

RESEARCH ARTICLE

THE GROWTH OF NIGERIA'S ECONOMY FROM 1981 TO 2019 IN RELATION TO THE FINANCING OF AGRICULTURE

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ABSTRACT

The analysis of various economic variables in Nigeria from 1981 to 2019 shows that the country's economy has been heavily reliant on oil exports, which has left it vulnerable to external shocks and hindered economic growth. This over-reliance on oil exports has led to neglect of the agricultural sector, which was once the main source of foreign currency earnings for Nigeria. As a result, there has been a decline in food production and an increase in imports. However, a study investigating the impact of government spending on agriculture on Nigeria's economic growth using secondary data covering the same period shows that investing in agriculture is essential for Nigeria to achieve a diversified economy and sustainable economic growth. The study uses the Ordinary Least Square (OLS) approach and the Augmented Dickey-Fuller (ADF) unit root test to analyze the data and concludes that diversifying the economy into non-oil industries, such as agriculture, is likely to have a significant impact on economic growth. The regression analysis showed that government agricultural spending has a positive impact on economic growth. The findings suggest that RGDP, AO, AL, AE, and IFR had an up-down tendency, while INT had an up-down-up trend. The skewness statistic indicates that the variables' frequency distributions were positively skewed, while the Kurtosis statistic indicates that they were normally distributed. The unit root tests indicate that all variables were stationary at 5%. The regression analysis showed that AO had a positive association with RGDP, while AL had a negative association with it. The study also provides additional information, such as the contribution of agriculture to Nigeria's GDP and the statistical reliability of the variables.

KEYWORDS

Diversification, Economic growth, Government spending, Oil exports

1. INTRODUCTION

Nigeria is endowed with an abundance of natural resources, including solid minerals and land that can be used for agriculture (Ogunleye, 2008; Jato and Ayaga, 2022; Chile et al., 2021). Some examples of these agricultural goods are palm oil, cocoa, groundnuts, beans, melon, maize, and rice. Agriculture was the backbone of Nigeria's economy before the discovery of oil in commercial quantities, but with the discovery of oil, the country's focus shifted from being reliant on agriculture to being reliant on crude oil. Nigeria has suffered from a monolithic economy since the 1970s oil boom and has since been enjoying the petroleum fall without sufficiently developing a viable strategy that would set the country's economy on a solid foundation for sustained growth (Ikpor, 2016). The government may fail if it relies too much on oil as a main source of income since it will be unable to support the budget as normal. Today, almost 90% of the country's gross export revenues come from oil. Nigeria has depended largely on oil income since the 1970s oil boom era (Idumah and Owombo, 2015; Ezeogidi, 2020).

In Nigeria, the agricultural sector is of utmost importance to achieving the illusive objective of a diversified economy (Jeff-Anyeneh and Ibenta, 2019). The transformation of agriculture is essential for the economic freedom of nations with declining economies. The functions of agriculture and its interactions with other economic sectors are the primary drivers of growth and development in the majority of countries. Nigeria entered a recession in 2016 as a result of declining prices and output, which were made worse by terrorist attacks on the Niger-Oil Delta's and gas

infrastructure (Ezeogidi, 2020). The economy becomes very exposed to unforeseen external shocks as a result of oil price volatility. This necessitates a turning away from oil and toward the agriculture industry (Inegbedion et al., 2019).

In the past, Nigeria's principal source of foreign currency earnings was the agriculture industry. Nigeria's food production was self-sufficient before the civil war. Today, though, agriculture is unable to support Nigeria's rapidly expanding population. Nigeria bought agricultural goods worth a total of US \$231,550,000 between 2010 and 2018. (Central Bank of Nigeria, 2020). Overdependence on petroleum and imported products and services is continuing to deteriorate, which is holding back Nigeria's economic progress (Young, 2019). Despite Nigeria's participation in international commerce, there is still widespread hunger, malnutrition, poverty, and inequality of income among people, corporate organisations, and political parties.

Hunger, malnutrition, poverty, and a lack of money among people, groups of businessmen, and politicians have all been made worse in Nigeria as a result of the country's excessive reliance on imported products and services (Ademola, 2019). This has hindered Nigeria's economic development, according to a Bank of Nigeria assessment (Ijirar, 2015). Following this investigation, the researcher offered responses to the following queries: What effect does government spending on agriculture have on Nigeria's economic expansion? And What kind a connection exists between government agricultural spending and economic expansion? The goal of this research is to look into the relationship between agricultural financing and economic growth in Nigeria from 1981 to 2019, in order to

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provide insight into the importance of agricultural investment in achieving long-term economic growth.

2. METHODOLOGY

Statistics bulletins from the Central Bank of Nigeria (CBN) will be used to compile the secondary data for this study. The Gross Domestic Product (GDP), Agricultural Loan (AL), Agricultural Output (AO), Agricultural Expenditure (AE) Interest Rate (INR), and Inflation Rate (IFR) are all part of the secondary statistics. They cover the years 1981 through 2019.

2.1 Data Analysis Techniques

The earlier-mentioned model's parameters are estimated using the Ordinary Least Square (OLS) approach. This estimating method has been successfully used in the analysis of a variety of economic relationships, which is important to the goals of this investigation (Owan et al., 2020). The assessment approach is based on the numerous significance tests that will be run to see whether the parameter estimates agree with the assumption of ordinary least squares and to assess the model's capacity for predicting.

2.2 Unit Root Examination

In statistics, a unit root test is used to assess if a time series variable is unit root-free and non-stationary. Depending on the test run, either stationarity or trend stationarity is the alternative hypothesis, with the presence of a unit root frequently being the null hypothesis. The unit root test is performed before the actual model estimate. The essential properties of the time series variables employed in the model are ascertained using the unit root test.

Because it helps us prevent the problem of erroneous regression findings, unit root testing is crucial (Arora and Rakhyani, 2020). In this inquiry, the Augmented Dickey-Fuller (ADF) unit root test method will be used. The following is the equation for the Augmented Dickey-Fuller (ADF) unit root test that has to be predicted:

$$\Delta y_t = \omega + \delta y_{t-1} + \sum_{i=1}^m \theta_i \Delta y_{t-i} + U_t \tag{1}$$

Where Δ = the first difference operator, y_t = the time series variable (t), ω = the drift period, δ = coefficient of y_{t-1} , y_{t-1} = lagged value of y_t for one period, m = maximum lag length, U_t = coefficients of y_{t-1} , and t = white noise error term.

2.3 Model Specification

The Endogenous Growth hypothesis, which underpins this study, asserts that appropriately diversifying an economy into non-oil industries is likely to have an impact on economic growth (Usoro et al., 2020). With RGDP acting as the dependent variable and AL, AO, and INT acting as the independent variables, the contribution of the agricultural sector to the growth of the Nigerian economy was investigated. Consequently, the model used in this work is functionally stated as follows, with a few modifications, in accordance with these:

$$RGDP = F(AO, AL, AET, INTR, INFR) \tag{2}$$

$$RGDP_u = \beta_0 + \beta_1 AO - \beta_2 AL + \beta_3 AE + \beta_4 INT + \beta_5 IFR_{u-1} + Y_{u-1}$$

Where:

β_0 = Intercept (constant term)

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Slope Parameters to be estimated

Y = Error Term

u = Time

3. DATA PRESENTATION AND RESULT

The dependent and independent variable ranges in their respective divisions for the study period of 1981 to 2019 are shown in this chapter's clustered column chart, which uses data from time series data highlights the RGDP, AO, AE, INT and IFR growing tendency.

3.1 Trend Analysis

RGDP is often in an up-down, up-down pattern, as seen in Figure 1 below. The graph also shows that between 2001 and 2015, the RGDP time series shows proportionate growth. According to the data, RGDP, which was 19,748.53 billion naira in 1981 and reached 72,094.09 billion naira in 2019, increased steadily over time. This suggests that the GDP is increasing. According to Figure 1 below, AO increased gradually between 1984 and 2001 before seeing a sharp increase in 2002. From 1981 to 1984, AO was almost steady. The growth in AO between 2002 and 2019 was significantly faster. AO had practically a consistent trend until turning higher at the end of the 2019 research period. According to the data, AO increased steadily from 2,364.37 billion naira in 1981 to 17,958.58 billion naira in 2019. This suggests an increased tendency for AO.

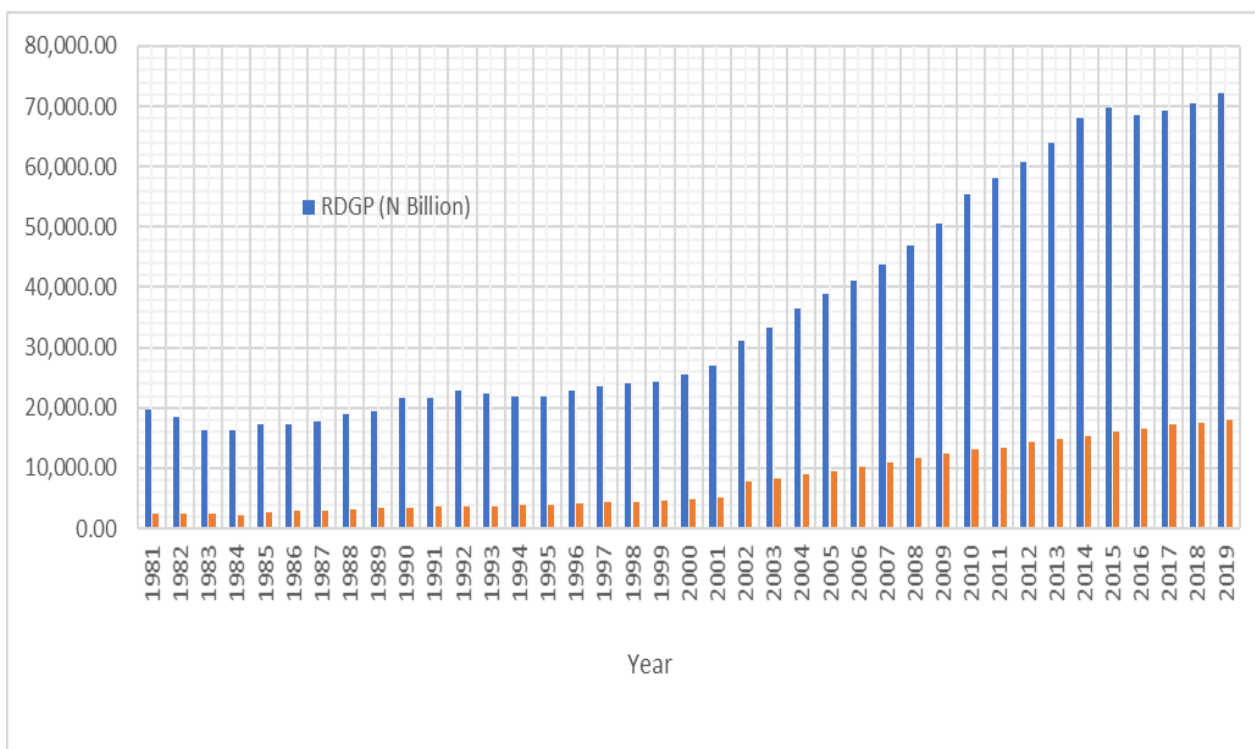


Figure 1: A Clustered column chart for Nigeria's AO (Million Naira) from 1981– 2019

According to Figure 2, AL were nearly steady from 1981 to 2006, rose sporadically from 2006 to 2017, and then increased sharply from 2018 to 2019. AL had a nearly continuous increase and downward pattern as

2019's research period came to a conclusion. AL increased steadily from 0.59 billion naira in 1981 to 2,720.10 billion naira in 2019. This suggests that AL is on the rise.

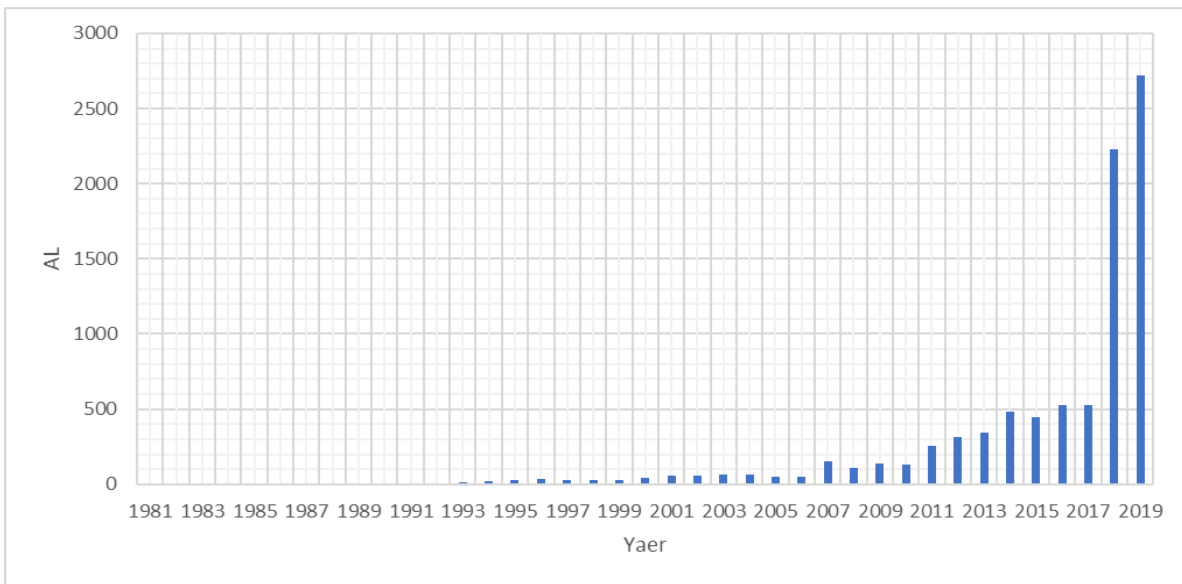


Figure 2: A Clustered column chart for Nigeria’s AL (Million Naira) from 1981– 2019

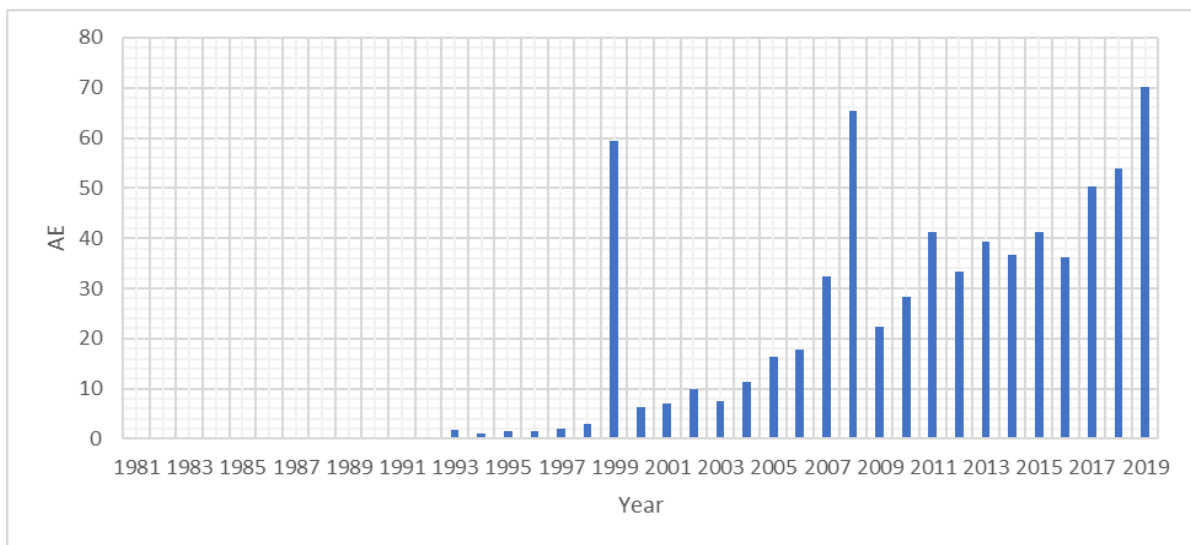


Figure 3: A Clustered column chart for Nigeria’s AE (Million Naira) from 1981– 2019

According to Figure 3 above, AE remained nearly steady between 1981 and 1992, then it slightly increased between 1993 and 1998. Between 1998 and the conclusion of the research period in 2019, there was an erratic up-and-down surge in AE. AE first demonstrated a nearly constant AE at the start of the study period before displaying an upward and

downward down-up trend toward the end of the study period in 2019. AE steadily increased from 0.01 billion Nigerian Naira in 1981 to 70.27 billion Naira in 2019. This suggests that there is an upward and downward tendency for AE.

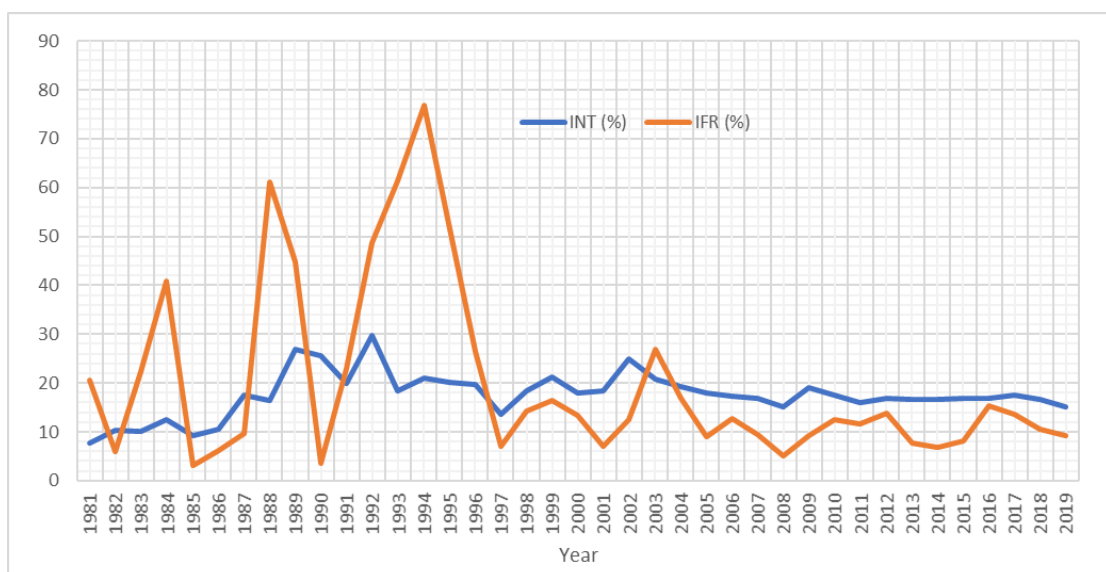


Figure 4: A Line graph for Nigeria’s INT (%) and IFR (%) from 1981– 2019

The INT is often in an up-down pattern, as seen in Figure 4 above. As can be seen by looking at figure 4 above, INT exhibits both an upward and a downward trend. The data also shows that 1992 was the year with the greatest INT, at 29.8 %. According to the statistics, INT increased from 7.75 % in 1981 to 15.21 % in 2019, in an upward-downward pattern. This shows that INT had an up-down-up tendency throughout the research period and was unstable.

According to Figure 4, the IFR was unstable from 1981 to 2019 as a whole (up-down-up trend). IFR had an increasing and decreasing trend throughout the research period, reaching a peak of 76.76% in 1994. According to the data, IFR decreased from 20.56 % in 1981 to 9.16 % in

2019. This suggests that there is an increasing and downward tendency for IFR.

3.2 Descriptive Statistics

Data's descriptive statistics are shown in Table 1 below, which displays all the variables' means, medians, maximums, minimums, standard deviations, kurtosis, Jarque-bera probabilities, sums, and sum standard deviations. The RGDP, AO, AI, AET, INT, and IFR frequency distributions were all positively skewed, according to the skewness statistic, which measures the degree of asymmetry present in a frequency distribution. According to the Kurtosis statistic, they are all normally distributed variables.

Table 1: Descriptive Statistics						
	AE	AL	AO	RGDP	INT	IFR
Mean	17.93	229.59	7956.73	36383.01	17.51	19.88
Median	7.06	41.03	4840.97	25430.42	17.50	12.79
Maximum	70.27	2720.10	17958.58	72094.09	29.80	76.76
Minimum	0.01	0.59	2303.51	16211.49	7.75	3.23
Std. Dev.	21.58	554.09	5349.73	19513.50	4.58	18.25
Skewness	0.95	3.64	0.57	0.70	0.24	1.62
Kurtosis	2.63	15.60	1.78	1.91	3.73	4.65
Jarque-Bera	6.15	344.41	4.53	5.08	1.24	21.52
Probability	0.05	0.00	0.10	0.08	0.54	0.00
Sum	699.35	8953.93	310312.50	1418937.00	682.94	775.37
Sum Sq. Dev.	17701.49	11666576.00	109000000.00	1450000000.00	798.29	12654.67
Observation	39.00	39.00	39.00	39.00	39.00	39.00

Source: E-views output, version 10.0

3.3 Augmented Dickey-Fuller (ADF) Unit Root Test

The time series approach data series has substantially advanced testing for the unit root test, as seen by the unit root testing result presented in table 2.

Table 2: Augmented Dickey-Fuller (ADF) Unit Root Test				
Series	ADF test	5% Critical value	Prob. Value	Order of Co-integration (Order of Stationarity)
RGDP	-2.910731	-2.943427	0.0539	1(1)
AO	-4.828746	-2.943427	0.0004	1(1)
AL	1.895478	-2.971853	0.9997	1(1)
AE	-6.879418	-2.945842	0.0000	1(2)
INT	-2.870602	-2.960411	0.0604	1(1)
IFR	-6.457750	-2.945842	0.0000	1(0)

Source: E-views output, version 10.0

All of the ADF test statistics' absolute values are higher than their critical values at 5 %, indicating that RGDP, AO, AE, and IFR are also stationary at this percentage. The probability values of the probability benchmark are stationary at 5 % as well. They cointegrated in the following sequence (stationarity level): 1 (0), 1 (1), and 1 (2).

The findings further demonstrated that all variables are stable at 5% since their absolute ADF statistics values are higher than their critical values at 5% and because the computed probability values are lower than the probability benchmark.

3.4 Autoregressive Distributive Lag Model: The Regression Result

The outcome in table 3 below showed that, the equation intercept is 882.15. This is the baseline prediction level for the dependent variable when all the independent variables are equal to zero. The coefficients of the independent variables are used to calculate the dependent variable's response to a percentage change in the independent variables. According to a priori expectations, it was discovered that the coefficient of AO is positively skewed, showing a positive association between AO and RGDP in Nigeria from 1981 to 2019. The p-value of 0.0000 indicates that this finding is statistically significant at a level of 5%. The standard error gauges the coefficient estimates' statistical dependability; the higher the error, the more statistical noise there is in the estimates.

The agricultural sector contributes between 21 and 23 % of Nigeria's GDP,

and the standard error of 0.215627 %, which is minor or negligible, demonstrates that AO is statistically trustworthy to predict RGDP in Nigeria.

For every percentage point increase in AL, Nigeria's gross domestic product (GDP) falls by about 0.62 %. The p-value of 0.1252 indicates that this finding is statistically significant at a level of 5%, according to the author's analysis. For every one percent increase in AE, actual RGDP falls by approximately 9.74 %. With a p-value of 0.4923, this result is statistically insignificant at a level of 5%. The higher the error, the more statistical noise there is in the estimates. The coefficient of IFR in Nigeria from 1981 to 2019 was found to be negatively signed, showing a negative correlation between INT and RGDP. With a p-value of 0.112, this finding is statistically significant at 5%. The standard error of 10.65361% demonstrates the statistical validity of the INT as a predictor of RGDP in Nigeria. For every one % increase in INT, Nigeria's GDP rises by approximately 78.53 %. P-value of 0.0677 indicates that this finding is statistically significant at a level of 5%. The fact that the standard error is low or insignificant (41.39363 %) indicates that INT is reliable for forecasting Nigeria's RGDP.

The percentage of the dependent variable's variation that is explained by the independent variable is known as R-square (R²). The R² for this finding is around 99.79%, indicating that the independent variables alone can account for approximately 99.79% of Nigeria's RGDP. The R² remains constant regardless of the number of regressors introduced; however, the R² is penalised by an adjusted R² for regressors that do not increase the

model's capacity for explanation. The sum of squared residual is a metric for measuring inaccuracy when utilising the estimated values for the RGDP, AO, AL, AE, INT, and IFR in the regression equation.

The outcome indicates that throughout the period of 1981 to 2019, AO, AL, AE, INT, and IFR had a considerable influence on Nigeria's RGDP proxies' economic growth.

Table 3: Autoregressive Distributive Lag Model: The Regression Result $RGDP_u = \beta_0 + \beta_1 AO - \beta_2 AL + \beta_3 AE + \beta_4 INT + \beta_5 IFR_{u-1} + Y_{u-1}$				
Dependent Variable: RGDP				
Method: Least Squares				
Included observations: 38 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDP(-1)	0.733229	0.059876	12.24580	0.0000
AO	1.138631	0.215627	5.280550	0.0000
AL	-0.619400	0.393017	-1.576013	0.1252
AE	-9.738060	14.01541	-0.694811	0.4923
IFR	-17.46920	10.65361	-1.639744	0.1112
INT	78.53363	41.39363	1.897239	0.0671
C	882.1467	932.7522	0.945746	0.3516
R-squared	0.997941	Mean dependent var		36820.76
Adjusted R-squared	0.997543	S.D. dependent var		19580.41
S.E. of regression	970.5993	Akaike info criterion		16.75853
Sum squared resid	29203951	Schwarz criterion		17.06019
Log likelihood	-311.4120	Hannan-Quinn criter.		16.86586
F-statistic	2504.489	Durbin-Watson stat		1.295551
Prob(F-statistic)	0.000000			

NB: p-values and any subsequent tests do not account for model selection.

Source: E-views output, version 10.0

$$\ln RGDP_u = 882.15 + 1.14AO - 0.62AL - 9.74AE + 78.53INT + 17.47IFR + Y$$

3.5 Granger Causality Test

Table 4: Causal relationship between RGDP and the independent variables used in the study.			
Pairwise Granger Causality Tests			
Sample: 1981 2019			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
AL does not Granger Cause AE	37	3.26310	0.0513
AE does not Granger Cause AL		0.68896	0.5094
AO does not Granger Cause AE	37	9.20791	0.0007
AE does not Granger Cause AO		0.01606	0.9841
IFR does not Granger Cause AE	37	0.50429	0.6087
AE does not Granger Cause IFR		2.69144	0.0831
INR does not Granger Cause AE	37	0.15503	0.8570
AE does not Granger Cause INT		0.44909	0.6422
RGDP does not Granger Cause AE	37	7.31750	0.0024
AE does not Granger Cause RGDP		2.19623	0.1277
AO does not Granger Cause AL	37	0.82624	0.4468
AL does not Granger Cause AO		0.87598	0.4262
IFR does not Granger Cause AL	37	0.28833	0.7514
AL does not Granger Cause IFR		1.03272	0.3676
INR does not Granger Cause AL	37	0.02219	0.9781
AL does not Granger Cause INT		0.40558	0.6700
RGDP does not Granger Cause AL	37	1.71789	0.1956
AL does not Granger Cause RGDP		1.98296	0.1542
IFR does not Granger Cause AO	37	0.64375	0.5320
AO does not Granger Cause IFR		2.25848	0.1209
INR does not Granger Cause AO	37	0.00900	0.9910
AO does not Granger Cause INT		0.57510	0.5684
RGDP does not Granger Cause AO	37	1.25643	0.2983
AO does not Granger Cause RGDP		5.82642	0.0070
INR does not Granger Cause IFR	37	0.71482	0.4969
IFR does not Granger Cause INT		2.64618	0.0864
RGDP does not Granger Cause IFR	37	2.11158	0.1376
IFR does not Granger Cause RGDP		0.11810	0.8890
RGDP does not Granger Cause INT	37	0.54072	0.5876
INR does not Granger Cause RGDP		0.05976	0.9421

Source: E-views output, version 10.0

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