

## The Contribution of Fire Insurance to Nigerian Economy (1990 - 2020)

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### Abstract

*This study assessed the contribution of fire insurance to the Nigerian economy from 1990 to 2020. It was aimed at examining the effect of fire insurance premium income and claim expenditure on the Nigerian gross domestic product. The study was motivated by the incessant fires in Nigeria which has resulted in an increase in fire insurance premium income in recent times. The research design for the study was ex post facto, while the study population was made up of all insurance companies providing fire insurance cover as of 2020. Data were obtained from Nigeria Insurance Digest, Central Bank of Nigeria statistical bulletin and the National Bureau of Statistics for the study period. Analysis of data was carried out using co-integration and ordinary least square regression. A long-run relationship between fire insurance premium income, claim expenditure and GDP was established while a positive significant relationship was observed between fire insurance premiums and GDP. Claim expenditure had an insignificant relationship with GDP. This study implies that fire insurance serves as a risk diversification tool that has had a positive impact on the Nigerian economy. It is concluded that fire insurance is of importance and its pull of premiums and financial intermediation role boosts economic activities in the country. It is recommended that fire insurance should be encouraged among individuals and businesses in Nigeria.*

**Keywords:** Fire, Insurance, Premium, RGDP, Claim Expenditure

### 1.0 Introduction

The Nigerian economy has recorded considerable growth over time. The utilization of insurance enhances economic growth through the application of the contingency funds of firms which adds to the accessible funds available for investing in high-return projects. Also, insurance makes it easy for financial intermediaries to lend funds to the deficit sector of the economy used in financing real investments as an aid to economic growth (Mojekwu et al., 2015; Nwosa & Mustapha, 2018; Oke, 2012). With insurance, marginal productivity of capital, savings rate and technological innovations are maximized. Fashagba (2018) maintains that the indemnification act of insurance stabilizes the financial position of individuals and organizations through the transfer of diverse risks to the insurance company. Where this occurs, individuals and organizations whose risks have been covered by insurance can more easily devote their time and resources to achieving their core objectives capable of aiding economic growth. Likewise, with insurance, the demand and consumption of goods and services are enhanced. This stimulates production and employment which also aids economic growth (Oke, 2012; Fadun & Shoyemi, 2018; Fadun, et al. 2024).

Fire insurance has recorded significant growth in recent times. In 2018, it generated 18 percent of gross premium income in the Nigerian insurance industry and 17.6 percent in 2019 (National Insurance Commission NAICOM, 2019). There has also been an increase in premiums from ₦45 million in 2018 to ₦52.9 million in 2019. (NAICOM, 2019). Claims have risen by 734 percent over the last ten years, with ₦20.3 million recorded in 2018 and ₦33.6 million in 2020. (NAICOM, 2020). With the growth in fire insurance shown in its growth in premium income and claims in the demanding operating environment of Nigeria, there is a need to examine whether this growth is of any importance in the Nigerian economy. This is the emphasis of this study.

### **1.1 Statement of the Problem**

Risk is an integral part of life and the risk of fire has become more pronounced in Nigeria in recent times (Momoh & Ajiboye, 2018). With the increase in the number of fire outbreaks in the country, the drive for fire insurance has increased with the resultant increase in fire insurance premium income. Fire insurance premiums can be used as a means of enhancing financial intermediation, sustaining internal cash flow and serving as a source of reserve funds, all of which increase economic activities. Inasmuch as fire insurance has served as a means of alleviating losses arising from fire outbreaks in society, the study of its effect and contribution to the Nigerian economy remains an under-researched area. Needless to say, studies on the contribution of other sectors such as agriculture, oil and gas, construction, etc, to the economy, have received more attention in times past. Moreover, there are very limited studies on specific risks in the insurance industry. Thus, there is a research gap that drove the desire of the researchers to undertake the study of fire insurance and assess its contribution to the growth of the Nigerian economy.

The specific objectives are to:

- (i) examine the trend of fire insurance premiums, claims expenditure and real gross domestic product (RGDP).
- (ii) study the relationship between fire insurance premium income and economic growth of Nigeria.
- (iii) assess the relationship between fire claims expenditure and economic growth in Nigeria.

To achieve these objectives, this study hypothesizes that fire insurance premium income has no significant relationship with economic growth in Nigeria, and fire claim expenditure has no significant relationship with economic growth in Nigeria. This study would be of benefit to insurers, policymakers and regulators, the government and the public at large. The measure of the contribution of fire insurance to economic growth would influence their policymaking, oversight function and regulatory activities to enhance better performance capable of increasing economic growth in line with global economic realities. The study is however, limited by a dearth of data which restricts the years of study to 1990-2020 and the insurance variables to gross premium income and gross claim expenditure of fire insurance business in Nigeria.

The rest of this paper is structured as follows: section two is the review of related literature comprising conceptual, theoretical and empirical reviews. In section three, the research method used is discussed while data presentation and discussion of findings are made in section four. The conclusion, recommendations and suggestion for further study are made in section five.

## **2.0 Literature Review**

### **2.1 Conceptual Review**

#### **Fire Insurance**

Wahab (2015) describes fire as the speedy burning of a substance in a heated reactive process of combustion. In insurance parlance, fire is defined as the actual ignition of something which ought not to be on fire and such ignition must be accidental or fortuitous (CII, 2004; Nyce, 2007). In fire insurance, the insurance company assumes the risk of the insured in exchange of the premium and indemnifies the insured against financial losses that occur as a result of loss, damage or destruction of the insured property through fire (Obinna, 2008). The fire and special peril policy, which this study is limited to, is the most common policy covering fire insurance. Some of the perils covered include fire, lightning, explosion, aircraft damage, impact damage, riot, strike and malicious damage (Aduloju, 2009; Oakes, 2019). Fire insurance policies, like all other insurance policies, are effected on the payment of the premium. Umoren and Joseph (2016) assert that the insurance premium is an expense paid by the insured as the cost of cover. Premiums received by the insurance company are a source of interest to the economy as they reflect the inflow of capital in the insurance company (Haiss & Sumegi, 2008; Nwosa & Mustapha, 2018).

#### **Claims Expenditure**

Insurance claims are made when loss, damage or destruction occurs to the insured property. It is filed by the insured who has suffered the loss or by his/her beneficiary. Sometimes it could be effected through a lump sum payment, or by reinstatement where the lost property is replaced. As the largest cost faced by an insurer, it could be categorized into simple domestic building and content claims which can easily be settled, to more composite claims such as the reinstatement of a landed property which may span over months or years (Yusuf & Dansu, 2014).

The gross domestic product (GDP) measures the goods and services produced in a country within a year in monetary terms. It serves as a means of obtaining the market value of the goods and services produced in a country to assess the economic growth of the country within the period (Doan, 2020; Hasan, 2021). Common factors affecting the GDP of a country are interest rates, inflation, exchange rate and money supply etc.

## **2.2 Theoretical Review**

### **Theory of Financial Intermediation**

The theory of financial intermediation is the major theory on which this study is based. Guttentag and Lindsay (1968) considered the theory of financial intermediation in relation to the creation of funds, saving and financing of the economy. It entails the establishment of a financial system that would cover the trade of goods and services, the creation of a tool that would ensure the pool of funds for large-scale economic enterprises, together with a suitable means for the transfer of economic resources to areas where they are in greatest demand. Financial intermediation also enables the management of uncertainty and risk for depositors and investors, the provision of decentralized decision-making processes in the economy and the accessibility of suitable mediums for administering asymmetric information and incentive problems capable of promoting the growth of the economy (Mayowa, 2020).

### **2.3 Empirical Review**

In a study by Piljan et al., (2015) on the impact of insurance premiums on financial market development, the researchers observed the financial market of 37 developing countries from 1987 to 2011. It was observed that insurance premiums significantly increase stock market value. From their analysis, the researchers remarked that where insurance policies are value-added and encouraged, the growth of financial markets would be enhanced. A study of the effect of risk transfer in the Nigerian insurance industry was carried out by Onyele and Ariwa (2019). Using a study period of 1988 to 2018, the authors observe the existence of a long-run relationship between fire risk, accident risk, motor vehicle insurance, employers' liability and marine insurance, being instruments of risk transfer, and the growth of the insurance industry.

The economic benefits of fire insurance on major commodity markets in Ibadan, Oyo state, Nigeria was carried out by Momoh and Ajiboye (2018). Their study showed that fire insurance can reduce the impact of fire outbreaks and lessen the economic losses borne by the owners of property, the government and society. A similar study was carried out by Oloke, et al., (2020) where the authors examined the exposure of urban neighbourhoods to fire risk in Ibadan. It was discovered that fire outbreaks in Ibadan can be generated in the course of daily human activities, as a result of carelessness, defective electrical equipment and surges in power supply. In Ghana, Enu, et al., (2014) evaluated the benefits of fire insurance and the consequences of non-compliance. The authors employed the convenience sampling technique and their analysis showed a lack of fire insurance policies by the majority of Ghanaians which was attributed to the inadequate sensitization on the benefits of fire policy. They also discovered cases of distrust of the populace regarding the reliability of insurance operations, high levels of unemployment and significant property loss, etc. These issues restricted the contribution of fire policy to the growth of the Ghanaian economy.

The effect of money supply, inflation and interest rates on the economic growth of Nigeria was observed by Gatawa et al., (2017). It was perceived that in the short run, economic growth is influenced by broad money supply (M3) and negative interest rates. This observation was akin to that of Forhad and Homaifar (2017) who similarly observed a relationship between exchange rate, money supply and economic growth. Fischer (2015) and Forbes (2015) remark that exchange rate fluctuations constitute a major influence on inflation and can create substantial implications affecting the formulation of monetary policies and sustainable economic growth.

## **3.0 Method and Materials**

### **3.1 Research Design**

This study used the ex post facto research design and was centered on already established secondary data. With a population of fifty-five (55) registered insurance companies in Nigeria having fire insurance coverage as of 2020, the study covered a time period of 31 years, from 1990 to 2020. Data were retrieved from the statistical bulletins of the Central Bank of Nigeria (CBN), the National Bureau of Statistics and publications of the Nigerian Insurers Association (NIA). With a study period of 31 years, the study can be considered reliable for future statistical inferences.

This study adopted variables which are consistent with those of similar literature together with economic theories and the peculiarities of the Nigerian economy (see Akinwunmi, 2017, Fadun, et al. 2024; Nwosa &

Mustapha, 2018). These variables consist of the explained and explanatory variables together with control variables consisting of exchange rate and money supply.

#### *Explained Variable*

The gross domestic product (GDP) was the explained or dependent variable used for the study. The real GDP quantifies the GDP of the nation following necessary adjustments for inflation. It is measured at 2010 constant market prices.

#### *Explanatory Variables*

The explanatory, also known as independent variables adopted for this study are as follows:

- (i) Fire insurance premiums (FIP): this measures the total annual premiums of insurers covering fire policies.
- (ii) Claims Expenditure (CLEX): this measures the total expenditure made on claims on fire policies annually.
- (iii) Exchange rate (EXR): the measure of the price of a country's currency in relation to the US dollar (USD).
- (iv) Money supply (MONS): broad money (M3), is used in the study. Broad money consists of currency in circulation, traveler's checks, demand deposits at commercial banks held by the public together with other checkable deposits, savings deposits, time deposits, balances in retail money market funds, balances in institutional money market funds and term purchase agreements (Akinwunmi, 2017).

### **3.2 Model Specification**

The regression model was used in measuring the effect of fire insurance on the Nigerian economy. It is presented below:

$$RGDP_t = f(FIP_t, CLEX_t, EXR_t, MONS_t) \dots\dots\dots (i)$$

Where,

RGDP = real gross domestic product

FIP = fire insurance premiums

CLEX = claims expenditure

EXR = exchange rate, and

MONS = money supply

t = time period

The natural logs of these values were used for the analysis except the descriptive statistics in order to enhance simplicity and easy computation. According to Naidu et al., (2017), the usage of log transformed data of variables makes the coefficients of the cointegrating vector to be studied as long-run elasticities and enhances less difficult interpretations. However, in order to draw more realistic inferences from the study, we use the raw data in analyzing the descriptive statistics. The model is therefore typified as follows:

$$LOGRGDP_t = f(LOGFIP_t, LOGCLEX_t, LOGEXR_t, LOGMONS_t) \dots\dots\dots(ii)$$

Further given as:

$$LOGRGDP_t = \beta_0 + \beta_1 LOGFIP_t + \beta_2 LOGCLEX_t + \beta_3 LOGEXR_t + \beta_4 LOGMONS_t + \mu_t \dots(iii),$$

with the following description:

Log = natural log of the variables

$\beta_0$  = constant parameter,

$\beta_1, \beta_2, \beta_3, \beta_4$  = estimated coefficients of the independent variables

$\mu$  = error term

Apriori expectation:  $\beta_1, \beta_2, \beta_3, \beta_4 \neq 0$

#### 4.0 Results and Discussion

In Table 1, we present the result of the descriptive statistics of the data based on the raw data obtained. Real gross domestic product (RGDP) and money supply (MONS) are given in billions of naira, fire insurance premiums (FIP) and claim expenditure (CLEX) are in millions of naira while exchange rate (EXR) is presented in percentages.

Table 1: Descriptive statistics

	RGDP	FIP	CLEX	EXR	MONS
Mean	42853.90	13703.02	6567.888	134.2729	9818.764
Maximum	72094.09	41333.48	33626.45	362.0000	38627.40
Minimum	21680.20	151.8400	61.51000	8.040000	57.55000
Std. Dev.	19385.75	13368.87	8289.161	111.1028	11768.39
Skewness	0.303961	0.735297	1.639635	0.777424	1.004653
Kurtosis	1.468396	2.230949	5.279967	2.648900	2.762808
Jarque-Bera	3.507369	3.557363	20.60449	3.281897	5.287531
Probability	0.173135	0.168861	0.000034	0.193796	0.071093
Observations	31	31	31	31	31

Source: Authors' computation from Eviews 9

From Table 1, it can be seen that the mean RGDP for the observation is ₦42,853.90 billion, the mean fire insurance premium is ₦13,703.02 million while ₦6,567.89 million is the mean of claim expenditure on fire insurance. The mean values for exchange rate and money supply are 134.27 percent and ₦9,818.76 billion respectively. The maximum and minimum values of RGDP for the study is ₦72,094.09 billion and ₦21,680.20 billion respectively.

It can also be observed from Table I that all the variables are positively skewed. Positively skewed variables have long right-tails and a tendency for higher values than the sample mean. Claim expenditure (CLEX) has kurtosis of 5.28 and is leptokurtic with a curve that is slim or long-tailed. Other variables are platykurtic with kurtosis value of less than 3 and flattened curves. The Jarque Berra statistics tests the hypothesis that the data are normally distributed. From the table all the variables but CLEX have Jarque Berra probabilities bigger than 0.05 and signify normal distributions.

#### 4.1 Trend Analysis

A trend analysis was made to observe the trend of RGDP, fire premium income and claim expenditure over the years 1990 to 2020. The result is presented in Figure 1.

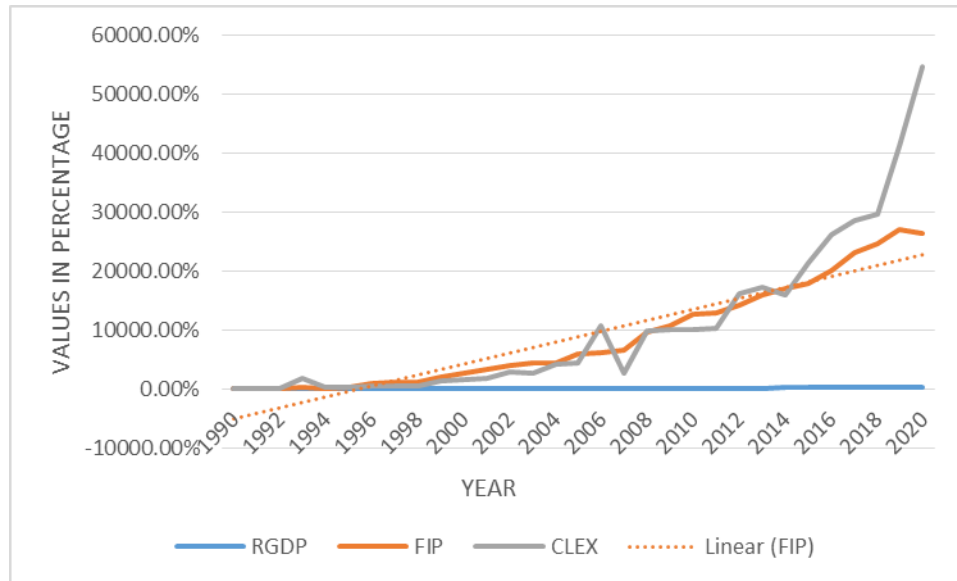


Figure 1: Trend analysis of Real Gross Domestic Product (RGDP), fire insurance premium (FIP) and claim expenditure (CLEX) for 1990-2020

Source: Author's analysis from Excel, 2016

Figure 1 shows the trend analysis for real gross domestic product (RGDP), fire insurance premiums (FIP) and fire claims expenditure (CLEX) for the 31-year period (1990 to 2020). The base year for the trend is 1990 and each data is recorded as a percentage of the base year. From the diagram, it can be observed that GDP maintained an almost static growth rate over the years in study. This can be attributed to the slow growth of factors of production in the country over the years of study. Claim expenditure seemed to have the fastest growth rate, maintaining a steady trend until 2002 when it started rising steadily. It had sudden spikes in 2005 and 2008, and increased steadily afterwards. These spikes could be as an aftermath of the 2003 and 2007 recapitalization of the insurance industry. This period witnessed increased demands for claim settlement as well as increased cost of rebuilding and indemnification.

Fire premiums increased at a higher rate than GDP though its growth rate was still lower than that of the claim expenditure. However, little detours were observed which may be explained by changes as a result of the 2003 and 2007 recapitalization of the industry. From 2008 however, insurance activities geared up and gradually gained momentum aided by increased capital and better regulated activities. There was an upsurge in fire premiums in 2014 where it rose above the trend line. This is as a result of increased public awareness, rapid expansion of the sector, strategic business acquisitions, improved visibility and better supervisory regulation (Momoh & Ajiboye, 2018). This has resulted in an enhanced performance of the sector as shown in the diagram.

### 4.2 Unit Root Analysis

As a prerequisite to the analysis, data were subjected to unit root test to establish its appropriateness for the study. For this study, both the augmented dicker fuller (ADF) test and the Philip Perron test were used in testing for a unit root. Naidu *et al.*, (2017) opine that the Philip Perron test has the advantage of controlling serial correlation when testing for stationarity. The result of the test is presented in Table 2.

Table 2: Unit root test

Variable	ADF			Phillip Perron test		
	Statistic	Probability	Order of Integration	Statistic	Probability	Order of Integration
LOGRGDP	-4.4375	0.0028	I(1)	-4.4379	0.0028	I(1)
LOGFIP	-3.0859	0.0385	I(0)	-3.0859	0.0385	I(0)
LOGCLEX	-8.5205	0.0000	I(1)	-13.311	0.0000	I(1)
LOGEXR	-4.5505	0.0020	I(0)	-3.8615	0.0089	I(0)
LOGMONS	-4.4184	0.0032	I(1)	-2.7788	0.0308	I(1)

Source: Authors' computation from Eviews 9

As shown in Table 2, LOGFIP and LOGEXR showed no presence of a unit root at the level while LOGRGDP, LOGCLEX and LOGMONS became stationary at the first difference with the ADF test. Using the Philip Perron test, LOGFIP and LOGEXR also had no unit root at the level; likewise, LOGRGDP, LOGCLEX and LOGMONS became stationary on first differencing. It can be observed that similar results were obtained with both tests which clearly reflects the stationarity of the data, hence, making it fit for the study.

### 4.3 Cointegration Test

The Johansen Cointegration test was also carried out on the data. It tests for whether the variables are capable of exhibiting a long-run relationship. According to Johansen and Juselius (1990) in Ukpong and Acha, (2017), the tendency for a long-run relationship implies that irrespective of the temporary variability among the variables in the short-run, in the long-run, they would fall back to a symmetrical path as hypothesized, thus limiting the likelihood of the variables meandering away from a vector ceaselessly. Table 3 shows the result of the test.

Table 3: Cointegration test  
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.724149	99.99742	69.81889	0.0000
At most 1 *	0.651768	62.64845	47.85613	0.0011
At most 2 *	0.417644	32.05673	29.79707	0.0270
At most 3 *	0.263728	16.37719	15.49471	0.0367
At most 4 *	0.227849	7.498691	3.841466	0.0062



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Trace test indicates 5 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: Authors' computation from Eviews 9

From Table 3, the Trace test showed at least five (5) cointegrating equations when tested at the 0.05 level of significance which is supported by probabilities less than the 0.05 significant value. From this result, it can be stated that a long-run relationship exists between RGDP, fire insurance premiums, claims expenditure, exchange rate and money supply.

#### 4.4 Test of Hypotheses

To test for the hypotheses of an insignificant relationship between fire insurance premium income and RGDP, as well as between claims expenditure and RGDP, the multiple regression analysis was used. The result is presented in Table 4.

Table 4: Regression analysis

Dependent Variable: LOGRGDP

Method: Least Squares

Sample: 1990 2020

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGFIP	2.696351	0.449061	6.004427	0.0000
LOGCLEX	0.700036	0.579596	1.207800	0.2376
LOGEXR	-1.455706	0.759232	-1.917341	0.0658
LOGMONS	-1.503681	0.557486	-2.697254	0.0119
R-squared	0.543590	Mean dependent var		4.586806
Adjusted R-squared	0.537322	S.D. dependent var		0.203413
S.E. of regression	0.583809	Akaike info criterion		1.881429
Sum squared resid	9.202495	Schwarz criterion		2.066460
Log likelihood	-25.16215	Hannan-Quinn criter.		1.941744
Durbin-Watson stat	0.543914			

Source: Authors' computation

Table 4 shows the regression analysis for the distribution. It can be observed that there is a positive relationship between LOGRGDP and LOGFIP as well as between LOGRGDP and LOGCLEX. However, negative relationships exist between LOGRGDP and LOGEXR as well as between LOGRGDP and

LOGMONS. A probability of 0.0000 implies the rejection of a null hypothesis of an insignificant relationship of fire insurance premiums on RGDP. Probabilities of 0.2376 and 0.0658 as held by LOGCLEX and LOGEXR respectively imply insignificant relationships with LOGRGDP. LOGMONS has a significant relationship with LOGRGDP with a probability of 0.0119. The regression also indicated an R-square of 0.544 which means that changes in the independent variables constitute 54.4% of changes in RGDP.

#### **4.5 Discussion of Findings**

The relationship between fire insurance premiums and RGDP in the cointegration analysis indicates a long-run relationship that corroborates with the work of Eze and Okoye (2013). The authors envisage a long-run contribution of insurance to the economic growth of the Nigerian economy. The significant positive relationship between fire insurance premiums and real GDP from the regression analysis corroborates with the study of Okoye *et al.*, (2017) and Etale (2019). Findings from their studies showed a positive relationship between fire insurance management activities of the Nigerian insurance industry and the growth of the economy. The findings from our study also serves as a follow-up of the financial intermediation theory. As postulated by Guttentag and Lindsay (1968), the theory lists one of the major functions of financial intermediation as the management of uncertainty and risk by the financial organization, as an institution and as an aid to the economy. The insignificant relationship between claims expenditure and RGDP corroborates with the study of Umoren and Joseph (2016). Their study indicates that claims expenses have an insignificant relationship with economic growth in Nigeria which is as expected, given the apriori expectations. A negative effect of exchange rate on RGDP was observed which is also consistent with apriori expectations (see Ewubare & Ushie, 2022; Hasan 2021). As it is in the present Nigerian economy, a rise in exchange rate strengthened by the depreciation of the naira has negatively affected the Nigerian economy.

This study implies that fire insurance is capable of creating a positive effect on the economic growth of Nigeria as a risk diversification device. It provides a medium through which lost/damaged facilities and infrastructure can be replaced, and lost incomes as a result of fire outbreaks and damage reimbursed and replaced. The replacement of these lost and damaged facilities together with the reinstatement of individuals and organizations who suffered the loss adds to the growth of the economy (Oladokun & Ishola, 2010; Xin & Huang, 2013).

### **5.0 Conclusion and Recommendation**

#### **5.1 Conclusion**

This study examined the contribution of fire insurance to the growth of the Nigerian economy. The trend analysis indicated that fire premium income and claim expenditure grew faster than RGDP over the years of study. The cointegration analysis showed the presence of long-run relationships between the variables. Our analysis showed that there is a positive relationship between fire insurance premium income and economic growth. However, the relationship between claims expenditure and economic growth is insignificant. Real gross domestic product exhibits negative relationships with both exchange rate and money supply. From our study, it can be concluded that fire insurance is an effective risk diversification

device with a strong potential for a more prominent impact on the Nigerian economy. The significance of fire insurance to the growth of the economy can therefore not be overemphasized.

## 5.2 Recommendations

From the findings made from this study, it is recommended that individuals and organizations should be encouraged to subscribe to fire insurance policies to promote economic growth. Also, since premium income plays a significant role in economic growth, regulatory agencies should oversee the efficient and transparent management of premium income by insurers. Suitable legislation, policy formation and product innovation should be encouraged to promote fire insurance. Finally, there is a need for effective government participation in insurance operations to enable a better operating environment for the industry and aid economic growth.

## 5.3 Suggestion for Further Study

For further study, the authors suggest that the contribution of other classes of insurance such as, motor vehicle, marine insurance and aviation insurance, to the Nigerian economy may be considered in order to create a more in-depth analysis and generate results that would promote the growth of the Nigerian insurance industry and the economy at large.

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