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Original Article

COVID-19 and Nigeria's Economic Indicators: Evaluating the Impact on Growth Output, Inflation, Exchange Rate, and Foreign Direct Investment

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ABSTRACT

The study examines the impact of COVID-19 on Nigeria's economic indicators, including growth output, inflation (HIR), exchange rate (EXR), and foreign direct investment (FDI). Using quarterly data from 2010 to 2021, the study establishes causal relationships among these variables and assesses their influence on growth output. The findings show a significant decrease in real gross domestic product (RGDP) during the second quarter of 2020, indicating the profound impact of the pandemic on Nigeria's economic growth. FDI also experienced a decline during this period, followed by a slight recovery in early 2021. The study identifies a bi-directional relationship between RGDP and FDI, emphasizing their interdependence. A model developed in the study effectively explains the variability in RGDP, providing valuable insights for decision-making. A structural break in the first quarter of 2019 highlights the pandemic's significant influence on Nigeria's economic growth. Recommendations include prioritizing diversification by developing non-oil industries

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and implementing measures to facilitate economic recovery and attract investment. These recommendations aim to reduce vulnerability to future crises and address issues like corruption and inconsistent regulations. In conclusion, the study contributes to understanding the impact of the pandemic and offers actionable recommendations for policymakers and stakeholders.

Keywords: COVID-19, Growth output; Inflation; Exchange rate; Foreign direct investment; Structural break

INTRODUCTION

The world economy has been significantly impacted by the COVID-19 epidemic, and Nigeria has not been spared. Due to its dependence on oil exports, high rates of poverty and unemployment, and dependence on oil exports, the Nigerian economy has been particularly sensitive to external shocks. In Nigeria, the epidemic has significantly reduced economic activity and had negative consequences on growth output, inflation, the currency exchange rate, and FDI. Therefore, it is crucial to assess how COVID-19 has affected Nigeria's economic indices in order to determine the amount of harm and find viable reforms or policy changes that may assist to minimize the pandemic's detrimental effects on the economy. Therefore, it is crucial to evaluate how COVID-19 has influenced Nigeria's economic performance in these four critical sectors and to find any feasible remedies or policy changes that might assist in cushioning the pandemic's detrimental effects on the nation's economy.

A worldwide health catastrophe brought on by the COVID-19 epidemic in 2019 has quickly turned into an economic disaster as well (Aronu *et al.,* 2021). A drop in growth output, a rise in inflation, and a considerable depreciation of exchange rates are all results of the COVID-19 pandemic's major effects on the world economy. FDI flows have been hampered in several nations by the outbreak. Concerns over the crisis's long-term economic effects have been expressed due to its unprecedented size and severity. The COVID-19 pandemic, according to the International Monetary Fund (IMF), has resulted in the biggest global recession since the Great Depression, with an estimated loss of $22 trillion in production by 2025 (IMF, 2020). The pandemic had a substantial influence on inflation as well; several nations saw their inflation rates plummet as a result of lower economic activity and reduced demand for goods and services. Due to increasing investor uncertainty and risk aversion, the epidemic has also had a substantial influence on currency rates, with several currencies falling in value against the US dollar. FDI movements throughout the world have been affected by the pandemic, with a 42% decrease in the first half of 2020 compared to the same period in 2019 (UNCTAD, 2020).

Africa was not exempt from the COVID-19 pandemic's major effects on the world economy. The epidemic has had a negative impact on the region's economic production, inflation, currency value, and FDI. There are several ways in which the

pandemic has affected African economies, with certain industries being more severely impacted than others. A thorough analysis of COVID-19's effects on Africa's economic output, inflation, currency rate, and FDI is therefore required. The epidemic, according to the African Development Bank (AfDB), has resulted in a severe economic slump in Africa, with a real GDP reduction of 2.1% predicted for 2020 (AfDB, 2020). Due to supply chain interruptions and increased demand for necessities, the epidemic has also had an impact on prices, with several African nations reporting considerable spikes in inflation rates. The epidemic has also had a substantial influence on African currency exchange rates, with several African currencies falling versus major currencies as a result of decreased FDI and elevated investor risk aversion. FDI flows in Africa have been affected by the epidemic, with a 16% decrease in 2020 compared to the previous year (UNCTAD, 2021). The study by Chowdhury and Garg (2022) explores COVID-19's impact on the relationship between oil price and exchange rate. They find significant breaks, particularly during the pandemic, indicating intensified interactions. Investors and policymakers can benefit from diversification through foreign currency-denominated assets amid domestic currency depreciation. ElKadhi *et al.,* (2020) predict a 46.4% GDP decline in Tunisia during Q2 2020 due to COVID-19. Industries, services, and agriculture will be heavily affected. Social transfers to poorer households and government support for businesses are crucial for mitigating income losses. A well-planned reopening of the economy is vital for long-term recovery and employment retention. Agyei *et al.,* (2022) studied the relationship between exchange rate (EXR) and stock (STK) returns in Africa during COVID-19. They found that the pandemic did not increase the intensity of the relationship but affected the lead-lag dynamics. Market integration among African markets was strong in the long run. South African and Namibian equities had significant lead-lag potential. Policymakers and investors need to understand this relationship for effective responses and portfolio management.

Similarly, the COVID-19 epidemic has had a major impact on Nigeria, the largest economy in Africa. The epidemic has caused Nigeria's growth output to fall, its inflation to rise, and its currency to depreciate noticeably. The epidemic has also hindered foreign direct investment (FDI) flows in the nation. Nigeria's economy is predicted by the International Monetary Fund (IMF) to fall by 3.2% in 2020 as a result of the COVID-19 epidemic (IMF, 2020). Nigeria's inflation rate increased significantly as a result of the epidemic, rising to 17.33% in February 2021 (National Bureau of Statistics, 2021). A crisis response theory was proposed by Zhang *et al.,* (2023) to handle Nigeria's economic problems, which have been made worse by the epidemic around the world. It is believed that entrepreneurship is essential for reviving the economy. Despite significant advances in business rules, findings show that Nigeria's economic volatility is caused by a lack of financial assistance, industrialization, and technology. The authors noted that entrepreneurs face

tremendous challenges from corruption, frequent changes in funding requirements, and unreliable government regulations. Amoako *et al.,* (2022) assessed the economic impact of the COVID-19 pandemic on Ghana's oil and gas industry. The global drop in oil prices and output, caused by reduced demand and travel restrictions, led to economic losses. They used GDP and crude oil prices to evaluate the effects and developed a loss function-based algorithm to project economic losses. The study provides insights for decision-making in oil-dependent countries during future pandemics. Ilesanmi *et al., (*2021) emphasized the COVID-19 pandemic's extensive destruction in several fields, including agriculture, health, education, and the economy. Lockdowns and other safety precautions led to a decrease in the economy, a labour shortage, and losses in agriculture. The involvement of stakeholders, logistical support, social safety nets, and financial aid is essential to reducing the impact on Nigeria's agricultural value chain. A study on the effect of COVID-19 on economic expansion in Nigeria was undertaken by Inegbedion (2021). The purpose of the study was to comprehend how respondents felt the epidemic had affected them. For data gathering, the study employed a cross-sectional survey and a mixed-method technique. The results showed that the lockdown brought on by COVID-19 severely hampered economic activity and the movement of money in a cyclical fashion. Economic growth was significantly influenced by the perceived drop in income flow, highlighting the urgency of authorities taking action to combat the epidemic and avoid a recession. According to Adedokun and Fasoye (2021), the Covid-19 pandemic had a major negative impact on Nigeria's industrial industry, resulting in revenue losses and unequal consequences based on the risk of contracting the virus. The healthcare sector saw increases in revenues, but for long-term socioeconomic effects, it is necessary to make sustainable health investments, improve food security, and recover from previous catastrophes. The epidemic has also had a severe influence on Nigeria's currency, with the naira losing value against major currencies as a result of lower FDI and falling oil prices. Given the significant impact of COVID-19 on the Nigerian economy, it is essential to study its impact on growth output, inflation, exchange rate, and FDI in Nigeria. Hence, the specific objectives of the study are as follows:

i. To determine the relationship between FDI, EXR, HIR, and RGDP.

ii. To assess how FDI, EXR, and HIR affect RGDP.

iii. To determine if the effects of HIR, EXR, and FDI on RGDP during the pandemic era are structurally broken.

The COVID-19 pandemic has had significant economic consequences on emerging nations, including Nigeria and countries in Africa. The effects have been observed across various sectors, including banking, tourism, agriculture, manufacturing, and education. Mitigation measures and policy interventions are necessary to support affected industries, businesses, and vulnerable populations during these challenging times.

MATERIALS AND METHODOLOGY

Source of Data

The data used for this study is a secondary data collected from the Central Bank of Nigeria (CBN) Statistical Bulletin from 2010-2021. The data comprises of quarterly report of the HIR, AER, FDI and RGDP from 2010 to 2021.

Method of Data Analysis

In practice, it is often observed that many macroeconomic variables with a time component are non-stationary, meaning their statistical properties change over time. Stationarity refers to a time series dataset where the mean and variance remain constant over the observed period and are independent of time (Aronu *et al.,* 2020). If one or both of these conditions are not met, the dataset is considered non-stationary. To evaluate the stationarity of a time series, several tests can be employed, including the Augmented Dickey-Fuller (ADF) test, the Phillips-Perron test, or the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test. In this study, the ADF test was used to assess the stationarity of the data.

The Augmented Dickey-Fuller (ADF) Test

The ADF test is commonly used to check for the presence of a unit root in a sample of time-series data. The test statistic of the augmented Dickey-Fuller test is typically negative, and the more negative it is, the stronger the rejection of the hypothesis that a unit root exists at a specific level of confidence. The traditional approach is to test for the unit root using the Augmented Dickey-Fuller test with an intercept term. If the test statistic is smaller than the critical values, the null hypothesis of no unit root is rejected. If not, differencing is applied, and the process continues until the null hypothesis is rejected. The number of unit roots multiplied by the order of integration indicates the degree of differencing required to reject the null hypothesis.

The ADF models, both restrictive and general, can be represented as follows: Equation (1) and Equation (2), respectively:

$$\Delta y_t = p_1 y_{t-1} + \sum_{j=1}^{k} \alpha_j \Delta y_{t-1} + \varepsilon_t \quad (1)$$

$$\Delta y_t = \alpha_0 + p_1 y_{t-1} + \sum_{j=1}^{k} \alpha_j \Delta y_{t-1} + \varepsilon_t \quad (2)$$

Here, Δ denotes the first difference operator, ε_t represents the independent and identically distributed (iid) random error term, k is the number of lagged differences, p

and α are the parameters to be estimated, and y denotes the variable of interest, such as RGDP and the HIR in this study.

The unit root test is conducted by comparing the derived ADF statistic with the critical values from Fuller's table. If the test statistic exceeds the critical value, the null hypothesis is not rejected, indicating that the series is either non-stationary or integrated at order zero. The significance level and the p-value of the test can also be considered to determine whether the series is stationary or non-stationary. It is important to note that a variable is said to be integrated at order zero if it becomes stationary without differencing, while integration at order one means it becomes stationary after first differencing.

Granger Causality Test

The Granger causality test is based on the assumption that the time-series data of each variable provides the only relevant information for predicting that variable (Granger, 1969). It is a test used to determine if one time series has the ability to forecast future values of another time series. If a sequence of F-tests, considering lagged values of X (including lagged values of Y), shows that these lagged X values provide statistically significant information about future values of Y, then time series X is said to Granger-cause Y.

The Granger causality test incorporates the following two regression models:

$$\mathrm{Y_t} = \sum_{i=1}^{n} \alpha_i X_{t-i} + \sum_{j=1}^{n} \beta_j \, \mathrm{Y}_{t-1} + u_{1t} \qquad (3)$$

$$\mathrm{X_t} = \sum_{i=1}^{n} \lambda_i X_{t-i} + \sum_{j=1}^{n} \delta_j \, \mathrm{Y}_{t-1} + u_{2t} \qquad (4)$$

Here, u_{1t} and u_{2t} represent uncorrelated disturbances, while α, β, λ, and δ denote the coefficients of the model. Equations (3) and (4) indicate that the current value of Y is connected to past values of both X and itself, and the same applies to X. In this particular study, the variables RGDP and HIR can be represented by X and Y, respectively. To draw conclusions, we employ the F-test statistic presented in equation (5):

The null hypothesis can be stated as:

$$\mathrm{H_0}: \sum_{i=1}^{n} \alpha_i = 0 \; (lagged\ X\ term\ does\ not\ belong\ in\ the\ regression)$$

$$F = \frac{\frac{RSS_R - RSS_{UR}}{m}}{\frac{RSS_{UR}}{(n-k)}} \quad (5)$$

The F-value calculated from equation (5) follows the F-distribution with degrees of freedom m and (n-k). Here, k represents the number of parameters estimated in the unconstrained regression, n denotes the number of observations, and m represents the number of lagged X terms. To obtain the restricted residual sum of squares (RSS_R), regress the current Y on all lagged Y (LY) terms and any additional factors, excluding the lagged X(LX) variables from the regression. Similarly, run the regression using the lagged X(LX) terms to obtain the unconstrained residual sum of squares (RSS_{UR}). If the computed F-value exceeds the critical F-value at the selected level of significance, the decision rule is to reject the null hypothesis.

The Chow Test

The Chow test is a statistical test commonly used to determine if a population of interest can be divided into multiple subgroups. It is particularly useful in econometrics for analyzing time series data to detect structural breaks within a known period (Chow, 1960).

The Chow test examines whether the coefficients of two separate linear regressions on different datasets are significantly different. This test helps identify if a structural break occurs in a dataset where the model's coefficients vary with respect to a specific time parameter.

To conduct the Chow test, the following test statistic, based on the F-test, is used:

$$F = \frac{\frac{\left(RSS_T - (RSS_1 + RSS_2)\right)}{k}}{\frac{(RSS_1 + RSS_2)}{(n_1 + n_2 - 2k)}} \approx F(k, n_1 + n_2 - 2k) \quad (6)$$

Where,

RSS_T represents the residual sum of squares for the full model

RSS_1 represents the residual sum of squares for the first sub sample or first reduced model

RSS_2 represents the residual of the second sub sample or second reduced model,

k is the number of parameters,

n_1 and n_2 represents the length of the two subsamples.

The test statistic is compared to the critical F-value at a chosen level of significance. If the computed F-value exceeds the critical F-value, it suggests the presence of a significant structural break in the data. By performing the Chow test, researchers can assess whether the coefficients of two separate linear regression models significantly differ, indicating the existence of distinct subgroups or a structural break in the data.

RESULTS

The result obtained in table 1 below shows the descriptive properties of the data obtained for the study.

Table 1: Descriptive Analysis of the Macroeconomic Variables

	LOG(RGDP)	LOG(HIR)	LOG(AER)	LOG(FDI)
Mean	20264360	10.9452	253.9263	1631.713
Median	16458857	11.1950	199.2008	1713.000
Std. Dev.	9340881.0	2.4862	97.7872	856.8034
Skewness	1.8684	0.1730	0.2709	0.0295
Kurtosis	5.1813	2.7746	1.3936	2.3014
Jarque-Bera	1.5396	1.557958	1.135107	1.74251
Probability	0.4535	0.4588	0.4653	0.4231
Observations	48	48	48	48

Source: Eview 9.0

The result presented in table 1 found the mean value of RGDP as ₦20,264,360 million, HIR as 10.94%, AER as ₦253.92, and FDI as $1631.71 Million. Also, a positive Skewness and Kurtosis were obtained for RGDP (N1.8684 million and N5.1813 million), HIR (0.17% and 2.77%), AER (₦0.2709 and N1.3936), and FDI ($0.0295 Million and $ 2.3014 Million). This result implies that most of the distribution of the variables was concentrated towards the left of the distribution and that the right tail is longer than the left one. The result of the Jarque-Bera test showed that the variables were approximately normally distributed after taking logarithm of the variables with *p*-values greater than 5% critical value.

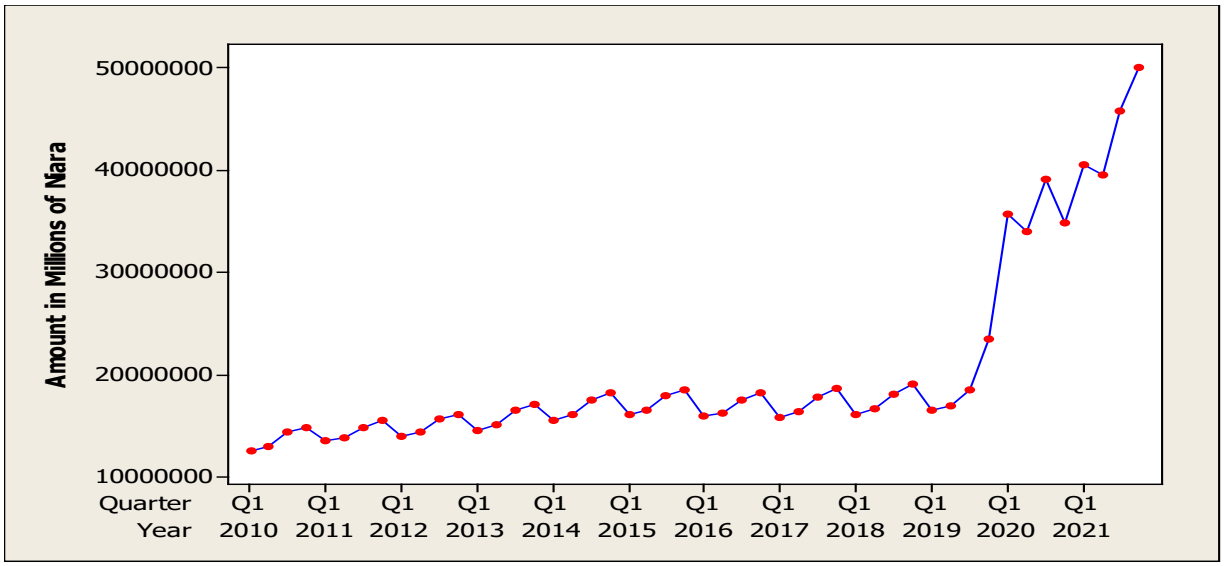

Figure 1: Time Series Quarterly Plot of RGDP from 2010-2021

The result shown in Figure 1 reveals that the amount of RGDP increased significantly from the third quarter and decreased minimally but abruptly in the second quarter of 2020. The effect of external factors, such as the pandemic scenario observed at that time, can be linked to the evident changes.

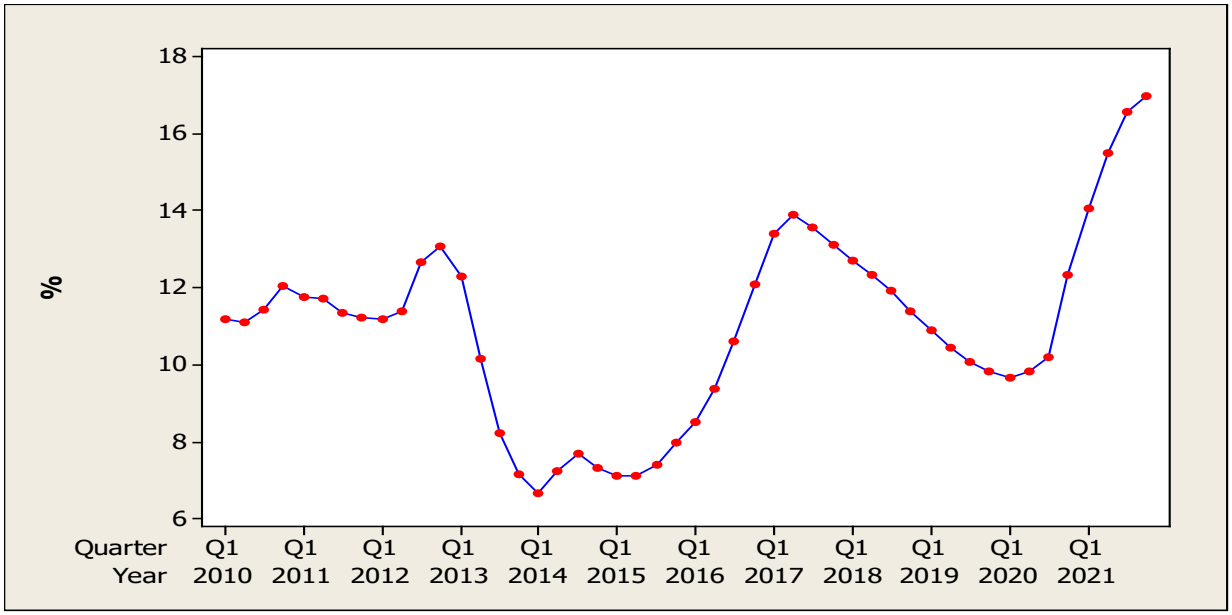

Figure 2: Time Series Quarterly Plot of HIR from 2010-2021

The result presented in Figure 2 shows that the percentage of HIR decreased significantly in the fourth quarter of 2012, increased in the second quarter of 2015, decreased in the second quarter of 2017, and increased slightly in the second quarter of 2019. Since the changes were observed even during the non-pandemic era, they cannot be attributed to the influence of outside causes like the pandemic crisis that was occurring at that time.

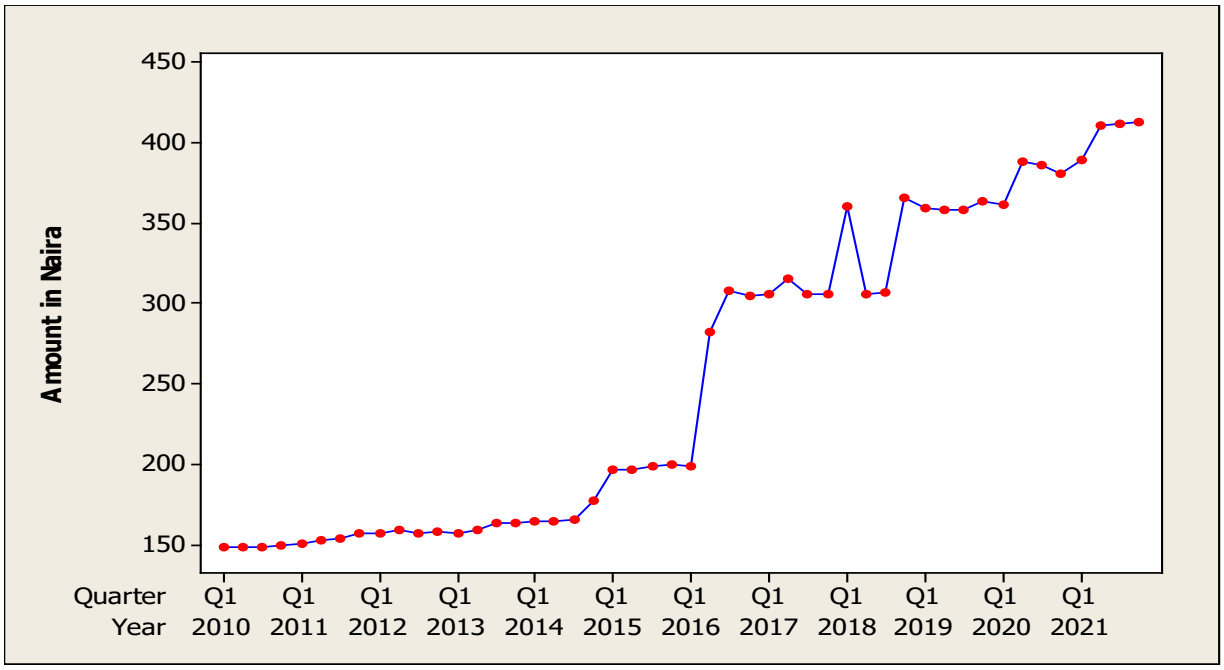

Figure 3: Time Series Quarterly Plot of AER from 2010-2021

According to the result presented in Figure 3, the amount of AER was found to significantly decrease in the fourth quarter of 2012, increased in the second quarter of 2015, decreased in the second quarter of 2017, and slightly increased in the second quarter of 2019. Since the changes were noticed even during the non-pandemic era, they cannot be attributed to the influence of outside causes like the pandemic crisis that was occurring at that time.

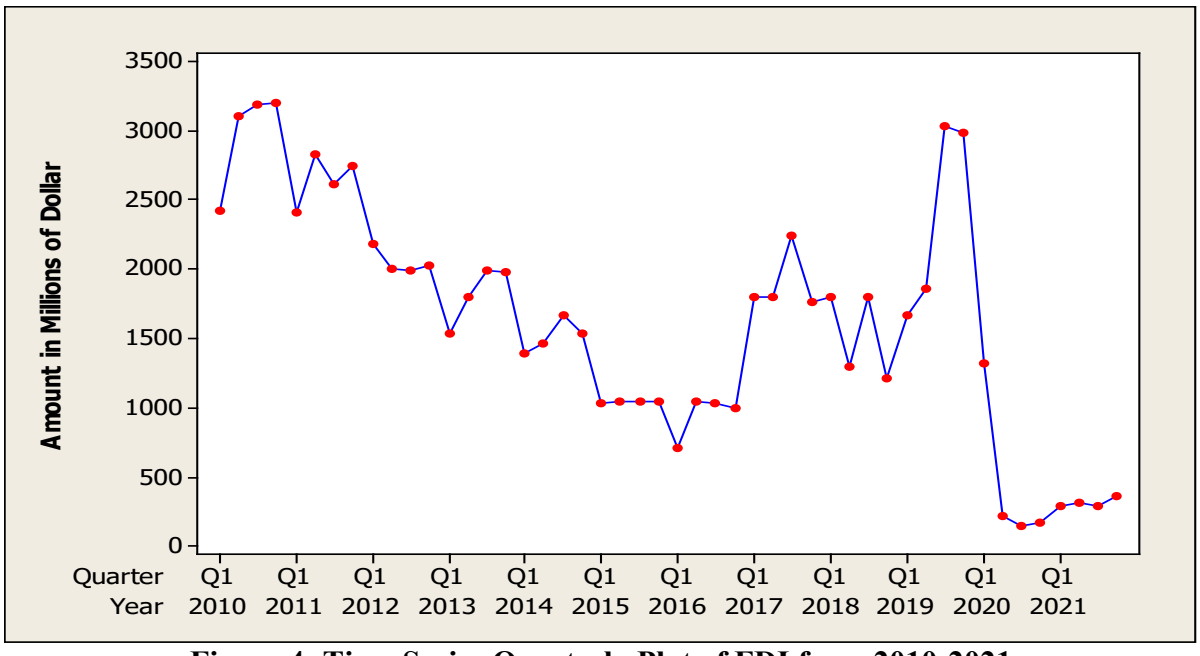

Figure 4: Time Series Quarterly Plot of FDI from 2010-2021

The result presented in Figure 4 shows a decreasing trend in the amount of FDI in the fourth quarter of 2010, an increase in the fourth quarter of 2017, a decrease in the second quarter of 2020 and a slight increase in the first quarter of 2021. The COVID-19 pandemic has had an impact on FDI over time. The decreasing trend in FDI in the fourth quarter of 2010 may not be directly related to the pandemic, but the subsequent increase in the fourth quarter of 2017 followed by another decrease in the second quarter of 2020 could be attributed to the pandemic's impact on global economies. The slight increase in FDI in the first quarter of 2021 may suggest some signs of economic recovery.

The result of the Augmented Dickey-Fuller (ADF) test is presented in table 2. A stationary process is a process or series whose characteristics are independent of observational time. The stationarity of the data was examined using the Augmented Dickey-Fuller (ADF) test.

Table 2. Result of Augmented Dickey-Fuller unit root test for the Macroeconomic variables

Variables	Level		1st Difference		Order of integration
	No Trend	With Trend	No Trend	With Trend	
RGDP	1.6646	0.1462	-6.9761	-7.7245	I(1)
HIR	-1.8133	-3.2885	-3.5553	-3.7618	I(1)
AER	-0.1259	-2.7364	-7.0815	-7.1840	I(1)
FDI	-1.7655	-2.6029	-6.5179	-6.4302	I(1)
Critical values					
1%	-3.5777	-4.1657	-3.5811	-4.1705	
5%	-2.9251	-3.5085	-2.9266	-3.5107	

Source: Eview 9.0

The result of the unit root test on the variables using the Augmented Dickey-Fuller test statistic obtained in Table 2 found that all the macroeconomic variables have no unit root and stationary overtime with the trend at the first difference since the test statistic value has more negative values (-7.7245, -3.7618, -7.1840, and -6.4302 respectively) at 5% significant level. This result implies that the series are integrated of order 1 (I(1)) and stationary over the study period.

Testing for Causality Amongst the Macroeconomic Variables

This section assesses the causality amongst the macroeconomic variables

H_{02}: $\beta_{1t} = \beta_{2t} = 0$ (Causality does not exist amongst the macroeconomic variables)

vs

H_{12}: $\beta_{1t} \neq \beta_{2t} \neq 0$ (At least one differs)

Table 3. Result of Granger Causality Tests amongst the macroeconomic variables

Pairwise Null Hypothesis	F-Statistic	*p*-value
LOG(HIR) does not Granger Cause LOG(RGDP)	0.1225	0.8850
LOG(RGDP) does not Granger Cause LOG(HIR)	2.4525	0.0986
LOG(AER) does not Granger Cause LOG(RGDP)	0.99187	0.3796
LOG(RGDP) does not Granger Cause LOG(AER)	0.21736	0.8056
LOG(FDI) does not Granger Cause LOG(RGDP)	4.4782	0.0174
LOG(RGDP) does not Granger Cause LOG(FDI)	5.3084	0.0089
LOG(AER) does not Granger Cause LOG(HIR)	2.0339	0.1438
LOG(HIR) does not Granger Cause LOG(AER)	0.6169	0.5445
LOG(FDI) does not Granger Cause LOG(HIR)	0.8678	0.4274
LOG(HIR) does not Granger Cause LOG(FDI)	0.4995	0.6104
LOG(FDI) does not Granger Cause LOG(AER)	0.8951	0.4164
LOG(AER) does not Granger Cause LOG(FDI)	0.8545	0.4329

Source: Eview 9.0

The result of the causality analysis presented in Table 3 showed that the relationship amongst some of the macroeconomic variables is independent or has no direction for RGDP and HIR (*p*-values of 0.8850 and 0.0986), RGDP and AER (*p*-values of 0.3796 and 0.8056), HIR and AER (*p*-values of 0.1438 and 0.5445), HIR and FDI (*p*-values of 0.4274 and 0.6104), and AER and FDI (*p*-values of 0.4164 and 0.4329). While a bi-directional relationship exists between RGDP and FDI (*p*-values 0.0174 and 0.0089). This result implies that there is no causality between macroeconomic variables such as RGDP and HIR, RGDP and AER, HIR and AER, HIR and FDI, and AER and FDI while causality was found to exist between RGDP and FDI. However, a statistically significant bi-directional relationship was found to exist between RGDP and FDI, suggests that changes in FDI can impact RGDP and vice versa.

Least Square Model for estimating RGDP using HIR, AER and FDI

The result of least square model for the estimation of RGDP using HIR, AER and FDI was presented in Table 4.

The result of the least square analysis presented in Table 4 found that all the explanatory variables significantly contributed to the model with corresponding p-values of 0.0198, 0.0043, and 0.0001 (*p*-values are less than the critical value of 0.05). A further result showed that the model was free from serial correlation (Durbin-Watson stat = 1.7781 which is approximately 2). The model was found to be useful in the estimation of RGDP with an F-value of 29.9791 and p-value of 0.000 (*p*-values are less than the critical value of 0.05). The coefficient of determination of the model was found to be adequate with an R-square value of 77.1%. The result implies that the model is useful in explaining the variability in RGDP and can be used by policymakers and researchers to make informed decisions and predictions regarding the economy.

Table 4: Least Square Model for estimating RGDP

Dependent Variable: RGDP
Method: Least Squares (Gauss-Newton / Marquardt steps)
Sample: 2010Q1- 2021Q4
Included observations: 48
LOG(RGDP)=C(1)+C(2)*LOG(HIR)+ C(3)*LOG(AER) + C(4)*LOG(FDI)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	9773377.	4481653.	2.180753	0.0346
C(2)	911329.2	376701.5	2.419234	0.0198
C(3)	34167.86	11357.58	3.008375	0.0043
C(4)	-5000.796	1152.663	-4.338471	0.0001
R-squared	0.771488	Mean dependent var		20264360
Adjusted R-squared	0.749090	S.D. dependent var		9340881.
S.E. of regression	5533322.	Akaike info criterion		33.9701
Sum squared resid	1.35E+15	Schwarz criterion		34.1261
Log likelihood	-811.2831	Hannan-Quinn criter.		34.0291
F-statistic	29.9791	Durbin-Watson stat		1.7781
Prob(F-statistic)	0.000000			

Source: Eview 9.0

Chow Test Analysis to Determine the Impact the Pandemic on RGDP

The obtained model in Table 4 was used to determine the impact of the COVID-19 on economic growth in Nigeria. The result of the Chow test analysis for assessing the impact of the pandemic on was presented in Table 5.

The hypothesis to test whether there is a structural break was stated as:

H_{03}: $\beta_{1t} = \beta_{2t} = 0$ (There is no existence of a structural break)

vs

H_{13}: $\beta_{1t} \neq \beta_{2t} \neq 0$ (There is the presence of a structural break)

Table 5. Result of Chow test analysis for assessing the impact of the pandemic on economic growth in Nigeria

Test Value	Chow Breakpoint Test: 2019Q
F-statistics	Prob. F(4,40)
88.7969	0.9258

Source: Eview 9.0

The result obtained in Table 5 found an F-value of 88.7969 and a corresponding *p*-value of 0.0000, which falls within the rejection region of the hypothesis since the *p*-value of 0.0000 was found to be less than the 0.05 significance level. This result implies that COVID-19 significantly impact economic growth in Nigeria.

CONCLUSION

The study examined the impact of the COVID-19 pandemic on Nigeria's economic indicators, including growth output, inflation, exchange rate, and foreign direct investment. The findings revealed that the pandemic had a significant impact on the country's economic growth, as evidenced by the significant decrease in RGDP during the second quarter of 2020. Additionally, the study found that the pandemic had an impact on FDI, with a decrease in the second quarter of 2020, followed by a slight increase in the first quarter of 2021, indicating some signs of economic recovery.

Furthermore, the study found that some macroeconomic variables, such as RGDP and FDI, were found to have a bi-directional relationship, suggesting that changes in FDI can impact RGDP, and vice versa. The study also found that the model developed was useful in explaining the variability in RGDP, and policymakers and researchers can use it to make informed decisions and predictions regarding the economy. The study found evidence of a structural break in the first quarter of 2019, indicating that the pandemic had a significant impact on Nigeria's economic growth.

Based on the findings of the study, the following recommendations were suggested: First, Nigeria should promote diversification by growing non-oil industries including agriculture, manufacturing, and services in order to lessen the effects of upcoming crises. Second, governments should put measures in place to assist economic recovery and encourage investment, such as providing targeted aid to impacted industries, dealing with problems like corruption and inconsistent regulations, and fostering an environment that will draw in foreign direct investment.

CONFLICTS OF INTEREST

The author declares no potential conflicts of interest regarding the publication of this review article either for financial, commercial, or intellectual purposes.

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