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IMPACT OF INSURANCE PRODUCTS ON THE SUSTAINABILITY OF NIGERIA ECONOMIC

Raji, Oladeinde Akeem & Adejuwon, E. O.
Department of Insurance
The Federal Polytechnic, Ilaro, Ogun State
Email: akeemraji02@yahoo.com; adejuwonolatunji95@gmail.com

ABSTRACT

The study evaluated the impact of insurance products on the sustainability of Nigeria economic growth between 1981 and 2019. The study used secondary data on gross domestic product, Fire insurance premium, accident insurance premium and motor insurance which were gathered from Central Bank of Nigeria (CBN) Statistical Bulletin and NAICOM Bulletin 2019. The study employed descriptive statistics and multiple regression technique based on the E-views version 9.0 computer software as methods of data analysis for predicting the relationship between the adopted insurance product and economic growth based on the model. The study found that fire insurance premium and motor insurance premium has a positive relationship with the gross domestic product while accident insurance premium has a negative relationship with the gross domestic product. Also, it was found that fire insurance premium, accident insurance premium and motor insurance premium has a significant effect on the gross domestic product. The study concluded based on the findings that insurance product has impact on the sustainability of Nigeria economic growth. The study therefore recommended that government to make insurance protection mandatory for individuals and businesses to ensure safety of investment and sustain the level of growth in the economy.

Keywords: *Accident Insurance, Fire Insurance, Motor Insurance, Gross Domestic Product, Premium.*

INTRODUCTION

Insurance sector is one of the financial institution which was acknowledged as the bedrock of the nation, in respect of the tremendous functions and the primitive role played in the economic development and growth of Nigeria, the sector Provides insurance covers to the insuring public vise a vise oil and gas sector, Transportation sector, mining, agricultural, commerce and industry, corporate organizations, individuals, religious groups and government

at large (Tijani, 2015). Insurance business in Nigeria operates in managing the risk of individuals, household, organizations and government, the 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. Insurance sector is one of the leading sectors in the Nigerian economy, particularly in terms of its contributions to income, employment, foreign exchange earnings and the domestic coverage given. The individual hope of life are to have uninterrupted and continuous usage of our health, properties and services rendered to us (Raji & Adegboye, 2019).

In most cases ideals are not realized, one frequently hears on media of some major fire or explosion in our country, a multiple collision on our motor ways or sudden death of accompany man or workman at a nearby building site. Hardly a day passed without a disastrous stores being reported. In the newspapers, twitter, instagram, whattsap and many others media, news item dealing with robberies, aeroplanes, fires, crashes, oil spillage, kidnapping and others disastrous events are being reported, these incidents spread across our national life. The state of insecurity and accident in our present time has reached an unthinkable and un unimaginable state, when aeroplane were suddenly crashed into houses like the recent plane crash of the youngest pilot late Tolulope Arotile which occurred on 14th July, 2020, and also some officers who dies as a result of air craft crash on 21st may 2021. Etale, (2019) observed that thousands of people and properties worth Millions of naira as a result of death of bread winner of the family were loss. At the micro level, an individual may be involved. His few belongings may be carted away by thieves while at macro scale it could involve corporate bodies or across the nation as a whole.

When a calamity occurs to a manufacturer, the effect cuts across every spectrum of the society. For example, it is in the interest of the community as a whole to have this manufacturer establish his business. By so doing, he creates jobs, produces goods which people may need

and can, provide work for suppliers of raw materials which in turn create jobs and so on. If this manufacturer experiences disruption in his production, the entire benefits are also disrupted. On the other hand, if the fear that such calamity may be happen prevent the entrepreneur from establishing the business, the entire community losses. The fact that insurance restores or rebuild the insured back to the position he was before the loss makes individuals to exact extra-energy, save fund and establish business and go extra mile in meeting his needs and the needs of others. It is not a gainsaying if one says that insurance is the bedrock of the nation. 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).

Generally, an organization's products are the physical or actual items or services, it is offering to the market. A products or services can be modified, redesigned, repackage, or discontinued during the life of the organization. For example, if a business tycoon has a fleets of vehicles to render for sales, the range of vehicles available for sales in his garage were the products recognized at that particular period. For retail shop, the various brand of electronics/ planks in his shop, iron rod, asbestos was also recognized as the products. For an insurance company, the products will be their insurance policies or covers available for their customers, to bank, the types of accounts a customer can open. Any goods or services render or provided by the insurance company which is likely or possibly function to protect insuring public against unforeseen events, that may lead to partial or total loss of life, limb or loss of properties with a consideration worthy of recognition at the eye of law call premium, said to be called insurance products. In insurance markets, insurance products serve as major elements which the economic contributions of insurance sector basically relied upon in insurance world, without which insurance contract would be disvalued.

In Nigeria, two types of insurance business were usually practiced, the Life insurance which includes, whole life, endowment, annuity, term assurance, and also Non-Life insurance which are, fire, accident, theft, engineering, marine, oil and gas, etc.. The positive results of all these products determine the performance of insurance operation and the goodwill benefits enjoy on social and economic rating by insuring public. However, there is usually a considerable time lag between payment of premiums and the settlement of claims, this allows the insurers to withhold funds to cover liabilities for policyholders (Zurbruegg, 2000). Unused premium receipts are invested to produce a satisfactory yield and a return for investors so that the shareholders in most cases can be paid dividends and any underwriting losses (excess claims over payment) can be balanced by any investment gains which also contributed to Gross Domestic Product (GDP).

LITERATURE REVIEW

Insurance

According to Fadun, (2013) insurance is a contractual agreement between two parties, insured (buyer) and 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. Thus, 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, companies and other entities in the case of unexpected loss. Insurance has described by Yinusa and Akinlo, (2013) is seen as the corner stone of modern day financial services.

Gabriel, (2015) also explained that insurance is a social contract that manages the transfer of risk between two or more parties. The emergence of modern insurance has played importance role not only to economy as a whole but also to the social wellbeing of the individuals. At micro level, insurance raises individual confidence and

sense of assurance of financial reinstatement in case of loss. The main objective of insurance is ensuring protection of customers against the insured risks. The social benefit of this is that jobs are sustained after major loss, losses of jobs and sources of income, inability to continue to produce social amenity, losing purchasing power are averted by the insurance reinstatement of the business after a major loss. Also, premium from the insurance constitute a large segment of the capital market which may be difficult for an individual to produce. Thus insurance generate large fund to the capital market from the premium paid by all individuals insured. The importance of insurance cannot be overemphasized considering the role of the capital market to the economy. Insurance in the nonbanking sector provides additional capital to finance economic activities toward the desired growth.

Functions of Insurance Companies in Nigeria

The following functions as highlighted by Ogunseye, Ogunbi and Aladelusi (2015) are performed by insurance companies:

i. Facilitate risk transfer.
ii. Accumulate funds used for long term investments.
iii. Development of money and capital markets through development of their life and pension funds.
iv. Manage pension schemes for companies.
v. Policies of insurance companies are accepted as collaterals for bank borrowing.
vi. Through re-insurance, and insurance of goods in transit, import and export, insurance companies accumulate inflows of foreign funds which help to boost our reserve and balance of payments account.
vii. The nature of the business itself acts as catalyst to development of trade, commerce and asset acquisition since it promises palliatives in form of claims in the event of loss.

Importance of Insurance Companies in the Economy

The Nigeria insurance sector is an important part of the Nigerian economy. Insurance and reinsurance companies are sellers of insurance

covers or providers of insurance covers to the insuring public. Insurance companies (insurers) underwrite insurable risks in return for a given consideration, known as the premium, which serves as the main source of insurance funds (Igbodika, Ibenta & John, 2016; Madukwe & Obi-Nweke, 2014; Ubom, 2014). Hence, it is expected that the insurance sector activity should impact on economic growth as a provider of insurance coverage. The insurance sector also promotes economic growth by mobilizing savings and investible funds, accumulated from premiums and underwriting profits, thereby making insurance investment fund available to the capital and other financial markets (Oke, 2012; Olayungbo, 2015; Yinusa & Akinlo, 2010).

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 and economic development (Fadun, 2013; Gabriel, 2015; Yinusa & Akinlo, 2013). 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; Vaughan & Vaughan, 2014).

THEORETICAL REVIEW

Markowitz Portfolio Theory

The Markowitz efficient behavior exhibited by insurance companies while investing is usually associated with preference for more returns on investment to fewer returns, also risk on investment as directly depending on the size of expected returns as such it is the framework that underpins this study as it is used in evaluating the performance of

managed portfolios. It provides gratifying predictions about how to envisage risk on investment as directly depending on the size of expected returns. Since the goal of any investment is to generate returns and ensure that expected returns on the investment funds is higher than the associated risks to be able to meet their long term obligations such as claims, the Markowitz portfolio theory provides the framework for achieving such objective. The essence of insurance business investment is to create a portfolio with assets which maturity will align with the expected return that can off-set claims from the policyholders as only genuine claims can get paid by the insurance companies. The saving/premuim that constitute investment i.e intermediation decisions are based on the parameters of risk and returns and thus preference for more returns on investment rather than vice versa. The general problem of insurance business arise in collection of premiums as only after the pool of these premiums accumulated is then used in the settlement of claims by the insured and the investment returns serves as profit to the organization Omoke (2011). The Markowitz portfolio theory therefore provides the theoretical basis for this study because it explains why insurance business investment is concerned about the performance of their funds relative to GDP which is essentially a vehicle for economic growth.

The Growth Theory

The theory of economic growth developed in the 1950's by R. Harrod (Great Britain) and E. Domar (USA) was based on Keynesian premises. In the Keynesian approach to the analysis of economic growth, demand does not automatically equal supply, nor do savings automatically equal investments; demand especially the demand for capital investment plays a key role in economic growth; and the basic technological coefficients (for example, the relationship of capital to product, and of labor to capital) remain unchanged because of the rigidity of prices and are determined by the neutral quality of technological progress that is, by such technological progress as does not influence the effectiveness of production factors. The growth theory states that well developed financial intermediation can promote

economic growth through marginal productivity of capital, efficiency of channeling savings to investment, savings rate and technological innovations (Eze and Okoye, 2013). The channels to growth model tries to link the financial intermediation function of insurance companies to economic growth.

Brief Empirical Review

This section presents the review of past empirical studies to provide justification for the need for this study to examine the relationship between insurance product and economic growth in Nigeria. Etale (2019) investigated the relationship between insurance sector development and economic growth in Nigeria using data from 2001 to 2017. The study adopted gross domestic product (GDP) as proxy for economic growth and the response variable, while total insurance investment (INV), total insurance premium (PRE), and total insurance claims (CLA) were used as proxies for insurance sector development and the predictive variables. Secondary time series data for the variables were sourced from annual reports of Central Bank of Nigeria (CBN) Statistical Bulletins and the Nigerian Insurance Digest covering the period 2001 to 2017. The study employed descriptive statistics and multiple regression technique based on the E-views 9.0 software as methods of data analysis. The empirical results showed that total insurance investment, total insurance premium and total insurance claims had positive effect on gross domestic product, proxy for economic growth (total insurance investment and total insurance premium were significant at 5% level, while total insurance claims, at 19% level, was not significant). This study has established that the insurance sector development contributed meaningfully to economic growth in Nigeria.

Nwosa and Mustapha (2018) investigated the dynamics of insurance development and economic growth in using secondary data for the period 1996 to 2014. They used OLS and Granger causality test as the statistical techniques to analyse their study data. The results showed that insurance development had insignificant effect on economic

growth in Nigeria. The study concluded with a recommendation that government should put in place sound policies and regulation to sustainable development in the insurance sector.

Fadun and Shoyemi (2018) examined the contribution of insurance investment funds to economic growth in Nigeria time series data obtained from CBN Statistical Bulletin and Nigerian Insurers Digest covering the period 2000 to 2015. The study adopted total insurance investment and gross domestic product (proxy for economic growth) as the independent and dependent variables respectively. Data analysis techniques employed include Pearson's correlation coefficient and OLS. The results revealed strong positive relationship between the study variables. Fashagba (2018) examined the relationship between insurance and economic growth in Nigeria using secondary data obtained from CBN for the period 2007 to 2016. The study employed OLS regression technique as the statistical tool for data analysis. The results showed that non-life insurance premium and total insurance premium had insignificant positive link with economic growth, while life insurance premium had negative also insignificant relationship with economic growth.

METHODOLOGY

This study investigated the impact of insurance products on the sustainability of Nigeria economic growth between 1981 and 2019. The study used secondary data on gross domestic product(GDP), Fire insurance premium (FIRE), accident insurance premium (ACCIDENT) and motor insurance (MOTOR) which were gathered from Central Bank of Nigeria (CBN) Statistical Bulletin and NAICOM Bulletin. The nature of data used for this study is time series from 1981 to 2019.

Method of Data Analysis: Data Analysis is the task of methodical using arithmetical and rational methods to define, demonstrate, condense, review and assess data. This task is developed to deal with manipulation of the information that has been gathered so as to present the evidence. The study made use of Econometric Measure (E-views)

version 9.0 to analyse the data. The researcher relies on Ordinary Least Square Estimator (OLS), in evaluating the relationship and impact between the selected variables.

Model Specification: The functional relationship between the dependent variable and the explanatory variables were expressed in the following model which is an adaptation of a model that has been widely used in previous studies such as (Etale 2019; Nwosa & Mustapha, 2018; Fashagba, 2018; Igbodika, Ibenta, & Isaac, 2016).

GDP = f(FIRE, ACCIDENT, MOTOR)
The above functional relationship is translated into an econometric equation as follows:
$GDP = \beta 0 + \beta 1FIRE + \beta 2ACCIDENT + \beta 3MOTOR + \mu$
Where:
GDP = Gross Domestic Product
FIRE = Fire insurance premium
ACCIDENT = Accident insurance premium
MOTOR = Motor insurance premium
$\beta 0$ = intercept or constant
$\beta 1$, $\beta 2$, & $\beta 3$ = coefficients of the explanatory variables or factor sensitivities
A priori expectations: $\beta 0, \beta 1, \beta 2, \& \beta 3 \neq 0$
μ = the error term

Methods of Data Analysis

The study employed descriptive statistics and multiple regression technique based on the E-views version 9.0 computer software as methods of data analysis for predicting the relationship between the adopted insurance product variables (FIRE, ACCIDENT and MOTOR) and economic growth proxy by gross domestic product (GDP) based on the model specified above. The multiple regression technique possesses the unique property of best linear unbiased estimator including efficiency and consistency when compared with other estimating techniques. The statistics tested for in the regression

equation included the coefficient of determination (R2), the probability of F-statistics, and the Durbin-Watson statistics. The coefficient of determination (R2) measures the explanatory power of the predictive variables on the response variable. The probability of F-statistics test for the overall statistical significance of the regression model, which was used to generalize the hypotheses. While the Durbin-Watson statistics was used to test for autocorrelation in the regression equation. Also, heteroscedasticity, normality and serial autocorrelation test will be applied also.

PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

Table 1: Result of Unit Root Test

Series	ADF	Critical value	Order of Integration
GDP	-3.523148*	-2.945842*	I(1)
FIRE	-6.213634*	-2.943427*	I(1)
ACCIDENT	-4.335064*	-2.943427*	I(1)
MOTOR	-6.666600*	-2.943427*	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, 2021

Unit Root Test

Researchers have developed several procedures for the test of order of integration. 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 stationary. The conduct of unit root test is essential to avoid spurious regression results (Gujarati, 2004). 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 shows that gross domestic product (GDP), Fire insurance premium (FIRE), accident insurance premium (ACCIDENT) and motor insurance (MOTOR) are all stationary at first

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

Table 2: Descriptive Result

	GDP	FIRE	ACCIDENT	MOTOR
Mean	25444.43	7670.692	8874.544	16227.25
Median	5696.390	3185.150	2612.250	6848.550
Maximum	127736.8	24990.00	30706.70	58502.21
Minimum	94.33000	22.10000	24.90000	94.20000
Std. Dev.	37811.99	8681.711	10440.07	18438.72
Skewness	1.430456	0.725898	0.739159	0.753760
Kurtosis	3.605161	1.941410	1.947062	2.017910
Jarque-Bera	13.53914	5.111512	5.215666	5.125438
Probability	0.001148	0.077634	0.073694	0.077095
Sum	966888.3	291486.3	337232.7	616635.5
Sum Sq. Dev.	5.29E+10	2.79E+09	4.03E+09	1.26E+10
Observations	38	38	38	38

Source: E-View Output, 2021

Table 2 presented above shows the descriptive statistics of the variables employed in the study, which explains the average value of each variable, deviation each variable from its mean and the normality test value for each variable. As shown in the descriptive statistics table above, mean value of gross domestic product is 25444.43 while the standard deviation stood at 37811.99. Fire insurance premium with the average mean of 7670.692 and standard deviation of 8681.711. The average mean of accident insurance premium stood at 8874.544 with corresponding standard deviation of 10440.07. Motor insurance premium with an average mean of 16227.25 with the standard deviation of 18438.72. To sum up the descriptive statistics, probability value of Jacque bera shows that fire insurance premium, accident insurance premium and motor insurance premium are normally distributed and are good for decisions while only gross domestic product is not normally distributed.

Table 3: Breusch-Godfrey Serial Correlation LM Test:

F-statistic	16.13852	Prob. F(2,32)	0.0000
Obs*R-squared	19.08189	Prob. Chi-Square(2)	0.0001

Source: E-View Output, 2021

Table 4: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	5.705640	Prob. F(4,33)	0.0013
Obs*R-squared	15.53596	Prob. Chi-Square(4)	0.0037
Scaled explained SS	17.68630	Prob. Chi-Square(4)	0.0014

Source: E-View Output, 2021

Diagnostic Test

Table 3 above shows the Lagrange multiplier (LM) which reveals that there is serial correlation at the chosen lag because the p value is less than 5%. In addition, table 4 shows that the heteroskedasticity test with the chi-square distribution which is statistically significant which means that we reject null hypothesis and accept alternate hypothesis which means that there is heteroskedascticity among the model.

Table 5: Regression Analysis Result

Dependent Variable: GDP
Method: Least Squares
Date: 08/15/21 Time: 12:36
Sample (adjusted): 1981 2018
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5947.729	3449.685	-1.724137	0.0938
FIRE	7.328063	1.363290	5.375278	0.0000
ACCIDENT	-7.046927	1.453657	-4.847725	0.0000
MOTOR	2.324430	0.525039	4.427158	0.0001

R-squared	0.843760	Mean dependent var	25444.43
Adjusted R-squared	0.829974	S.D. dependent var	37811.99
S.E. of regression	15591.46	Akaike info criterion	22.24614

Sum squared resid	8.27E+09	Schwarz criterion	22.41851
Log likelihood	-418.6766	Hannan-Quinn criter.	22.30747
F-statistic	61.20472	Durbin-Watson stat	0.889312
Prob(F-statistic)	0.000000		

Source: E-View Output, 2021

Assumption 1 Goodness of Fit: The table 5 above shows R^2 value of 0.8437. This indicates that about 84.4% variation in gross domestic product is explained by fire insurance premium, accident insurance premium and motor insurance premium. The R^2 value 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 83% of the systematic variation in gross domestic product in Nigeria. In addition, the Durbin-Watson statistics (0.889312) which lies before 1.5 and 2.5 which shows that there is evidence of 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 and fit.

T- Test: Most of the independent variables should be individually significant. This could be checked using t-test. If the p-value of t-statistics is less than 5 percent (0.05) we can reject the null and accept alternative hypothesis. If otherwise, we do the inverse. All the independent variables employed in the study shows significant impact on gross domestic product. Fire insurance premium, accident insurance premium and motor insurance premium with probability value of 0.000, 0.000, 0.001 respectively has a significant impact on the gross domestic product. The implication of these findings is that Fire insurance premium, accident insurance premium and motor insurance premium has been efficient in the growth and sustainability of economic growth in Nigeria. Although the monetary policy tools generally influenced the level of profitability of banks.

Coefficient of the variables: The value of the constant which stood at -5947.729 means that holding every other variable constant. Gross domestic product will decrease by 5947.729. The coefficient of fire insurance premium with 7.328063 means that for a unit increase in fire insurance premium, there will be 7.33 increase in the gross domestic product. Accident insurance premium with the coefficient of -7.046927 means that for a unit increase in the accident insurance premium, there will be 7.05 decrease in the gross domestic product. Lastly, motor insurance premium with the coefficient of 2.324430 indicate that for a unit increase in the motor insurance premium, there will be 2.34 increase in the gross domestic product.

DISCUSSION OF RESULT

In the above results, the unit root test indicates that all data were subjected to unit root test, which later revealed that all the variables are good to be used as they are stationary at the same order I(1). Also, In order to avoid spurious regression analysis, the residuals of the OLS result were subjected to various diagnostic checks such as normality test and stability test. LM test was conducted which reveals that there is serial correlation at the chosen lag because the p value is less than 5%. In addition, heteroskedasticity test revealed that there is heteroskedascticity among the model. The study revealed that fire insurance premium and motor insurance premium has a positive relationship with the gross domestic product while accident insurance premium has a negative relationship with the gross domestic product. Also, it was found that fire insurance premium, accident insurance premium and motor insurance premium has a significant effect on the gross domestic product.

CONCLUSION AND RECOMMENDATIONS

The study examined the impact of insurance product on the sustainability of economic growth in Nigeria for the period of 39 years that is 1981 to 2019. This study established that insurance product contributes meaningfully to economic growth in Nigeria. Also, the study concluded based on the findings that insurance product has

impact on the sustainability of Nigeria economic growth. This study conforms with some previous studies of Etale 2019; Nwosa and Mustapha, 2018; Fashagba, 2018; Igbodika, Ibenta, and Isaac, 2016; who established that the insurance sector development contributed meaningfully to economic growth in Nigeria. Based on the findings, this study recommends that:

Government to make insurance protection mandatory for individuals and businesses to ensure safety of investment and sustain the level of growth in the economy.

Government to consider setting up requirements for insurers to comply with in order to guarantee the efficient and transparent management of funds and diversification of investment portfolio in the industry.

Government should create more awareness electronically to the grassroots consumers and general public.

Also, government should intervene basically to protect the policy holder who are at the mercy of unscrupulous individuals who floats insurance company with the motive of defrauding policy holders.

Lastly, government should also intervene in other to protect the insuring public against arbitrary increase in the premium rate given by the insurance company.

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Appendix

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	16.13852	Prob. F(2,32)	0.0000
Obs*R-squared	19.08189	Prob. Chi-Square(2)	0.0001

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	5.705640	Prob. F(4,33)	0.0013
Obs*R-squared	15.53596	Prob. Chi-Square(4)	0.0037
Scaled explained SS	17.68630	Prob. Chi-Square(4)	0.0014

GDP I(1)

Null Hypothesis: D(GDP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.523148	0.0130
Test critical values:	1% level	-3.626784	
	5% level	-2.945842	
	10% level	-2.611531	

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

FIRE I(1)

Null Hypothesis: D(FIRE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.213634	0.0000

Test critical values:	1% level	-3.621023
	5% level	-2.943427
	10% level	-2.610263

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

ACCIDENT I(1)

Null Hypothesis: D(ACCIDENT) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.335064	0.0015
Test critical values:	1% level	-3.621023	
	5% level	-2.943427	
	10% level	-2.610263	

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

MOTOR I(1)

Null Hypothesis: D(MOTOR) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.666600	0.0000
Test critical values:	1% level	-3.621023	
	5% level	-2.943427	
	10% level	-2.610263	

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