

INSURANCE BUSINESS: A PANACEA FOR AGRICULTURAL SECTOR SUSTAINABILITY IN NIGERIA

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ABSTRACT: *Insurance sector plays important role in the growth of Nigeria economy as well as agricultural sector. The study investigated the impact of insurance business on the growth of agricultural sector in Nigeria, using time series data for 18 years from 2000 to 2017, the data used were total insurance investment; total non-life insurance premium (Independent) and the agricultural sector output to Gross Domestic Product (Dependent) which was obtained from central bank of Nigeria (CBN) statistical bulletin and also National insurance commission (NAICOM) statistical bulletin. OLS regression was conducted as well as Augmented Dickey Fuller unit root test which reveals that all the variables are stationary at the order of one, the test for cointegration shows that all the variables cointegrate when AGDP is the endogenous variable. The granger causality test reveals that there is a bidirectional relationship existing between AGDP and total non-life insurance premiums, while unidirectional relationship exists between AGDP and total life insurance premiums with no causal relationship existing between AGDP and total insurance investments. The regression result shows that all the variables have significant impact on agricultural output to gross domestic product and also there is a positive relationship between all the predictors and agricultural output to GDP. It was therefore concluded that insurance serve as a remedy to the sustainability of agricultural sector in Nigeria. The study therefore recommends that insurance sector should provide adequate information particularly on the risk concerning agricultural sectors and also providing a maximum coverage for farmers and their products to reduce the risk which the farmers retained or being expose to in the sector.*

KEYWORDS: agriculture, insurance, life insurance, general insurance, investment, Gross Domestic Product.

INTRODUCTION

Insurance sector plays a primitive and vital role in the economic development of Nigeria, it provides insurance covers to the insuring public vise a vise agricultural sector, commerce and industry, corporate organizations, individuals and government (Tijani, 2015). Insurance business in Nigeria operates in managing the risk of individuals, household, organizations and government. Raji (2018) define insurance as a contract that exist between two parties called insured or policyholder who pays a certain sum of money called premium in other to secure risk on his life and property to an insurer who indemnifies the latter whenever loss materializes. Insurance provides certainty or predictability, aiming at reducing uncertainty with regard to pure risks, it accomplishes this result by poling or sharing of risk (Raji, 2018). Insurance sector promote economic growth by mobilizing savings and investible funds, accumulated premiums and

underwriting profit, thereby making insurance investment fund available to the capital and other financial markets. Agricultural sector is one of the leading sector in the Nigerian economy, particularly in terms of its contributions to income, employment, foreign exchange earnings and domestic food supply. It also provides food for a growing non-agricultural labour force, raw materials for industrial production, savings and tax revenue to support development of the economy, to earn more foreign exchange and provide a growing market force for domestic manufacturers. Nigeria is naturally endowed with large agricultural potentialities with abundant land, rivers, streams, lakes, forests and grasslands, as well as a large active population that can sustain a productive and cultivable agricultural sector. In spite of these endowments, the sector has continuously produced below expectations. Due to unforeseeable contingencies that may occur and lead to reduction in the production of agricultural products, agricultural insurance policy was developed to protect the farmers against unforeseen circumstances by way of indemnification which also serves as a securities for banks as indemnification for financial losses suffered by farmers from damages to their products and will provide funds for servicing such loans (Epetimehin, 2010). Prior to independence in 1960, the economy was characterized by the dominance of exports (mostly agriculture) and commercial activities. Agriculture provides foreign exchange earnings that were utilized in importing raw materials and capital goods as the peasant farmers produced enough to feed the entire population but due to ill development in the country coupled with oil adventure, people have little or no interest in investing on agriculture, and do not believe in peasant farming, which has drastically reduced the agricultural productivities, increase the rate of inflation and also, has led to poor economic growth in the agricultural sector. The consequences of low or acute peasant farming, practice in Nigeria has resulted to unemployment, political crises, economic declination and poor standard of living. However, the study reveals a gap between the insurance business and the growth of agricultural sector in Nigeria. The challenges were posed as a result of the fact that farmers have little or no information about how imperative is insurance business is to agriculture, which has created a challenge to the agricultural sector when farmers are exposed to risk and eventually run into loss without being indemnified, due to lack of proper guide and relevant information about the rudiment of insurance products. Insurance company invests largely on other sectors but participated little on agricultural sector, forgetting the fundamental role of agricultural on the growth and development of Nigeria economy. The aim of the study is to analyze the impact of insurance business on the growth of agricultural sector in Nigeria while specific objectives is to ascertain the effect of total insurance investment on the growth of agricultural sector in Nigeria; to examine the impact of total general insurance premium on the growth of agricultural sector in Nigeria and lastly to assess the impact of total life assurance premium on the growth of agricultural sector in Nigeria. The scope of the study was limited to the impact of insurance business on the growth of agricultural sector of Nigeria.

LITERATURE REVIEW

Insurance

Insurance is a contractual agreement between two parties which are the insured (buyer) and the insurer (seller) whereby the insurer undertakes to indemnify the insured in the event of assured contingencies (uncertainties or losses) in exchange for premium paid by the insured, subject to the contract terms and conditions (Skipper & Kwon, 2007; Thoys, 2010; Fadun, 2013). Insurance is a risk transfer mechanism that works based on law of large numbers and economies of large scale,

It is designed to protect the financial well-being of individual, household, organizations, companies and other entities in the case of unexpected loss and uncertainties (Oke, 2012). Insurance has also been described as the corner stone of modern day financial services (Yinusa & Akinlo, 2013). Insurance is important to financial system due to its role in assisting people and businesses to manage their resources and mitigate risks. Benefits of insurance include: guaranteed financial protection against insured losses, promote culture of long-term saving through life insurance contracts, help to mobilize funds to finance government's projects to ensure national development, and contribute to GDP (Raji, 2014; Gabriel, 2015; Yinusa & Akinlo, 2013). Raji (2018) opines that insurance create peace of mind, keeps family and stimulate savings which reduce anxiety from individual family and organization. Other benefits include promotion of financial stability through stimulation of the growth of debt and equity markets for a more efficient capital allocation, facilitation of trade and commerce, education of losses through the risk management expertise of the insurance sub-sector, transmission of information about risks throughout the society so that economic actors could make more informed decisions, and encouragement of a greater efficiency and depth in the financial sector through complementing, competing with and otherwise improving the services offered by other financial institutions (Fadun & Hood, 2016). The insurance business entails three categories which are non-life insurance; life assurance and re-insurance. Non-life insurance connote short term funds while Life assurance denotes extended term funds and re-insurance guarantees and protects other insurance companies against loss by spreading their risks to other insurers which means reinsurance. One major role of the insurance industry in Nigeria is to promote development and protection of the insuring public against their insurable risks (Fadun, 2013; Yinusa & Akinlo, 2013). Insurance companies' funds are invested in stock markets thereby increasing stocks prices for the benefit of investors and improvement of Nigeria economy. In 2016, the Nigerian insurance sector invested an estimated N178 billion in the banking industry as placements and deposits and held treasury instruments of over N270 billion. Insurance industry has been recognized globally as a driver of economic growth and development by providing financial security to their policyholders, through the pooling and investment of premiums out of which those who suffer unexpected losses are indemnified.

Factors that impede Insurance Growth in Nigeria

In spite of the importance of insurance companies in an economy there are factors that hinder the performance. Ibiwoye and Adewumi (2008) outline some of these challenges.

- a. Poor national insurance culture
- b. Undercapitalized and technically weak insurance companies
- c. Disregard for basic insurance principles e.g premium rating principle
- d. Proliferation of companies, brokers and agents
- e. Fraud and fraudulent claims
- f. Disunity and indiscipline in the industry
- g. High production cost
- h. Perceived poor public image

The Nigerian Agricultural Insurance Scheme

The Federal Government of Nigeria introduced an agricultural insurance scheme in 1987. The broad aim of the scheme was to widen farmers' access to farm inputs, especially credit, and to encourage farmers to adopt modern farming practices (Olubiyo, Hill & Webster, 2009). This aim

was predicated on the belief that if the risks associated with the adoption of modern farming practices could be reduced, farmers could be encouraged to produce high value enterprises that had previously been abandoned and regarded as too risky to produce. The potential changes in farm practices would increase the quantity and quality of agricultural produce supplied to the market and subsequently improve the welfare of the people. The insurance scheme was operated as a commercial enterprise by The Nigerian Agricultural Insurance Company (NAIC) and offered a multi-peril insurance policy to cover any crop enterprise. The insurance is compulsory for farmers taking institutional credit for their farm business. It is expected that by linking the insurance with credit it will encourage more inflow of funds to the farm sector and safeguard repayment to the banks. As an additional incentive to farmers' patronage, the government provides a 50 per cent subsidy of the premium payable by farmers. However, before a farmer could be indemnified for any insured hazards he/she would prove that he/she followed the guidelines on production practices published by NAIC. Owing to the diverse geographical, cultural and ecological spread and for administrative convenience, the country was divided into five operational zones (Olubiyo *et al*, 2009; Epetimehin, 2010).

Agricultural Insurance and Risk of Changes in Agricultural Production

Epetimehin, (2010) defines agricultural insurance as a special line of property insurance applied to agricultural firms. In recognition of the specialized nature of this type of insurance, insurance companies operating in the market either have dedicated agribusiness units or outsource the underwriting to agencies that specialize in it. Manufacturing risks arise from manufacturing process, changes in production rates are due to factors such as climactic conditions like drought, floods and damages caused by strong winds as well as damage caused by fire or pests. These risks are known. However, the effect of these risks on production of the farms in developing countries is often not accurately recorded. Specifically, insurance responds to these risks by covering losses from natural hazards. In fact, insurance does not offer full support for possibility of changes in production rates (Ali & Sharareh, 2016).

Market-related Risks

Ali and Sharareh, (2016) opines that market-related risks refer to changes in supply and demand for agricultural products with no price control and failure of controlled market to react efficiently to changes in these circumstances. These risks primarily reflect changes in prices for the products supplied by farmers. Farmers increase the price of their products in order to compensate for decline in production rates because insurance policy where not in operation to compensate the farmers whenever there is eventualities and the consequence of this was the establishment of agricultural insurance.

METHODOLOGY

The study assesses the impact of insurance business on the growth of agricultural sector in Nigeria. The time series and secondary source of data were used in gathering data majorly from Central Bank of Nigeria (CBN) statistical bulletin of 2017 and National insurance commission (NAICOM) are used for the study. eighteen (18) years ranging from 2000 to 2017 data are engaged to explore the contribution of insurance business to the growth of agricultural sector in Nigeria. OLS technique was employed to obtain numerical estimates of co-efficient in the equation; and

ascertain changes that take place between these variables, and their significance. OLS method is used because it possesses some optimal properties in that its computation procedure is fairly simple and possesses essential component of order estimation techniques (Fadun & Shoyemi, 2018). The estimation covers the period of 18 years (2000 - 2017). In demonstrating the application of OLS method, econometric views (E-views) statistical package was used to analyse GDP as the dependent variable and total insurance investment as the independent variable.

The model which specifies that agricultural output share of GDP is significantly influenced by the total life insurance premium, total non-life insurance premium and total insurance investment are formulated as follows.

$$AGDP = f(TPL, TPNL, TII)$$

$$AGDP = \beta_0 + \beta_1 TPNL + \beta_2 TPL + \beta_3 TII + \mu$$

Where

AGDP= Agricultural Output Share of Gross Domestic Product

TPL = Total life insurance premium

TPNL= Total non-life insurance premium

TII = Total insurance investment

β_0 = Constant term.

$\beta_1 - \beta_3$ = coefficient of independent variables

μ = error term.

Presentation, Interpretation and Discussion of Findings

Table 1: Result of Unit Root Test

Series	ADF	Critical value	Order of Integration
TPL	-3.226887*	-2.991878*	I(1)
TPNL	-4.808818*	-2.991878*	I(1)
TII	-7.021669*	-2.991878*	I(1)
AGDP	-3.651284*	-3.029970*	I(1)

Note: (*) indicates rejection of the null hypothesis of non-stationary at 5 percent significance level based on the MacKinnon critical values.

Source: Authors' Computation from E-View, 2019

The study conducts unit root tests of the variables in the model to determine their time series properties or characteristics, that is, whether stationary or non-stationary. The conduct of unit root test is essential to avoid spurious regression results (Gujarati, 2004). Researchers have developed several procedures for the test of order of integration. The most popular ones are Augmented Dickey-Fuller (ADF) test and the Phillip-Perron (PP). Augmented Dickey-Fuller test relies on rejecting a null hypothesis of unit root test (the variables are non-stationary) in favor of the alternative hypotheses of stationarity. The order of integration can also be ascertained with this test using the Augmented Dickey-Fuller (ADF) statistics. The result of unit root test is presented in Table 1 above while the tables for all unit root test conducted for the variables is presented in the appendix. The result in the Table above shows that all the variables are stationary. All the

variables were stationary after the first difference. Therefore, it was concluded that all the variables were stationary and integrated of order one.

Table 2: Regression Analysis

Dependent Variable: AGDP

Method: Least Squares

Sample: 2000 2017

Included observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	161.3225	333.6325	0.483534	0.6335
TPL	8.980575	1.282610	7.001795	0.0000
TPNL	13.27721	4.663794	2.846870	0.0094
TII	42.15003	18.52990	2.274703	0.0330
R-squared	0.762732	Mean dependent var		782.4535
Adjusted R-squared	0.730377	S.D. dependent var		650.2550
S.E. of regression	337.6463	Akaike info criterion		14.62251
Sum squared resid	2508111.	Schwarz criterion		14.81607
Log likelihood	-186.0927	Hannan-Quinn criter.		14.67825
F-statistic	23.57404	Durbin-Watson stat		1.573922
Prob(F-statistic)	0.000000			

Source: E-View Output, (2019)

The model summary in the Table above shows R^2 value of 0.763. This indicates that about 76.3% variation in agricultural output on gross domestic product is explained by total life insurance premium; total non-life insurance premium and total insurance investment. The R^2 value which is 0.76 also shows the strength of the model, the closer to one the better the result, Tabachnick and Fidell, (2007). The adjusted R^2 shows that after adjusting for the degree of freedom, the model could explain about 73% of the systematic variation in AGDP. In addition, Durbin (1970), states that when the Durbin Watson statistic value is above 0.5 or 50 percent, independent observation is assumed. In other words, there is no auto correlation among the residuals of the study. The Durbin-Watson statistics (1.574) lies between 1.5 and 2.5. This is an evidence of no serial auto-correlation among error terms of variables considered for the study.

The overall performance of the model is quite good because the p-value is 0.000 which indicates that the model is significant. This signifies that the model is adequate in relation to agricultural output on gross domestic, total life insurance premium; total non-life insurance premium and total insurance investment; hence provides greater reliability for information contained in the Table 2 above. The results of the regression analysis reveal that, there is positive relationship between total

life insurance premium, total non-life insurance premium, total insurance investment and agricultural output on gross domestic product of Nigeria, for the period under review (2000-2017). Total life insurance premium has positive relationship with agricultural gross domestic product which indicate that 1 percent increase in total life insurance premium will lead to increase in agricultural gross domestic product, also, 1 percent increase in total non-life insurance premium will result to increase in agricultural gross domestic product and lastly 1 percent increase in total insurance investment will lead to increase in agricultural gross domestic product. More importantly, statistics information in the table 2 above discloses that total life insurance premium, total non-life insurance premium, have a positive significant impact on the agricultural output on gross domestic product while total insurance investment has a negative significant impact on the agricultural gross domestic product.

Table 3: Granger Causality Result

Null Hypothesis:	Obs	F-Statistic	Prob.
TPL does not Granger Cause AGDP	18	1.56678	0.0345
AGDP does not Granger Cause TPL		0.73498	0.0027
TPNL does not Granger Cause AGDP	18	1.91776	0.0143
AGDP does not Granger Cause TPNL		0.26945	0.0067
TII does not Granger Cause AGDP	18	0.58896	0.0447
AGDP does not Granger Cause TII		0.47618	0.0284
TPNL does not Granger Cause TPL	18	1.36501	0.0393
TPL does not Granger Cause TPNL		0.34948	0.0195
TII does not Granger Cause TPL	18	0.07170	0.0304
TPL does not Granger Cause TII		0.59405	0.0020
TII does not Granger Cause TPNL	18	4.29130	0.0290
TPNL does not Granger Cause TII		0.83344	0.0498

Source: E-View Output (2019)

Table 4: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.740477	59.67414	47.85613	0.0027
At most 1	0.504879	27.30033	29.79707	0.0945
At most 2	0.283779	10.42947	15.49471	0.1791
At most 3	0.095881	2.419070	3.841466	0.1199

Trace test indicates 1 cointegrating equation(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: E-View Output, (2019)

The Granger table above indicates that there is granger causality or bi-directional relationship between all the variables. Thus, total life insurance premium and agricultural gross domestic product; total non-life insurance premium and agricultural gross domestic; total insurance investment and agricultural gross domestic product; total non-life insurance premium and total life insurance premium; total insurance investment and total life insurance premium; total insurance investment and total non-life insurance premium significantly granger cause each other as there P-value is less than 5% level of significance. And also, Table 4 shows the trace likelihood ratio, the results point out that the null hypothesis of no co-integration among the variables is rejected in favor of the alternative hypothesis up to three co-integrating equations at 5% significant level because the values exceed the critical values at 5%. This means there are at least three integrating equations, which implies that a unique long-run relationship exists among the variables.

CONCLUSION AND RECOMMENDATIONS

The study assess the impact of insurance business on the growth of agricultural sector in Nigeria, it was found out that there is positive relationship between total life insurance premium, total non-life insurance premium, total insurance investment and agricultural output on gross domestic product of Nigeria, for the period under review (2000-2017). Total life insurance premium has positive relationship with agricultural gross domestic product, also, total non-life insurance premium has positive relationship with agricultural gross domestic product and lastly total insurance investment has positive relationship with agricultural gross domestic product. More importantly, statistics information in the table 2 above discloses that total life insurance premium, total non-life insurance premium, have a positive significant impact on the agricultural output on gross domestic product while total insurance investment has a negative significant impact on the agricultural gross domestic product.

Prior to the findings, the following recommendations were made;

- i. It is expected of insurance sector to provide adequate information particularly on agricultural sector by providing a maximum coverage for farmers and their products to reduce the risk which the farmers retained or being expose to in the sector and

- ii. Also ensure that, farmers are familiar with risk management procedures to prevent their farm product.
- iii. Government should institute compulsory insurance for farmer to complement their product.
- iv. Government should ensure that more fund should be allocated to the agricultural sector from the annual national budget to enable farmer to acquire insurance policy on their product.

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APPENDIX:

Null Hypothesis: D(TPL) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=5)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.226887	0.0307
Test critical values: 1% level	-3.737853	
5% level	-2.991878	
10% level	-2.635542	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(GDP) has a unit root

Exogenous: Constant

Lag Length: 5 (Automatic - based on SIC, maxlag=5)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.651284	0.0145
Test critical values: 1% level	-3.831511	
5% level	-3.029970	
10% level	-2.655194	

*MacKinnon (1996) one-sided p-values.

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic
None *	0.740477	59.67414
At most 1	0.504879	27.30033
At most 2	0.283779	10.42947
At most 3	0.095881	2.419070

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=5)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.808818	0.0008
Test critical values: 1% level	-3.737853	
5% level	-2.991878	
10% level	-2.635542	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(TII) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=5)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-7.021669	0.0000
Test critical values: 1% level	-3.737853	
5% level	-2.991878	
10% level	-2.635542	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis:	Obs	F-Statistic	Prob.
TPL does not Granger Cause AGDP	17	1.56678	0.0345
AGDP does not Granger Cause TPL		0.73498	0.0027
TPNL does not Granger Cause AGDP	17	1.91776	0.0143
AGDP does not Granger Cause TPNL		0.26945	0.0067
TII does not Granger Cause AGDP	17	0.58896	0.0447
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TPL does not Granger Cause TPNL		0.34948	0.0195
TII does not Granger Cause TPL	17	0.07170	0.0304
TPL does not Granger Cause TII		0.59405	0.0020
TII does not Granger Cause TPNL	17	4.29130	0.0290
TPNL does not Granger Cause TII		0.83344	0.0498

Date: 07/26/18 Time: 13:52

Sample (adjusted): 1993 2016

Included observations: 17 after adjustments

Trend assumption: Linear deterministic trend

Series: GDP TPLTPNL TII

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.740477	59.67414	47.85613	0.0027
At most 1	0.504879	27.30033	29.79707	0.0945
At most 2	0.283779	10.42947	15.49471	0.1791
At most 3	0.095881	2.419070	3.841466	0.1199

Trace test indicates 1 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.740477	32.37381	27.58434	0.0112
At most 1	0.504879	16.87086	21.13162	0.1782
At most 2	0.283779	8.010396	14.26460	0.3777
At most 3	0.095881	2.419070	3.841466	0.1199

Max-eigenvalue test indicates 1 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b*S11*b=I):

GDP	TPL	TPNL	TII
0.001987	-0.017721	-0.094803	0.091073
-0.000558	0.014939	0.039863	-0.291358
0.000205	-0.026659	-0.016395	-0.210760
-0.002816	0.016211	-0.005673	-0.135604

Unrestricted Adjustment Coefficients (alpha):

D(GDP)	73.37176	-7.456463	-79.39481	8.625467
D(TPL)	11.13421	-1.386344	1.917356	-4.080686
D(TPNL)	6.020486	-2.410056	-2.771751	1.517297
D(TII)	1.675295	1.369421	1.038996	0.318628

1 Cointegrating Equation(s): Log likelihood -383.2899