

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014



**Makwe, Emmanuel Uzoma (Ph.D)¹, Ibechiole, Onyekachi Chikamnele²,
Obiaga, Johnson Chinedu (Ph.D)³**

¹Department of Finance and Banking, Faculty of Management Sciences, University of Port Harcourt, Rivers State, Nigeria

²Department of Banking and Finance, Faculty of Management Sciences, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

³Department of Accounting and Finance, Faculty of Humanities, Social and Management Sciences, Edwin Clark University, Kiagbodo, Delta State, Nigeria

ABSTRACT: This study was carried out to determine the effect of insurance sector development on the economic growth of Nigeria. Consequently, three hypotheses were designed to guide the researcher and data were drawn from the Central Bank of Nigeria (CBN) statistical bulletin which covered a thirty five (35) years period between 1980 to 2014. The hypotheses were tested using ordinary least square regression analysis and the econometrics co integration test and the result revealed that; there is a positive and significant relationship between insurance premium and economic growth in Nigeria; there is a positive and significant relationship between insurance claims and gross domestic product of Nigeria; there is a positive and significant relationship between insurance investments and economic growth in Nigeria. Based on the results, the researcher thus recommended the following amongst others; Government should Provide institutional improvements by making better laws and policies that will not only encourage fair play but also help to attract international players in the industry; Government should also provide information and education to the populace on the importance of acquiring insurance cover in order to be protected; Increasing efficiency, especially in risk management, and product development.

KEYWORDS: Insurance; Insurance sector development; Premiums; Insurance claims; Insurance investments; Gross domestic products; Economic growth.

1.0 INTRODUCTION

Considerable attention has been devoted to evaluating the relationship between economic growth and financial market deepening. Most of what we have learned relates to banking systems and securities markets, with insurance receiving only a passing mention. Yet, while insurance, banking, and securities markets are closely related, insurance fulfils somewhat different economic functions than do other financial services, and in turn requires particular conditions to flourish and to make a full economic contribution (Brainard, 2008).

The size and maturity of the insurance industry is one of the indices used for measuring the development of an economy. This is because the insurance industry plays a very important role in the mobilisation and utilization of investable resources in an economy. It also acts as the absorber of the risks and uncertainties normally associated with economic activities, the absence of a market which can greatly reduce the growth of economic activity.

The relevance of the insurance industry is even more evident in such less-developed economies as Nigeria where the financial system is not very sophisticated and where there is lack of basic infrastructure required to aid the growth of the economy (Abdulmalik, 2009). This gives rise to the dependence of Nigeria's economy on those of the developed countries' balance of payments.

In Nigeria, prior to the mid-seventies, the insurance industry was dominated by foreign insurance companies, this meant that the premium paid for insurance placed with these companies were transmitted overseas, thus putting so much pressure on the country's balance of payments. With the indigenization of the insurance industry in the early seventies and the promulgation of

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014

the Insurance Decree of 1976, the activities of the industry were streamlined to enable it have enough retention capacity and thereby to play a critical role in the development of the economy (Abdulmalik, 2009)

Insurance and economic growth mutually influences each other, as the economy grows, the living standards of people increase and as a result, the demand for insurance increases. As the assets of people and of business enterprises increase in the growth process, the demand for general insurance also increases (Akinlo & Apanisile, 2014). In fact, as the economy widens the demand for new types of insurance products emerges. Insurance is no longer confined to product markets; they also cover service industries. It is equally true that growth itself is facilitated by insurance. A well-developed insurance sector promotes economic growth by encouraging risk-taking.

Risk is inherent in all economic activities and without some kind of cover against risk, some of these activities will not be carried out at all. Also insurance and more particularly life insurance is a mobilizer of long term savings and life insurance companies are thus able to support infrastructure projects which require long term funds. There is thus a mutually beneficial interaction between insurance and economic growth (Cristea, Marcu & Carstina, 2014).

The deepening of insurance markets makes a positive contribution to economic growth, while life insurance is causally linked to growth only in higher income economies; nonlife insurance makes a positive contribution in both developing and higher income economies (Nдалu, 2016).

This research is aimed at establishing the link between insurance development and economic growth in Nigeria, 1980 - 2014.

1.1 Objectives

1. To examine the effect of insurance premium on economic growth in Nigeria
2. To determine the effect of insurance claims on the gross domestic product of Nigeria
3. To evaluate the effect of insurance investments on economic growth in Nigeria

1.2 Hypotheses

There is no significant relationship between insurance premium and economic growth in Nigeria

There is no significant relationship between insurance claims and gross domestic product of Nigeria

There is no significant relationship between insurance investments and economic growth in Nigeria

2.0 SYNOPSIS OF CONCEPTUAL AND EMPIRICAL LITERATURE

2.1 Conceptual Review

Insurance is understood by most people to be critical to a well- functioning economy (Olayungbo & Akinlo, 2016). By providing payment in the event of unexpected losses, insurance introduces security into personal and business situation. It also serves as a basis of credit as no financial institution would lend money for purchase of capital goods.

Evidence suggests that insurance contributes materially to economic growth by improving the investment climate and promoting a more efficient mix of activities than would be undertaken in the absence of risk management instruments (Brainard, 2008). This contribution is magnified by the complementary development of banking and other financial systems.

Empirical studies suggest that nonlife insurance contributes to growth in a country at many different levels of development. Life insurance makes a substantial contribution to growth mostly in wealthier countries, since life insurance is typically a smaller part of the total insurance market in low income countries (Brainard, 2008).

The relationship between per capita income levels and insurance penetration is also strong in the reverse direction- with rising income a strong driver of life insurance coverage. However, it is difficult to disentangle whether lower insurance consumption at lower income levels reflects reduced demand for life insurance products or constraints on the supply side associated with weak regulatory and supervisory environments and high costs of insurance provision (Richterikova & Korab, 2013).

Of course, even if the data did not support a strong causal role for insurance as an engine of overall aggregate growth, there might be a strong case for insuring the poor on social welfare grounds that those at or below the poverty line are particularly vulnerable to catastrophic shocks to income and consumption.

Indeed, it appears that the gap between the potential social value of insurance and the transactions costs of provision might be unusually wide for the poorest segment of society, which explains the growing interest in micro-insurance on the part of non-governmental organizations and philanthropic foundations, some of whom are partnering with commercial providers.

Yinusa and Akinlo (2013), posited that, insurance serves a number of valuable economic functions that are largely distinct from other types of financial intermediaries. In order to highlight specifically the unique attributes of insurance, it is worth focusing on those services that are not provided by other financial services providers, excluding for instance the contractual savings features of whole or universal life products. The indemnification and risk pooling properties of insurance facilitate commercial

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014

transactions and the provision of credit by mitigating losses as well as the measurement and management of non diversifiable risk more generally.

Typically insurance contracts involve small periodic payments in return for protection against uncertain, but potentially severe losses. Among other things, this income smoothing effect helps to avoid excessive and costly bankruptcies and facilitates lending to businesses (Zouhaier, 2014).

Most fundamentally, the availability of insurance enables risk averting individuals and entrepreneurs to undertake higher risk, higher return activities than they would do in the absence of insurance, thus promoting higher productivity and growth.

2.1.1 Insurance Business and Economic Growth

One of the indices for measuring the development of an economy is the size and maturity of its insurance industry. This is because the insurance industry plays a very important role in the mobilisation and utilization of investible resources in an economy. It also acts as the absorber of the risks and uncertainties normally associated with economic activities, the absence of a market which can greatly reduce the growth of economic activity (Akinlo & Apanisile, 2014).

Yinusa and Akinlo, (2013) declared that, the relevance of the insurance industry is even more evident in such less-developed economies as Nigeria where the financial system is not very sophisticated and where there is lack of basic infrastructure required to aid the growth of the economy. This gives rise to the dependence of Nigeria's economy on those of the developed countries' balance of payments.

In Nigeria, prior to the mid-seventies the insurance industry was dominated by foreign insurance companies. This meant that the premium paid for insurance placed with these companies were transmitted overseas, thus putting so much pressure on the country's balance of payments (Yinusa & Akinlo, 2013).

With the indigenization of the insurance industry in the early seventies and the promulgation of the Insurance Decree of 1976, the activities of the industry were streamlined to enable it to have enough retention capacity and thereby to play a critical role in the development of the economy. Since then, the industry has been playing a very useful role in the economy, most notably in the areas highlighted below.

- a) Reduction in the outflow of resources from the country through the retention of insurance and reinsurance premiums within the economy, with a consequent positive effect on the country's balance of payments.
- b) Development of the capital market. The insurance industry constitutes one of the major institutional investors in the capital market, thereby providing a channel for the sourcing of funds by both the public and private sectors of the economy.
- c) Cultivating insurance consciousness. The advent of an organized insurance industry and the activities of its members have greatly improved the cultivation of insurance consciousness among business houses and individuals. This has reduced the level of risk which generally encouraged enterprises and therefore enhanced the growth of the economy.
- d) Direct equity and loan investment in industrial enterprises. The industry is a major catalyst in the development of large industrial undertakings which are highly capital intensive.
- e) Mobilisation of savings. The activities of the industry particularly life assurance business have encouraged the mobilisation of savings which otherwise may not have been channeled to any productive use. Such mobilized savings constitute an important source of long-term investible funds in the economy.

In fact, the Nigerian insurance industry has grown over the years to become second only to banking, an important vehicle for the mobilisation and use of funds. Figures available on the paid up capital and free reserves of all insurance companies in the country indicate that the retention capacity of the industry has been on the increase, with a consequent positive impact on the development of the economy (Akinlo & Apanisile, 2014).

It is apparent from the foregoing that the insurance industry has become a significant contributor to the overall development before the industry can achieve its full potential for the development of the economy. Examples of areas of untapped potential include product diversification and packaging, effective portfolio management and investment practices, effective marketing, manpower development, the improvement of the image of insurance among the populace, and investment in research (Abdulmalik, 2009).

2.2 Empirical Review

There have been numerous studies carried out to investigate the relationship between the insurance sub-sector and the economy. Curak, loncar and Poposki (2009), observed that providing protection to insurers could affect economic growth through the channels of marginal productivity of capital, technological innovations and saving rate. Insurance companies indemnify the ones who suffer a loss and stabilize the financial position of individuals and firms.

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014

Devereux and Smith (1994) observed that diversification could negatively affect economic growth through lowering saving rate. Namely, it is possible that the lower risk resulted from diversification may induce individuals to save less.

Ward and Zurbrugg (2000) examined the causal relationship between growth in insurance activity and economic growth for nine OECD countries during the period from 1961 to 1996. In the same vein, Webb, Grace and Skipper, (2005), analyzed the effect of banking and insurance on the growth of capital and output based on cross-country data of 55 countries for the period from 1980 to 1996. The insurance variable is measured by average insurance penetration (insurance premiums relative to GDP) of life and non-life insurance respectively. At the first stage they use ordinary least squares estimation method, while at the later one an iterated three stage least squares simultaneous estimation was employed. The results of the first estimation, assuming exogenous financial variables, indicate positive effect of banking development on economic growth, while insurance variables do not enter significantly.

3.0 METHODOLOGY

The Quasi-experimental research design was adopted because the relationship existing between the variables involved a dependent variable and independent variables.

3.1 Sampling Procedure

To test the hypotheses drawn for this study, the OLS of multiple linear regression model will be used in estimating the values of the variables. The regression model used is based on its possession of the BLUE properties, making it the best for the type of data used in the study.

3.2 Data Collection Method

Secondary data was used. These were gotten from the annual publications of the CBN.

3.3 Model Specification

Using the regression formula $y = a + bx_1 + e_i$, the variables will be represented using symbols and notations. The models are presented in the functional and mathematical forms. This is given by the formula:

$$GDP = f(P, C, I)$$

$$GDP = a + b_1P + b_2C + b_3I + U_i$$

Where GDP = the dependent variable,

P = the independent or explanatory variable;

C = the insurance Claims

I = the total investments in the insurance subsector

a = slope

b = coefficient of the independent or explanatory variables and

U_1 = stochastic term

3.4 Data Analysis

The data will be analyzed using the a priori tests, statistical and econometric tests. Further, stationarity analysis will be conducted using the Augmented Dickey-Fuller (ADF) test, Granger Causality tests, and Normality Tests. If need be, the second other test will be conducted using the Johansen Cointegration Tests, Error Correction Mechanism to correct for the short-run relationship of the variables. All analysis will be conducted using the Eviews version 7.0 software.

4.0 PRESENTATION AND ANALYSIS OF DATA

The following table shows the various data collected for the purpose of analyzing the hypotheses drawn. It also shows the relationship between the variables to be analyzed.

Year	GDP	Premiums	Claims	Investments
1980	87.88	179569	61.3	NA
1981	94.33	234.1	74.2	NA
1982	101.01	248.8	79.2	NA
1983	110.06	191.8	78.6	NA
1984	116.27	205.7	77.7	NA
1985	134.59	195.3	64.0	NA
1986	134.60	254.2	86.4	NA

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014

1987	193.13	406.5	109.4	NA
1988	263.29	486.6	151.1	NA
1989	382.26	673.1	278.9	NA
1990	472.65	1,013.7	306.5	NA
1991	545.67	1,296.2	386.9	NA
1992	875.34	2,445.7	613.9	NA
1993	1,089.68	4,931.9	2,684.1	NA
1994	1,399.70	14,519.1	1,315.3	NA
1995	2,907.36	13,525.1	1,508.9	NA
1996	4,032.30	11,091.3	1,654.1	12,379.5
1997	4,189.25	10,941.6	1,677.3	13,613.1
1998	3,989.45	11,688.3	1,956.2	15,656.9
1999	4,679.21	14,597.3	5,923.2	21,583.5
2000	6,713.57	22,531.5	5,629.5	25,192.6
2001	6,895.20	28,981.3	6,110.5	32,157.3
2002	7,795.76	37,765.9	6,856.1	36,940.9
2003	9,913.52	43,441.8	9,415.2	54,642.8
2004	11,411.07	50,100.8	12,084.0	74,590.8
2005	14,610.88	67,465.6	12,402.4	121,844.2
2006	18,564.59	81,583.8	76,276.1	216,359.9
2007	20,657.32	89,104.9	15,843.7	329,247.9
2008	24,296.33	126,470.3	25,864.9	336,491.4
2009	24,794.24	153,127.1	49,498.9	343,894.2
2010	54,612.26	157,336.8	37,589.6	351,459.9
2011	62,980.40	175,756.8	39,389.2	359,192.0
2012	71,713.94	112,900.8	31,944.4	388,615.9
2013	80,092.56	117,693.8	33,303.9	417,090.9
2014	89,043.62	122,486.8	34,663.3	445,566.0

Source: CBN Statistical Bulletin, 2014

4.1 Data Presentation and Testing of Hypotheses

4.1.1 First order test: Regression analysis

$$GDP = -551.2195 - 90.78009P - 0.272376C + 0.157707I$$

$$t\text{-values } (-0.250005) \quad (-0.902748) \quad (-2.316710) \quad (6.519485)$$

$$R^2 = 0.881808; F = 50.36053; \text{Durbin-Watson} = 0.644788$$

The regression analysis shows that R^2 is high with some insignificant t-values. The goodness-of-fit shows that 88% of the changes the dependent variable are explained by the changes in the independent variables. More so, the f-test shows that the model is significant when taken together while Durbin-Watson shows the presence of serial autocorrelation. The result is spurious regression with R^2 being greater than Durbin-Watson.

4.1.2 Normality Test: Jarque-Bera Test

A normality test is used to determine whether sample data has been drawn from a normally distributed population (within some tolerance). This means that the population for the study is not skewed towards a particular angle. If the $p < 0.05$, we reject the null hypothesis that a variable is not normality distributed otherwise, we accept the null hypothesis. The result shows that all the other variables are normally distributed except interest rate with a probability value of 0.101463.

4.1.3 Augmented Dickey-Fuller Tests

As one of the tests for unit roots, ADF tests whether the variables are stationary or not that is, whether their means and variances are the same over time. If they are not stationary, there is need to lag the variables in order to obtain a stationary time series. Stationarity occurs when the ADF values are greater than the critical values or the t-value is significant.

The results shows that GDP, Premium and Claims variables were stationary both at first differencing as the ADF values are higher than their critical values at 5% level. However, total investments were found to be non-stationary. Cointegration analysis

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014

requires that two or more variables must be stationary for the analysis. This is the condition required for conducting a Johansen Cointegration Test. The ADF test result is shown in the table below:

Table 4.2.2.1 Table showing ADF Values at first differencing.

Coefficients	t-test	Probability	Status
GDP	4.971207	0.0001	Stationary
I	0.201624	0.8420	Non Stationary
P	2.320325	0.0295	Stationary
C	-5.825459	0.0000	Stationary

Computed by the researcher using E-view 7.0

4.1.4 Granger Causality Test

The relationship between two variables does not necessarily determine the causality between the variables. Therefore, the Granger Causality Test, as shown in the appendix, tests the direction of cause that may exist between the variables used in the analysis. The result shows that Assets, Premium, and Claims granger cause GDP. This is determined by the f-value which is more than the rule of thumb of 2.

4.1.5 Co-integration Test

The cointegration test, as pointed out by Gujarati (2004), is a pre-test that shows whether the variables have a long-term relationship or not. This establishes whether we will be using the variables together or not performing the ECM. The cointegration analysis must have two cointegrating equations based on the probability so as to validate it for ECM analysis. Therefore, the Johansen Cointegration Test using the value of the *Trace* Statistic values reveals that the variables are cointegrated at levels down to the third equation. They have a long-term relationship. The model shows that there are at least two cointegrating equations which is a prerequisite for conducting the Error Correction Mechanism.

Unrestricted Cointegration Rank Test (Trace)

Hypothesized	Trace	0.05		
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.988129	239.3769	69.81889	0.0000
At most 1 *	0.920534	124.1017	47.85613	0.0000
At most 2 *	0.798822	58.25868	29.79707	0.0000
At most 3 *	0.446502	16.56600	15.49471	0.0344

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

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

Source: Eviews 7.0

4.2 Parsimonious Error Correction Mechanism (Long-run Analysis)

This corrects the short-term analysis of cointegration test. As the cointegration test examines the long-term relationship between variables, the ECM corrects the short-term relationship between the variables. It is expected that the variables obey the a priori signs while the ECM has a negative sign.

$$GDP = 0.042386 + 0.206337P + 7.110037C + 22.86337I$$

$$t\text{-value} = (1.522733) (2.687151) (2.755387) (5.672111)$$

$$f\text{-value} = 2.541602$$

$$R^2 = 0.828304$$

$$\text{Durbin-Watson (d)} = 2.825260$$

$$\text{ECM (-1)} = -3.552390$$

In the long-run analysis conducted, the result shows that $R^2 = 0.83$ which indicates that 83% of the changes in the dependent variable (GDP) are explained by the changes in the independent variables.

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014

Further, the f-test of 2.54 shows that the variables are significant when taken together at 5% level of significance using the rule of thumb (2) while the Durbin-Watson (d) statistic equally shows an absence of serial autocorrelation of the first order at the value of 2.825260.

Again, the ECM is correctly signed while the variables appear with the right signs as well as being significant at 5% level of significance.

4.3 Testing the hypotheses

The above results using the ECM values shows that we will reject the null hypotheses and accept the alternative hypotheses and conclude that there is a significant relationship between insurance subsector development and economic growth of Nigeria, 1980 -2014. Thus, the authorities involved should use viable means to encourage the operations of the insurance subsector in Nigeria. As observed, the positive changes in Premium, Claims and Investments have positive impact on the economic growth of the country, although in a small measure. However, with conscious and sustained efforts, the government can improve on these results.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study examined the link between the development of the Insurance industry in Nigeria and economic growth. The results obtained indicated that a relationship exist between insurance premiums, claims and investments and the development of the Nigerian economy.

Data examined also indicate that even though the industry has developed significantly since inception, it is still very small in comparison to the insurance industry of other developing countries like South Africa and Brazil. This has meant that the industry is unable to provide adequate cover for businesses in the country especially the multinationals that prefer to take their insurance business abroad.

5.2 Recommendations

On the basis of the research findings, it is necessary to attempt to make recommendations for the policy options of the government. Thus, we make the following recommendations.

- i. Providing institutional improvements by making better laws and policies that will not only encourage fair play but also help to attract international players in the industry. By also making sure that policies are implemented. These will positively impact on the key insurance variables that have positive impacts on the GDP of Nigeria.
- ii. Provide information and education to the populace on the importance of acquiring insurance cover in order to be protected. This will not only provide more business for insurance companies but also encourage businesses to engage in more businesses that they could have viewed as being too risky. This has become risky as more people become averse to taking up insurance policies due to the bureaucratic bottle-necks associated with claims.
- iii. Encouraging competition should be an important goal for regulators of the sector. This can be done not necessarily by increasing the number of players in the industry, but by encouraging players to increase the size of the companies. This will not only provide better cover for the insured but also inspire confidence in the industry.
- iv. Increasing efficiency, especially in risk management, and product development

REFERENCES

- 1) Abdulmalik, Muye (2009): Insurance and the Nigerian economy <http://themarketnagazine.com>
- 2) Akinlo, T., & Apanisile, O. T. (2014). Relationship between insurance and economic growth in Sub-Saharan African: A panel data analysis. *Modern Economy*, 05(02), 120–127. doi:10.4236/me.2014.52014 [[Crossref](#)], [[Google Scholar](#)]
- 3) Baridam, M.D. (2001): Research Methods in Administrative Sciences, Sherbrooke Associates, Port Harcourt.
- 4) Brainard, L. (2008). What is the role of insurance in economic development? Retrieved from https://www.draudimas.com/allpics/What_is_the_role_of_economic_development.pdf
- 5) CENTRAL BANK OF NIGERIA, The Bullion, (2015): Budget of Economic growth and development, Central Bank of Nigeria, Abuja
- 6) Cristea, M., Marcu, N., & Carstina, S. (2014). The relationship between insurance and economic growth in Romania compared to the main results in Europe—A theoretical and empirical analysis. *Procedia Economics and Finance*, 8, 226–235.
- 7) Curak, M., Loncar, S. & Poposki, K., (2009). Insurance sector development and economic growth in transition countries. *International Research Journal of Finance and Economics* 34:29-41

Insurance Sector Development and Economic Growth in Nigeria, 1980–2014

- 8) Devereux, M.B., & Smith, G.W. (1994). International risk sharing and economic growth. *International Economic Review*, 35(4), 535-550. <https://doi.org/10.2307/2527072>
- 9) Gujarati, D.N. (2004) *Basic Econometrics*. 4th Edition, McGraw-Hill Companies.
- 10) Ndal, C. (2016). Financial deepening of insurance and economic growth in Kenya. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 6(1), 7–14.
- 11) Olayungbo, D. O., & Akinlo, A. E. (2016). Insurance penetration and economic growth in Africa: Dynamic effects analysis using Bayesian TVPVAR approach. *Cogent Economics & Finance*, 4, 1–19.
- 12) Richterkova, Z., & Korab, P. (2013). Impact of insurance sector activity on economic growth—A meta analysis. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 61(7), 2677–2683.
- 13) Usman, O. A (2009): Scale Economies and Performance Evaluation of Insurance Market in Nigeria, *Medwell Journal of Social Sciences*, vol 4 (1), Medwell publishing.
- 14) Ward D. and R. Zurbrugg, (2000): “Does Insurance Promote Economic Growth? Evidence from OECD Countries”, *Journal of Risk and Insurance*, 67 (4), pp. 489-506.
- 15) Webb, I. M.F. Grace, and H. Skipper, (2005): The Effect of Banking and Insurance on the Growth of Capital and Output, *Journal of Financial Issues* 2(2), pp. 1-32.
- 16) Yinusa, O., & Akinlo, T. (2013). Insurance development and economic growth in Nigeria, 1986–2010. *Journal of Economics and International Finance*, 5(5), 218–224. doi:10.5897/JEIF2013.0498
- 17) Zouhaier, H. (2014). Insurance and economic growth. *Journal of Economics and Sustainable Development*, 5(12), 102–112.

APPENDIX

Regression Analysis [Short-run Analysis]

Dependent Variable: GDP

Method: Least Squares

Date: 11/05/15 Time: 00:22

Sample: 1980 2014

Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-551.2195	1.65E+09	-0.250005	0.3440
P	-90.78009	23354576	-0.902748	0.8220
C	-0.272376	72.33101	-2.316710	0.0189
I	0.157707	0.113573	6.519485	0.0001
R-squared	0.881808	Mean dependent var	4.29E+10	
Adjusted R-squared	0.940023	S.D. dependent var	1.92E+10	
S.E. of regression	4.71E+09	Akaike info criterion	47.48611	
Sum squared resid	8.85E+20	Schwarz criterion	47.68685	
Log likelihood	-1063.437	Hannan-Quinn criter.	47.56094	
F-statistic	50.36053	Durbin-Watson stat	0.644788	
Prob(F-statistic)	0.000000			

Source: Computed from EView 7.0 (2016)

Augmented Dickey-Fuller Test

Null Hypothesis: D(GDP) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.04811	0.0019

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014

Test critical values:	1% level	-3.661661
	5% level	-3.52174
	10% level	-2.619160

*MacKinnon (1996) one-sided p-values.
 Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(GDP,2)
 Method: Least Squares
 Date: 11/10/15 Time: 12:43
 Sample (adjusted): 1980 2014
 Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-0.592147	0.137025	-3.04811	0.0002
C	12334.69	4904.258	2.517138	0.0176
R-squared	0.391715	Mean dependent var		-1751.752
Adjusted R-squared	0.370740	S.D. dependent var		25704.09
S.E. of regression	20390.00	Akaike info criterion		22.74582
Sum squared resid	1.21E+10	Schwarz criterion		22.83833
Log likelihood	-350.5602	Hannan-Quinn criter.		22.77598
F-statistic	18.67505	Durbin-Watson stat		0.905610
Prob(F-statistic)	0.000166			

Source: Computed from EView 7.0 (2016)

ADF: Premium

Null Hypothesis: D(P) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	3.4257780	0.0019
Test critical values:		
	1% level	-3.661661
	5% level	1.275433
	10% level	-2.619160

*MacKinnon (1996) one-sided p-values.
 Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(P,2)
 Method: Least Squares
 Date: 11/10/15 Time: 12:43
 Sample (adjusted): 1980 2014
 Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(P(-1))	-0.592147	0.137025	3.4257780	0.0002
C	12334.69	4904.258	2.517138	0.0176
R-squared	0.411715	Mean dependent var		-1861.712
Adjusted R-squared	0.310740	S.D. dependent var		25704.09

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014

S.E. of regression	20210.00	Akaike info criterion	22.74582
Sum squared resid	1.31E+10	Schwarz criterion	22.83833
Log likelihood	-350.5002	Hannan-Quinn criter.	22.77598
F-statistic	12.67505	Durbin-Watson stat	0.905610
Prob(F-statistic)	0.000176		

Source: Computed from EView 7.0 (2016)

ADF: Investment

Null Hypothesis: D(I) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.524701	0.0113
Test critical values:		
1% level	-3.661661	
5% level	-4.935787	
10% level	-2.619160	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(I,2)

Method: Least Squares

Date: 11/10/15 Time: 12:43

Sample (adjusted): 1980 2014

Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(I(-1))	-0.5877647	0.137025	-3.524701	0.0001
C	09772.69	4324.258	2.518738	0.0197
R-squared	0.779815	Mean dependent var		-1411.712
Adjusted R-squared	0.650880	S.D. dependent var		25014.09
S.E. of regression	22110.00	Akaike info criterion		22.74582
Sum squared resid	1.31E+10	Schwarz criterion		22.83833
Log likelihood	-350.5002	Hannan-Quinn criter.		22.77598
F-statistic	11.07705	Durbin-Watson stat		2.977600
Prob(F-statistic)	0.000026			

Source: Computed from EView 7.0 (2016)

ADF: Claims

Null Hypothesis: D(C) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=8)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.04811	0.0019
Test critical values:		
1% level	-3.661661	
5% level	-3.52174	
10% level	-2.619160	

*MacKinnon (1996) one-sided p-values.
 Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(C,2)
 Method: Least Squares
 Date: 03/02/15 Time: 12:43
 Sample (adjusted): 1980 2014
 Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(C(-1))	-0.592147	0.137025	-3.889301	0.0002
C	12334.69	4904.258	2.517138	0.0176
R-squared	0.391715	Mean dependent var		-1751.752
Adjusted R-squared	0.370740	S.D. dependent var		25704.09
S.E. of regression	20390.00	Akaike info criterion		22.74582
Sum squared resid	1.21E+10	Schwarz criterion		22.83833
Log likelihood	-350.5602	Hannan-Quinn criter.		22.77598
F-statistic	18.67505	Durbin-Watson stat		0.905610
Prob(F-statistic)	0.000166			

Source: Computed from EView 7.0 (2016)

Johansen Cointegration Test

Date: 05/11/16 Time: 12:45
 Sample (adjusted): 1980 2014
 Included observations: 33 after adjustments
 Trend assumption: Linear deterministic trend
 Series: GDP P I C
 Lags interval (in first differences): 1 to 1
 Unrestricted Cointegration Rank Test (Trace)

Hypothesized	Trace	0.05		
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.988129	18.78584	15.49471	0.0154
At most 1 *	0.920534	4.637397	3.841466	0.0565
At most 2 *	0.798822	3.97721	3.98826	0.0012
At most 3 *	0.446502	6.07221	4.88667	0.0011
Unrestricted Cointegration Rank Test (Trace)		7.87752	5.87221	0.0001

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

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized	Max-Eigen	0.05		
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.396463	15.14844	14.26460	0.0362

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014

At most 1 0.114184 3.637397 3.841466 0.0565

Max-eigenvalue 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

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

GDP	P	I	C
1.74E-05	0.75532	2.9211	3.1123
1.38E-05	2.98811	0.83211	2.7662

Unrestricted Adjustment Coefficients (alpha):

D(GDP)	-3832.040	4239.209
D(P)	-3832.040	4231.009
D(I)	-3832.040	8311.332
D(C)	-3832.040	2011.121

1 Cointegrating Equation(s): Log likelihood -548.4189

Normalized cointegrating coefficients (standard error in parentheses)

	GDP	P	I	C
1.000000	-0.011451 (0.00144)	1.000000	-0.011451 (0.00144)	0.21339

Adjustment coefficients (standard error in parentheses)

	(0.11656)
D(GDP)	5.807328 (3.98456)
D(P)	-0.821767 (0.11932)
D(I)	5.807328 (2.99016)
D(C)	(3.11786)

Source: Computed from EView 7.0 (2016)

Parsimonious Error Correction Mechanism

Dependent Variable: D(GDP)

Method: Least Squares

Date: 05/11/16 Time: 03:48

Sample (adjusted): 1980 2014

Included observations: 33 after adjustments

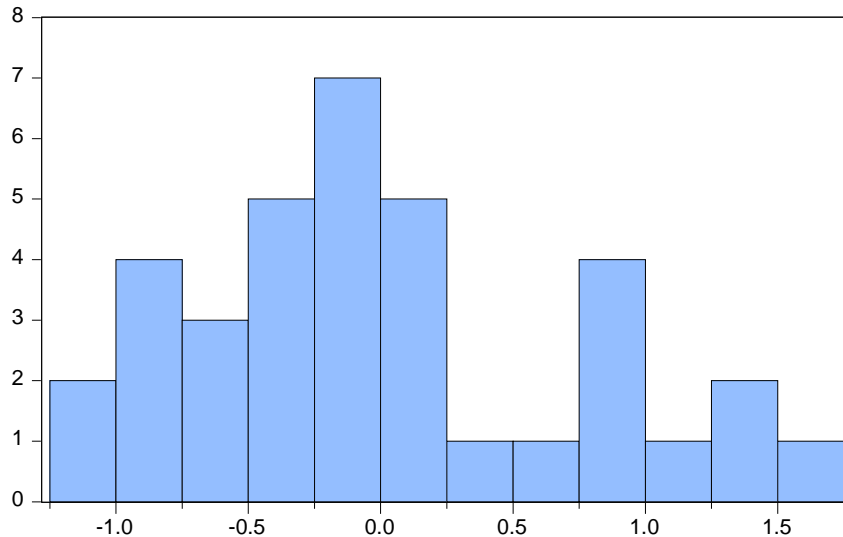
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.042386	0.027835	1.522733	0.1399
D(GDP(-1))	0.988328	0.326593	3.026178	0.0055
D(GDP(-2))	1.042737	0.324291	3.215436	0.0035
D(P(-1))	0.206337	0.122299	2.687151	0.0035
D(P(-2))	-0.202906	0.121815	2.687151	0.0078
D(I(-1))	5.187837	6.187739	3.687221	0.0005
D(I(-2))	22.86337	6.198335	5.672111	0.0078
D(C(-1))	7.110037	3.866321	2.755387	0.0071
D(C(-2))	5.202906	2.120015	2.755387	0.0001

Insurance Sector Development and Economic Growth in Nigeria, 1980 –2014

R-squared	0.828304	Mean dependent var	-0.017812
Adjusted R-squared	0.799132	S.D. dependent var	0.138210
S.E. of regression	2.123686	Akaike info criterion	-1.174782
Sum squared resid	1.397753	Schwarz criterion	-0.899957
Log likelihood	24.79652	Hannan-Quinn criter.	-1.083686
F-statistic	2.541602	Durbin-Watson stat	2.825260
Prob(F-statistic)	0.053169		

Source: Computed from EView 7.0 (2016)

Normality Test: Jaque-Berra



Series: Residuals	
Sample 1980 2014	
Observations 34	
Mean	-3.11e-16
Median	-0.126232
Maximum	1.546241
Minimum	-1.032813
Std. Dev.	0.715182
Skewness	0.000898
Kurtosis	2.286105
Jarque-Bera	2.269864
Probability	0.001444

Granger Causality Test

Pairwise Granger Causality Tests

Date: 04/18/16 Time: 05:15

Sample: 1980 2014

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
P does not Granger Cause GDP	34	7.83351	0.0000
GDP does not Granger Cause P		0.05910	0.9427
I does not Granger Cause GDP	34	2.01037	0.0363
GDP does not Granger Cause I		0.07831	0.9249
C does not Granger Cause GDP	34	0.38894	0.7266
GDP does not Granger Cause C		0.11906	0.1222
P does not Granger Cause C	34	0.18273	0.8339
C does not Granger Cause P		1.31990	0.2827
P does not Granger Cause I	34	7.28827	0.0027
I does not Granger Cause P		2.67152	0.0861
C does not Granger Cause I	34	0.12982	0.5126
I does not Granger Cause C		1.41513	0.2592