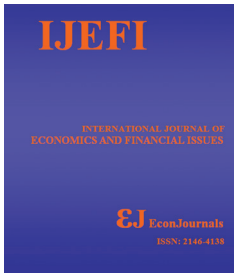

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Interface of Insurance and Economic Growth: Nigerian Experience

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ABSTRACT

The study aims to confirm the existence of positive and significant relationship between insurance penetration/activity and economic growth in Nigeria. Applying Ordinary Least Square model on Nigerian time series data for the period 1996–2015 reveals that insurance industry makes positive and significant contribution on Nigeria's economic growth. Based on the findings, it is recommended that government should implement economic policies capable of stimulating insurance industry activity such as the enforcement of the statutory insurances; insurance industry stake-holders should improve the insurance image laundry and market awareness activity by promoting systematic educational campaign in the media and among the general public.

Keywords: Insurance, Economic Growth, Nigeria, Insurance Premium, Insurance Investment, Emerging Economy
JEL Classifications: C32, E31, E37, F31, O52

1. INTRODUCTION

As we rightly know, insurance is a scheme used to mitigate the effects of misfortune through provision of financial compensation from the pool of accumulated contributions or premium by all persons participating in the scheme. In developed economies, insurance does contributes a lot to the well-being of the citizenry and the economy at large. Here in Nigeria, an emerging economy in Africa, there is crisis of confidence towards the industry. Nigerians developed strong apathy towards insurance and this made the industry a pariah industry in Nigeria. The distrust was deeply bred so much that the performance of insurance stocks on the Nigerian Stock Exchange (NSE) has been negatively affected. Many of the stocks could not go beyond the minimum price per share of 50 kobo in the market and very few investors do trade on them. This scenario has refused to change with time. As a result it is generally believed that insurance inclusion is very low in Nigeria. Due to the negative attitude of people toward insurance, the ability of the Nigeria insurance industry to contribute significantly to the economic growth of the country has been in doubt. Many observers attribute claims fraud syndrome, religious antagonism and unfavourable macroeconomic environment as some of the major problems undermining insurance in Nigeria. Careful study on the Nigeria's insurance industry reveals that it has been confronted with problems of products selling rather than marketing, limited underwriting capacity, expertise, weak research capacity, institutional framework, lack of proper infrastructure, denial of genuine claims, lopsided office distribution, lack of proper education and awareness creation, fraudulent behaviour of insurance intermediaries, fraudulent claims syndrome, unfavourable macro-economic environment, religious antagonism, lack of reliable ICT, limited retention capacity among others which are likely to prevent insurance in Nigeria from meeting the expectation of the insuring public and consequently may not be contributing significantly to the Nigeria's economic growth. In view of the aforementioned challenges facing the Nigeria's insurance industry, the question on the lips of many observers has been, "Does insurance developments make a positive and significant contribution to economic growth in this country Nigeria? Intuitively a diligent answer should be that' Insurance development does not have a positive and significant effect on economic growth in Nigeria but this remains a hypothesis.

On account of the aforementioned challenges confronting Nigeria's insurance industry which include products selling rather than marketing, limited underwriting capacity, expertise and skill, weak research capacity and institutional framework, lack of proper infrastructure, denial of genuine claims, lopsided office distribution, lack of proper education and awareness creation, fraudulent behaviour of insurance intermediaries, fraudulent claims syndrome, unfavourable macro-economic environment, religious antagonism, lack of reliable ICT, limited retention capacity among others, can insurance development in Nigeria still impact positively and significantly on the Nigerian economic growth? Even with the perceived insignificant contribution of insurance to Nigeria's economic growth, it still remains unclear the extent of the impact of insurance on Nigeria's economic growth since many researchers' attention and research efforts were focused on insurance-growth nexus of the G-7 Nations, OECD countries and other developed economies of the world rather than Nigeria. Given the dearth of empirical studies along this line this study seeks to determine whether there is existence of positive and significant relationship between insurance development and economic growth in Nigeria.

The study covers the 55 insurance companies duly registered pursuant to the Insurance Act 2003 and operating in Nigeria. The period covered by the study is 1996–2015. The choice of the period is justified by the facts that the base year, 1996 was the year that immediately precedes year 1997 that witnessed the promulgation of two land mark insurance Decrees which are the National Insurance Commission Decree No 1 and the Insurance Decree No 2 thereby creating an unprecedented framework for hitherto better reform and regulation of insurance business in Nigeria. Secondly, there is relative availability and regularity of data within the period. The relevant data for the study beyond the end of year 2013 was not readily available for observation as year 2015 was currently running as at the time of data collection for this work. Consecutive 20-year period data can be sufficient for validity of statistical analyses and findings. The study employs ordinary least square and pairwise granger-causality test on Nigerian time series data for the period 1996–2015.

On the significance of this work, the study will provide input materials for further research. The insurers and reinsurers will be exposed to the direction and magnitude of their activity towards economic growth. The insurance regulators and policy makers will observe the level of contribution of insurance to economic growth which would enhance the quality of their policy making, oversight function and regulation of the industry for better performance to meet global challenges and better contribution to economic growth. Due to non availability and irregularity of data prior to 1996, the study is only able to use 20 years annual time series data (out of which 2014–2015 data are projected) for the estimates, which may have some slight statistical implications on the estimate results of the study.

The rest of this paper is divided into four sections. Section 2 discusses the review of related literature while section 3 states the methodology; section 4 presents the data and its analysis. Section 5 concludes the paper.

2. REVIEW OF RELATED LITERATURE

2.1. Conceptual Review

The concept of insurance in its modern form was introduced into Nigeria by the European trading companies mostly British in the closing years of 19th century. These companies started affecting their insurance with established insurers in the London insurance market. As time went on, some British insurers appointed Nigerian agents to represent their interest in the country. These agents later transformed into full branch offices of their parent companies in Britain. The first company to establish a full branch office in Nigeria was the royal exchange assurance company in 1921, which was later followed by other British insurers and indigenous Nigerian insurers and reinsurers such as national insurance corporation of Nigeria established in 1969 and the Nigeria Reinsurance Corporation established in 1977 operating in Nigeria till today. Between 1958 when the first indigenous insurance company - the African Insurance Company Limited was established up to 2005, there were a total of 104 insurance companies and 4 reinsurance companies in Nigeria (Badejo, 1998; Osunkunle, 2002 Adedokun, 2013). Ever since the emergence of indigenous insurance companies in Nigeria, there have been allegations of risks of potential abuse, low awareness, poor market penetration, low operating capital as well as low capacity for retention and acceptance of foreign risks. All these and more led to massive regulation of the insurance sector.

The first major step at regulating the activities of insurance business in Nigeria was the report of Obande commission of 1961 which resulted in the establishment of department of insurance in the Ministry of Trade and which was later transferred to the Ministry of Finance. The report also led to the enactment of Insurance Companies Act of 1961 which came into effect on May 4, 1967. The office of the registrar of insurance was created by the provisions of the Act to supervise insurance practice. Other provisions of the Act included minimum capital requirement and other conditions for registration, monitoring and control of insurance operations generally. This was followed by a series of legislation which sought to further the course of insurance regulation in the country.

The next major attempt at regulating insurance in the country was the promulgation of the Nigerian Insurance Decree, 1976. The Insurance Act 2003 Section 86 provides that NAICOM shall be responsible for the administration and enforcement of the Act setting the criteria and standards for registration, policy provision, rates, expenses, limitations, valuation of assets and liabilities, investment of funds, the qualification of sales representatives et cetera. Recapitalization Section 9(4) of Insurance Act 2003 provides for recapitalization for the various categories of insurance which include Life, General, Composite and Reinsurance. In 2003, capital base requirements were as follows: Life insurance was N150 m, General insurance was N200 m, Composite insurance was N350 m and Reinsurance was N350 m respectively. In 2005/2006 after recapitalization exercise, capital base was raised as follows: Life insurance N2billion, Non-life insurance N3billion and Reinsurance N10billion. The recapitalization was done through the use of merger and acquisition which resulted to the reduction

of insurance companies from 104 to 49 and from 4 reinsurance companies to 2 (Fatula, 2007).

During the last decades, there has been faster growth in insurance market activity in both developing and transition economies given the process of financial libration and financial integration (Brainard, 2008 in Philip, 2011), which raises questions about its impact on economic growth. Philip (2011) citing Favara (2003) and Levin (2004) observes that research efforts so far have not examined the impacts of other financial markets or instruments on economic growth in similar depth. Compared to the vast literature focusing on bank, stock and bond markets and their respective environment, the insurance sector has hardly been investigated in its role regarding the economic growth. As noted by Oke (2012) and Shittu (2012) insurance companies affect economic growth by providing protection for the insured through the channels of marginal productivity of capital, technological innovation and savings rate. Through this process, insurance industry contributes to the growth of Nigerian economy and in view of the gap in the literature we intend to embark on the assessment of contribution of insurance industry to nigeria's economic growth.

Appah (2010), Dwivedi (2002), Appah and Ateboh-Briggs (2013) accept economic growth as a sustained increase in per capita national output or net national product over a long period of time. Appah and Ateboh-Briggs (2013) stated that the economic growth that is, the rate of increase in total output must be greater than the rate of population growth. To measure economic growth, economists generally examine the rate of change in real gross domestic product (GDP) from 1 year to the next. In the view of Central Bank of Nigeria (2008) GDP is the money value of goods and services produced in an economy during a period of time irrespective of the nationality of the people who produced the goods and services. It is usually calculated without making any allowance for capital consumption (or deductions for depreciation). Furthermore, GDP based on expenditure is the total final expenditure at purchases' prices (including the f.o.b. value of exports of goods and services) less the f.o.b. value of imports of goods and services. In short, GDP is the total volume of production that has taken place in the economy irrespective of the nationality of the people who produced the goods and services. It is the total production that has taken place in Nigeria by Nigerians themselves and foreigners living in Nigeria (Buhari, 1993). Some of the main determinants of economic growth as identified by Riley (2015), which apply for both developing and developed countries although with the relative weighting attaching to Each depending on the individual circumstances facing each country or region include: (1) Growth in physical capital stock - leading to a rise in capital per employee (capital deepening); (2) Growth in the size of the active labour force available for production; (3) Growth in the quality of labour (human capital); (4) Technological progress and innovation driving productivity improvements i.e., higher GDP per hour worked; (5) Institutions - including maintaining the rule of law, stable democracy, and macroeconomic stability; (6) Rising demand for goods and services – either led by domestic demand or from external trade. Basically, economic growth is driven by rising aggregate demand (AD) and growing long-run aggregate supply (LRAS). Increases in LRAS bring about a rise in productive potential. Higher levels of AD for goods and services provide the impetus for this productive potential to be used. In the short term, economic growth is caused by an increase in AD. If there is spare capacity in the economy then an increase in AD will cause a higher level of real GDP. From the above submissions, economic growth is a long-term expansion of the productive potential of the economy. It can be measured as an increase in Real GDP, national output and national income. The real GDP is the market value of all goods and services produced in a nation during a specific time period. Real GDP measures a society's wealth by indicating how fast profits may grow and the expected return on capital. It is labelled "real" because each year's data is adjusted to account for changes in year-to-year prices. The real GDP is a comprehensive way to gauge the health and well-being of an economy.

GDP according to the CBN's conceptual operational definition is the total monetary value of goods and services over a period of time usually a year. General insurance premium (GIP) is the price paid for various general insurance policy purchased. Life insurance premium (LIP) represents the price paid for various life assurance products. Total insurance investment (TII) is conceptualized as economic activities embarked upon by insurance carriers to increase, improve and maintain the productive quality of the stock of the capital injected into the economy. TII as captured in NAICOM reports are government securities; stocks and bonds; real estate and mortgage; policy and other loans; cash at hand and deposits; and bills of exchange. Number of insurance companies (NIC) represents registered and operating in Nigeria under the Insurance laws. Gross fixed capital formation (GFCF) is a component of expenditure approach to calculating GDP which refers to the net increase in physical assets (that is, investment less disposals) within the measurement period. It does not account for depreciation of fixed capital and also does not include land purchases (financial items). Fire insurance claim (FIC) is the total claim paid to policy-holders for losses under fire insurance policies. Auto-insurance claim (AIC) connotes the total claim paid to policy-holders for losses under motor insurance policies. Employers liability insurance claim (ELIC) means the total claim paid to employees for injury, death or losses suffered by them in the course of their duty under employers' liability insurance policies. Marine insurance claim (MIC) is conceptualized as claim paid to policy-holders for losses under marine polices. Inflation (INF) connotes the percentage rate of increase in price level over time.

2.2. Theoretical Review

It is generally believed that insurance inclusion is very low in Nigeria due to the negative attitude of people towards insurance (Obasi, 2010 cited in Elendu, 2013). The ability of the insurance industry to contribute significantly to the GDP has been hampered by the challenges facing the industry in its discharge of duties that contribute to the economic growth. Insurance marketing in Nigeria is in a critical state. Osoka (1992) highlights the prevalence of confusion among insurance marketers between selling and marketing. According to him, while selling is concerned with creating demand for the products that have already been decided, marketing is directed towards identifying the needs and wants of customer and planning to satisfy those needs. Limited expertise and skill is another challenge militating against the development of Nigerian insurance market.

Nduna (2013) points out that African insurance industry has not developed sufficient research and development capacity and has traditionally relied on the expertise from the advanced economies with the result that the industry is always lagging behind in terms of product innovation. He further asserts that lack of proper infrastructure, such as good road network and telecommunication often militates against effective operation of insurance companies. Moreover, weak institutional framework and other factors such as denied or delayed indemnification of risk victims with genuine insurance claims, lopsided distribution of insurance offices, lack of awareness, lack of proper education and fraudulent behavior of those selling insurance among others, were also identified as causal reasons for low insurance penetration in Nigeria (Akpan, 2005; Ibok, 2006). Because of the confidence crisis of the industry, Obasi (2010) observes that Nigerians developed strong apathy for insurance which made the industry a pariah industry which has refused to change with time as policy documents still carry clauses that breed distrust with customers.

Researchers have also proven that other major problems undermining insurance in Nigeria include claims fraud syndrome, religious antagonism, and unfavourable macroeconomic environment. Adedokun (2014) citing Onaolapo (2000), points out that claims and fraud management in the developed markets has a dimension different from Nigeria since the main area of strength that has given the developed markets like the United Kingdom and America a hedge over emerging markets like Nigeria is the extent of use of information technology to manage data exchange. The problems militating against the achievement of claims management objectives in Nigeria are enormous. Some of them are moral hazards or dishonesty of some clients and intermediaries; premium undercutting at the instance of brokers; lack of database facilities to support claims management efforts as obtains in developed markets; unethical practices by market operators/intermediaries and non-remittance of insurance premia (Onaolapo, 2000; Irukwu, 2009; Vikash, 2012; and Isimoya, 2014). Gill et al. (1994) describe insurance fraud as knowingly making a fake claim, exaggerating a claim or adding extra items to the claim or being in any way dishonest with the intention of gaining more than legitimate entitlement. To Bates and Atkins (2007), insurance fraud involves a mild inflation of the amount of a property lost or damaged through organised criminal activity to obtain large sum of money. Yusuf (2006) posits that religion historically has provided a strong source of cultural opposition to life insurance as many religious people believe that a reliance on life insurance results from distrust of God's protecting care. Until the 19th century, European nations condemned and banned life insurance on religious basis (Yusuf et al., 2009). Some scholars are of the opinion that religious antagonism to life insurance still remains in the Northern part of Nigeria and some Islamic countries (Yusuf, 2006; Elendu, 2013).

2.3. Empirical Review

Existence of relationship and causality between insurance development and economic growth has been much hypothesized over the years. There are three schools of thought in the literature concerning the nature of relationship between insurance and economic growth. The first school of thought postulates that insurance leads to economic growth while the second school of thought holds that economic growth leads to the development of the insurance sector (Patrick, 1966). The third school of thought, according to Haiss and Sumegi (2008), suggests bidirectional relationship between insurance development and economic performance. Akinlo (2013) posits that the available empirical evidence on the insurance-growth relationship has produced mixed results. Some studies such as Webb et al. (2002), Boon (2005) and Arena (2008) found a unidirectional causality running from insurance development to economic growth while Ching et al. (2010) reported the reverse. While the findings of the study by Kugler and Ofoghi (2005) support bidirectional relationship between insurance and economic growth, others provided evidence of neutrality of insurance and economic growth. According to Blum et al. (2002), the link between insurance and the real sector can be classified in terms of causality with respect to five hypotheses: (1) No causal relation (2) demand-following, that is, economic growth leads to a rise in demand for insurance (3) supply leading, that is, growth in insurance smoothes short-term economic volatility and thus induces economic growth in the long run, plus growth in investment by insurance companies induces economic growth (4) negative causal link from insurance to growth, e.g., growing insurance causes more careless behavior (moral hazard) resulting in a less efficient and more volatile economy (5) interdependence or bidirectional causal relationship. The summary of some empirical studies on insurance development and economic growth is shown in Table 1.

From the foregoing empirical findings related to the contributions of insurance industry to economic growth the results up to date are mixed, it can be inferred that there is a strong concern for insurance development visa-vis economic growth in the literature. As far as Nigeria's economy is concerned, insurance-growth nexus status has not been clearly and empirically determined. Our study hereby assesses the contribution of insurance industry to Nigeria's economic growth.

3. METHODOLOGY

3.1. Research Design

Annual time series secondary data formed the data set for the study. Sources of data include Central Bank of Nigeria's 2013 statistical bulletin, Nigerian Insurance Statistics and Directory for 2011, the National Bureau of Statistics and the World Bank National Accounts and OECD National Accounts File available at: www.indexmundi.com/facts/nigeria/GFCF. The area of this study is the Nigerian insurance industry (market) which comprises the registered and operating insurance companies, reinsurance companies, brokers, agents and consultants. The population of the study consists of the 55 insurance carriers including the 2 existing reinsurers in the industry (Leadway Assurance, 2013). The study adopts quota sampling design which is a form of non-probability sampling method where representatives of different characteristics existing in the population are captured in the sample. Hence, the research sampled 49 insurance companies consisting of all the 24 insurance companies listed in the NSE, the 2 currently existing reinsurance operators (1 quoted and 1 unquoted) and 23 insurance companies which are not listed in the NSE but have consistently

Table 1: Summary of selected empirical studies on insurance development and economic growth

Author(s)	Sample	Methodology	Main results
Outreville (1990)	Cross-sectional data from 55 developing countries	OLS on pooled time series and cross-sectional data	Relationship between property-liability premia is positive
Brown and Kim (1993)	1980–1987 cross-sectional data for 45 countries	OLS on cross-sectional data	Social backing influences insurance demand
Beenstock et al. (1998)	1970-1981 cross-sectional data covering 12 countries	Pooled time series and cross-sectional analyses	Premiums are correlated to interest rate and GNP
Zhuo (1998)	Cross-regional data on China for the period 1986-1995	Cross-regional and time series analyses	There is a significant correlation between insurance consumption and GDP per capital
Browne *et al*. (2000)	1986–1993 cross-sectional data on OECD countries	Pooled Cross-sectional Panel Data Model	Income and legal system are positively correlated to insurance consumption while loss probability and wealth are negatively correlated with insurance consumption
Ward and Zubruegg (2000)	9 OECD countries annual data for 1961–1996	Co-integration analysis and causality tests	Insurance industry granger-causes economic development in some countries while reverse is the case in other countries
Beck and Webb (2002)	14 European cross-country data for 1998-2010	Cross-country analysis	Evidences of negative coefficient for countries with Islamic origin and positive correlation between institutional development and insurance demand are found
Webb et al. (2002)	55 countries including 17 EU countries data for 1980-1996	OLS on panel and cross country analysis	Financial intermediation is significant and a combination of insurance and banking has the strongest impact on growth
Kugler and Ofoghi (2005)	Time series data from UK from 1966 to 2003 for long-term insurance, and from the period 1971 to 2003 for general insurance	Johansen's cointegration test	Relationship between development in insurance market size and economic growth for all components of insurance market is found and causality in short run exists from life, life and pecuniary loss insurance to economic growth
Arena (2006)	Cross-country panel data for the period 1976 to 2004 from 56 (both developed and developeing) countries	GMM for dynamic models of panel data	A positive and significant effect of total, life and non-life insurance market activity
Haiss and Sumegi (2008)	Cross-country panel data from 1992 to 2005 from 29 European countries	OLS on cross country panel data	A positive impact of life insurance on GDP growth in 15 EU countries. For the NMSs from CEE, they found a short-run impact for non-life insurance consumption
Krishna (2008)	Time series data on Indian economy	OLS on time series data	The contribution of the insurance sector to economic development is positive and exhibits a long-run equilibrium relationship
Marijuana et al. (2009)	Cross-country data from 10 transition European Union member countries in the period from 1992 to 2007	Ordinary least square on cross-country data	Iinsurance sector positively and significantly affects economic growth
Vladimir and Dragan (2010)	Panel data from ex-Yugoslavia region for the period 2004–2008	Country-specific fixed effects models	Insurers provide positive effect on economic growth both as providers of insurance risk management and indemnification and as institutional investors
Odhiambo (2011)	Time series data on South Africa for the period of 1960 to 2006	Trivariate-causality model and ECM	The hypothesis of finance-led growth do not hold in South Africa that is, finance has nothing to do with the growth of South African economy

(Contd...)

Table 1: ***(Continued)***

Author(s)	Sample	Methodology	Main results
Mojekwu et al. (2011)	Time-series data on Nigerian economy within the period of 1981–2008	Dynamic factor model	Economic growth is positively correlated with insurance which implies that if insurance contribution increases, economic growth will also increase
Philip (2011)	Time series data on Nigerian economy over the period of 1970–2008	Johansen cointegration and vector ECM	The hallmark finding on Insurance sector did not reveal any positive and significant effect on economic growth in Nigeria within the period of study
Oke (2012)	Time series data on Nigeria from the period of 1985 to 2009	Fixed effect model and co-integration analysis	Insurance sector growth and development positively and significantly affects economic growth. The result of the granger causality test indicates that the extent of influence the insurance sector growth had on economic growth was limited and not direct because of some cultural, attitudinal traits and values in the economy
Shittu (2012)	Time series data on Nigeria for the period of 1970–2010	Cointegration test and ECM	The financial intermediaries have significant impact on the growth of Nigerian economy.
Lezaazi and Tamunonimim (2012)	Time series data on Nigeria from 1980 to 2011	OLS, Johansen co-integration, granger causality, impulse response, and variance decomposition procedures on annual rate of change in Nigeria	Claims payment on accident, fire, motor vehicle and Employers' liability insurance policies affect growth in GFCF in the short run. Existence of unidirectional causality flow from GFCF to claims paid on fire and marine policies was also found by the study
Hou *et al*. (2012)	Panel data over 1980-2009 for twelve Euro Countries	OLS on cross country data	Evidence supporting that life insurance and banking activities are important predictor of economic development in Euro Zone was found
Chen *et al*. (2012)	Cross country panel data on a maximum of 60 countries over 1976–2005	Two-step system GMM approach	Positive impact of the development of the life insurance market on economic growth was confirmed and also that the insurance-growth nexus varies across countries with different conditions was revealed.
Ozuomba (2013)	Annual time series data on Nigeria for the period 1998–2007	Cointegration and ECM	There is significant relationship between insurance premium and economic growth in Nigeria
Richard and Victor (2013)		Johansen co-integration test and ECM	Insurance premium capital has significantly impacted on economic growth in Nigeria; the level of TII has significantly effected on economic growth in Nigeria; and there is a causal relationship between insurance sector development and economic growth in Nigeria
Yinusa and Akinlo (2013)	Time series data on Nigeria over the period 1986–2010	ECM	Cointegration exists between insurance development and economic growth in Nigeria
Lee et al. (2013)	Cross country data for 41 countries within three levels of income over the period of 1979–2007	SURAFD test, panel cointegration test and Panel granger causality test	There was a concrete evidence favouring the hypothesis of long run equilibrium relationship between real GDP and real LIP after allowing for heterogeneous country effect
Akinlo and Apanisile (2014)	Cross-country data on sub-Saharan Africa over the period 1986-2011	Pooled OLS, fixed effect model and GMM panel model	Insurance has positive and significant impact on economic growth in sub-Saharan Africa

(Contd...)

Table 1: ***(Continued)***

Author(s)	Sample	Methodology	Main results
Cristea et al. (2014)	Annual time series data on Romania over the period 1997 – 2012	Testing a set of correlations	There was an evidence in support of an important correlation with direct influence between the variables
Pradhan et al (2016)	Using panel data for the Association of South East Asian Nations (ASEAN) Regional Forum (ARF) countries for the period of 1988-2012.	Multivariate framework which includes panel cointegration and panel granger-causality tests.	All the variables were found to be cointegrated and it was revealed that a network of causal connections including short-run bidirectional causality between insurance market penetration and economic growth existed.
Muye and Hassan (2016)	Panel data model for a set of 22 countries over a period of 2004–2012	Difference GMM estimation technique	The study revealed a strong evidence of positive and significant effect from the Islamic insurance activities on economic growth
Liu et al. (2016)	Cross-country panel data on G-7 countries	Bootstrap granger-causality test, Johansen cointegration test and GMM system estimator	The study revealed the existence of long-run relations between the series and the results of the bootstrap granger-causality test showed that the short-run causal relationships are country-specific

Source: Constructed by the authors, LIP: Life insurance premium, CEE: Central and Eastern Europe, NMS: New EU Member State, ECM: Error correction model, GMM: Generalised method of moment, SURADF: Seemingly unrelated regressions augmented Dickey Fuller, TII: Total insurance investment

operated in the market for at least ten years. The relevant annual data were collected on GDPs, components of premium income from general insurance (non-life) and life assurance, TII, and number of existing insurance companies in Nigeria for the model.

Standard tests which include stationarity and Normality tests and descriptive statistical analyses were carried out to ascertain the characteristics of variables in the estimation models. Others include tests for skewness, mean, median, Kurtosis, Jack-Bera and Augmented Dickey–Fuller tests. Regression analyses were also carried out to determine the relationship between the endogenous and exogenous variables of the estimation models. Test of significance of the overall regression (F-test) and direction and degree of relationship (t-test) and the Coefficient of Determination (R^2-test) were carried out.

The study constructs two primary disaggregated models - one for insurance premium, NIC and TII-GDP. The model is patterned after the standard multivariate regression analysis as well as granger causality technique, within the context of Solo Swan economic growth model. The patterns are in line with the works of Monogbe (2015) and Lezaazi and Tamunonimim (2012) but modified to suit our own purpose and produce a more reliable result. The Monogbe (2015) and Tamunonimim (2012) models are respectively stated as: $GDP=b_o+b_1TCP+b_2TIP+b_3TIN+b_4TIR+U_t$.

Where: TCP = Total claim payment; TIP = Total insurance premium; TIN = Total insurance investment; TIR = Total insurance returns.

The study applies time series regression analysis using e-view 7.2 version and employed the impact model to estimate the relative effects of the correlates. The analytical framework of this study consists of five basic steps carried out on the models specified. They include: Unit root test, descriptive statistical analysis, correlation matrix, and ordinary least square regression method and granger causality test.

3.2. Standard Tests

Stationarity, normality tests and descriptive statistical analyses were carried out to ascertain the characteristics of variables in the estimation models. The tests include tests for skewness, mean, median, Kurtosis, Jack-Bera and Augmented Dickey–Fuller tests.

3.3. Regression Analysis

Regression analyses are also carried out to determine the relationship between the endogenous and exogenous variables of the estimation models. The research carried out the tests of significance of the overall regression (F-test) and direction and degree of relationship (t-test) and also the Coefficient of Determination (R^2-test). Pair-wise Granger-Causality tests shall be carried out to determine the direction of causality between the dependent and independent variables of the estimation models.

3.4. Models Specification and Definition of the Variables

Given our theoretical and empirical review, and in line with Solow Swan economic growth model rooted in Cobb-Douglas modified production function, we construct and specify insurance penetration and economic growth models thus:

$$GDP=f(GIP, LIP, TII, NIC) \quad (1)$$

Where, GDP = Gross domestic product, GIP = General insurance premium, LIP = Life insurance premium, TII = Total insurance investment, NIC = Number of insurance companies. Expressing Equation (1) in econometric model we have:

$$GDP=\beta_0+\beta_1GIP_{jt}+\beta_2LIP_{jt}+\beta_3TII_{jt}+\beta_4NIC_{jt}+U_t \quad (2)$$

Differencing, we have:

Model for $H_0 1$

$$\Delta GDP_{jt}=\beta_0+\beta_1\Delta GIP_{jt}+\beta_2\Delta LIP_{jt}+\beta_3\Delta TII_{jt}+\beta_4\Delta NIC_{jt}+U_t \quad (3)$$

$$\Delta GDP_{jt}=\beta_0+\beta_1\Delta LIP_{jt}+U_t \quad (4)$$

$$\Delta GDP_{jt}=\beta_0+\beta_1\Delta TII_{jt}+U_t \quad (5)$$

$$\Delta GDP_{jt}=\beta_0+\beta_1\Delta NIC_{jt}+U_t \quad (6)$$

β_o = Intercept, β_1-β_4 = Parameters of the estimate, j (= 1,2,3.....N) represents each company in the sample, t (= 1,2,3.....T) denotes the time period for each company, U_t = Error term. A priori expectations are $\beta 1, \beta 2, \beta 3, \beta 4 > 0$.

4. EMPIRICAL RESULTS AND FINDINGS

4.1. Descriptive Statistics and Normality Test

Table 2 shows that all the series display a high level of consistency as their mean and median values are perpetually within the minimum and maximum values of these series. Moreover, the relatively low standard deviation for most of the series indicates that deviations of actual data from their mean are very small. Furthermore, it can be seen from the table that two variables namely GDP and LIP are leptokurtic (peaked) relative to the normal as the kurtosis of each exceeds three. This is characteristic of financial data as posited by Brooks (2010). However, the remaining three are platykurtic as their kurtoses are below three. Finally, all series are normally distributed as their Jarque Bera-associated P-values exceed 0.05. In order to examine the possible degree of association among the variables, we obtain the correlation matrix of the dependent and independent variables. Table 3 reports the sample correlation matrix of the variables employed in the study. The correlation Table 3 gives a preliminary idea of direction of relationship between the selected variables. In general, the results in Table 33 below show that in terms of magnitude, the correlation coefficient is generally high; while two variables have negative correlation others are positive.

4.2. Test for Linearity

The results in Table 3 show that two variables, LIP and TII are positively correlated with GDP with coefficients of 0.469 and 0.123 respectively. These suggest that increase in each of these series will lead to corresponding increase in economic growth. Moreover, LIP-GIP, TII-GIP and TII-LIP are positively correlated as shown on the Table 4 meaning that increase in any of the correlates in each case increases the other. However, NIC is negatively correlated with all other variables as shown in the Table 4, which signifies that increase in the NIC leads to decrease in all other variables.

4.3. Test for Stationarity

To ensure that the relationship estimated by the regression between the variables is not a spurious one, the series data employed need to be stationary as believed by Koutsoyannis (1977). Table 4 shows the results of ADF unit root test carried out on the series. All variables are found to be stationary at first difference as test statistics are higher than critical value at 5% critical level. These results make them to be free for use in our statistical analyses.

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4.4. Test of Hypothesis

$$\Delta GDP_{jt}=\beta_0+\beta_1\Delta GIP_{jt}+\beta_2\Delta LIP_{jt}+\beta_3\Delta TII_{jt}+\beta_4\Delta NIC_{jt}+U_t$$

Table 5 presents regression results for the contribution to GDP discussed in methodology part, where GDP is the dependent variable. Table 5 shows that GIP affects GDP negatively. GIP coefficient is −8.06 which means that one unit increase in GIP decreases GDP by 8.06 units. The statistical significance of GIP on GDP is 0.0216 which is <0.05. This means that GIP predicts effect on GDP with 97.84% probability. LIP affects GDP positively with LIP coefficient of 2.28 which means that one unit increase in LIP increases GDP by 2.28 units. The statistical significance of LIP on GDP is 0.0010 which is <0.05. It means that LIP predicts effect on GDP with 99.9% probability. NIC coefficient is −726190.7 meaning that 1 unit increase in the NIC decreases GDP by 726190.7 units. The statistical significance of NIC on GDP is 0.0000 which is far <0.05. It means that NIC predicts effect on GDP with 100% probability. TII coefficient is 3.87 suggesting that one unit increase in TII increases GDP by 3.87 units. The statistical significance of TII on GDP is

Table 2: Basic descriptive statistics

Statistics	DGDP	DGIP	DLIP	DNIC	DTII
Mean	25351884	0.003434	0.000403	82.31579	0.006599
Median	18564590	0.003429	2.39E-07	55.00000	0.005046
Maximum	80222530	0.005694	0.001555	117.0000	0.013571
Minimum	3989450.	0.001750	4.84E-08	55.00000	0.002955
Standard deviation	23960485	0.001101	0.000554	29.89807	0.003892
Skewness	1.185554	0.681053	1.020480	0.164705	0.943999
Kurtosis	3.072647	2.745321	2.689214	1.094527	2.231391
Jarque-Bera	4.455046	1.520155	3.374169	2.960308	3.289609
Probability	0.107795	0.467630	0.185058	0.227603	0.193050
Sum	4.82E+08	0.065250	0.007652	1564.000	0.125376
Sum Sq. Dev.	1.03E+16	2.18E-05	5.53E-06	16090.11	0.000273
Observations	19	19	19	19	19

Source: Authors' computed using e-view 7.2

Table 3: Correlation matrix

Variables	DGDP	DGIP	DLIP	DNIC	DTII
DGDP	1.000000	−0.264877	0.469484	−0.719095	0.123282
DGIP	−0.264877	1.000000	0.586399	−0.310710	0.773240
DLIP	0.469484	0.586399	1.000000	−0.700678	0.758114
DNIC	−0.719095	−0.310710	−0.700678	1.000000	−0.703530
DTII	0.123282	0.773240	0.758114	−0.703530	1.000000

Source: Authors' Computation using e-view 7.2

Table 4: Summary of the ADF unit root tests

Variable	ADF statics	5% critical value	Order of integration	P-value	Remarks
GDP	−3.998133	−3.052196	I (1)	0.0080	Stationary at 1st Diff.
GIP	−4.730683	−3.098896	I (1)	0.0028	Stationary at 1st Diff.
LIP	−4.878149	−3.052169	I (1)	0.0014	Stationary at 1st Diff.
NIC	−4.306614	−3.098896	I (1)	0.0058	Stationary at 1st Diff.
TII	−4.306614	−3.098896	I (1)	0.0058	Stationary at 1st Diff.

Source: Authors' computation using e-view 7.2 (an extract)

Table 5: Regression results for the test of hypothesis one/model one

Dependent variable: DGDP				
Method: Least squares				
Sample (adjusted): 1996–2014				
Included observations: 19 after adjustments				
Variable	**Coefficient**	**SE**	**t-statistic**	**Prob.**
C	1.29E+08	10902738	11.84256	0.0000
DGIP	−8.06E+09	3.12E+09	−2.585147	0.0216
DLIP	2.28E+10	5.53E+09	4.130191	0.0010
DNIC	−726190.7	109850.0	−6.610751	0.0000
DTII	3.87E+09	1.16E+09	3.328692	0.0050
R-squared	0.920095	Mean dependent var		25351884
Adjusted R-squared	0.897264	S.D. dependent var		23960485
SE of regression	7679908.	Akaike info criterion		34.76705
Sum squared resid	8.26E+14	Schwarz criterion		35.01558
Log likelihood	-325.2870	Hannan-Quinn criter.		34.80911
F-statistic	40.30177	Durbin-Watson stat		1.843461
Prob (F-statistic)	0.000000			

Source: Authors' computation using e-view 7.2. SE: Standard error

0.0050 which is <0.05. It implies that TII predicts effect on GDP with 99.5% probability. Thus, the result of the analysis states that NIC and GIP have negative and significant effects on GDP while TII and LIP have positive and significant effects on GDP.

Furthermore, the table presents the figures for the whole equation. R^2 represents the prediction level of variance in GDP by GIP, LIP, NIC and TII which is 0.92. This implies that 92% of GDP can be predicted from the independent variables. Adjusted R^2 (89.7%) avoids the overestimation effect of adding more independent variables to the model. Therefore, adjusted R^2 is differing by 2.3% (92–89.7%). According to the table of F-distribution, critical value of F-distribution at 5% significance level is 3.32. In Table 5, the value of F-statistic is 40.3 which exceeds the critical value of F (3.32). Therefore, the regression as a whole is significant, meaning that the regression variables (GIP, LIP, NIC and TII) reliably predicts GDP. Moreover, the p-value (significance) is 0.000000 which also indicates that GDP is predicted with 100% probability by the independent variables. Therefore, the F-value associated P-value proves that there is significant relationship between the GDP and the regressor variables within the Nigerian insurance industry. Summarily, the result of our regression analysis shows that insurance premium, NIC and insurance investments effect on GDP in the Nigeria's economy.

Given the fact that the coefficients of LIP and TII are positively signed and the P-values of their t-statistic (0.0010 and 0.0050) which are proxies for insurance penetration and activity respectively are less than the 0.05 level of significance, we reject the null hypothesis and accept the alternative hypothesis. Insurance industry makes positive and significant contribution on Nigeria's economic growth based on the fact that the coefficients of LIP and TII are positively signed and the P-values of their t-statistic (0.0010 and 0.0050) which are proxies for insurance industry development are less than the 0.05 level of significance, we reject the null hypothesis.

5. CONCLUSION AND RECOMMENDATIONS

The goal of this study is to provide a systematic assessment of contribution of insurance industry to Nigeria's economic growth. The study delved into the theory of insurance and its

contribution to economic growth as a risk transfer mechanism, indemnification provider and institutional investor in the capital market which is quite consistent with the works in the most recent literatures on insurance-economic growth nexus such as in Hais and Sumegu; Webb et al., Kugler and Ofoghi, Vladimir and Dragan. We formulated growth model patterned along the Solow Swan economic growth model that originated from cobb-douglas modified production function for our statistical estimations.

The findings revealed that insurance penetration and activity have contributed positively and significantly to Nigeria's economy with the implication that increase in insurance penetration and activity will provoke an increase in Nigerian economic growth. However, negative and significant impact of GIP and NIC which may be due to the country specific factors, are inconsistent with some previous studies and contrary to a-priori expectation.

Based on the findings of this study we recommend that Government should formulate and implement economic policies capable of stimulating insurance industry activity such as the enforcement of the statutory insurances. The insurance supervisory agency, the National Insurance Commission (NAICOM), should endeavour to further reduce the number of underwriting firms in Nigeria to the figure with which the existing insurance business opportunity can cope with a view to paving way for emergence of mega insurance companies and minimizing the preponderance of unethical practice in all its ramifications in the Nigerian insurance industry. This can be achieved through enhanced risk-based recapitalisation and supervision that can give way to further merger and acquisition. Insurance industry stake-holders such as the NAICOM, Chartered Insurance Institute of Nigeria (CIIN) and Nigeria Insurance Association (NIA) should jointly and individually improve the insurance image laundry and market awareness activity by promoting systematic educational campaign in the media and among the general public.

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