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Covid-19 Second Wave and Exchange Rate: The Nigerian Scenario

[1]Awosusi, Charles Temitope (PhD) and [2]Ayemidotun Damola
[1]*Department of Banking and Finance, Adekunle Ajasin University, Akungba-Akoko, Nigeria.*
[2] *Department of Business Administration and Management Rufus Giwa polytechnic Owo , Ondo State, Nigeria.*

Abstract
This research studied the impact of Covid-19 pandemic during its second wave on Nigerian exchange rate from December 1, 2020 to March 31, 2021. Foreign exchange data for the period was extracted from the web page of Central Bank of Nigeria while the number of confirmed cases and deaths from Covid-19 were obtained from the Nigerian Centre for Disease Control (NCDC). Based on results of pre-estimation tests, we used the ARDL technique to determine the short and long-run effects of Covid-19 on exchange rate for the period. Furthermore, Granger causality was used to test for the presence of causal relationship between the dependent and explanatory variables. Findings from our analyses revealed that COVID-19 confirmed cases and number of deaths have positively and significantly affected Nigerian exchange rate in the short-run while on the long-run, confirmed COVID-19 cases have negative but insignificant effect on exchange rate but the number of deaths have positively significant effect on exchange rate. Results of causality test showed that exchange rate and COVID-19pandemic did not have causal relationship.

Key words: COVID-19 Second Wave, Exchange Rate, ARDL, Causality

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I. Introduction

Pandemics create tension, turbulence and uncertainties. Most, if not all, micro- and macro-economic indicators react to the pervasive effects of pandemic. So when the COVID-19 pandemic broke out late 2019, the world was expectant that it was going to have devastating effects on the global economy. Pasiouras and Daglis (2020) posited that worldwide crises such as diseases, financial crises and unrests usually have unpalatable effects on global and domestic economies, especially on indicators such as price level, exchange rate, gross domestic product, employment, balance of payments, interest rates and industrial production.

Like any other country in the world, Nigeria got its own share of the COVID-19 pandemic ravaging effects. Apart from the loss of human health and lives, the World Bank (2020) recorded that the Nigerian economy experienced a shock due to the effect of the pandemic. The combination of the pandemic and the global decline oil price decline, to a large extent, worsened local productive activities. The World Bank reported that in the second quarter of year 2020, local production fell by as much as 6% and later by about 3% in the third quarter of the year. These negative effects were also translated to fall in the exchange rate of the Naira to major world currencies such as the United States dollar, EURO and Pounds Sterling.

As the COVID-19 pandemic ravaged, in order to contain the falling exchange rate, the Central Bank of Nigeria (CBN) undertook some steps. The World Bank (2020) stated that the CBN reduced supply of foreign exchange supply to the bureau de change operators in the first quarter of 2020. The Bank also stopped commercial banks from routing foreign exchange through third parties when they process foreign exchange for transactions. Again, this had negative effect on the importation of materials and know-how for local production.

Handoyo (2020) noted that the COVID-19 pandemic disrupted global economic activities and caused financial system vulnerability worldwide, especially in the developing and emerging economies. Globally, financial markets reacted to the pandemic in form of volatile exchange rate. The disruption of global economic activity also impacts international financial vulnerability, especially on the exchange rate volatility in most countries in the world, especially developing countries. As noted also by Barro, Weng, and José (2020), the volatile nature of foreign exchange during the pandemic was a resultant effect of the high risk and uncertainty that prevailed.This was similar to how exchange rate reacted to the global economic crises of 2008 and 2011 (Liao & Zhang, 2020).

Our present study is novel as it examines the effect of the COVID-19 second wave on exchange rate in Nigeria, a study area that is yet to be addressed in literature due to its currency. This period falls between December, 2020 and March 2021. While it is generally believed that the second wave appeared lethal as the first wave (or more in some countries) globally, this study evaluates the effect the supposed spike in the pandemic on

the Nigerian exchange rate. Our study addressed two main objectives: an examination of the short and long run relationship between exchange rate and COVID-19 pandemic during its second wave and an establishment of whether causality exists between exchange rate and COVID-19 pandemic in Nigeria.Also, two hypotheses were developed to address the stated objectives.This research is novel and will substantially add to the body of knowledge with respect to how the COVID-19 pandemic (especially the second wave) have impacted on Nigerian Exchange rate since its inception. The study is divided into five sections: an introduction, a brief review of related literature, the research method, discussion and findings and conclusion arrived at based on the study.

II. Literature Review

COVID-19 pandemic is a new occurrence globally, hence existing literature on its effect on exchange rate is rare. Nevertheless, we approach this review from two perspectives: the trend of second wave COVID-19 data versus those of exchange rate in Nigeria and empirical literature of the effect of pandemic on macroeconomic variables across countries in the world.

2.1 Trends Second-Wave COVID-19 and Exchange Rate Movement

Figure 1 shows the trends of exchange rate, number of confirmed COVID-19 cases and deaths recorded for a 121 days period (December 1, 2020 to March 31, 2021).

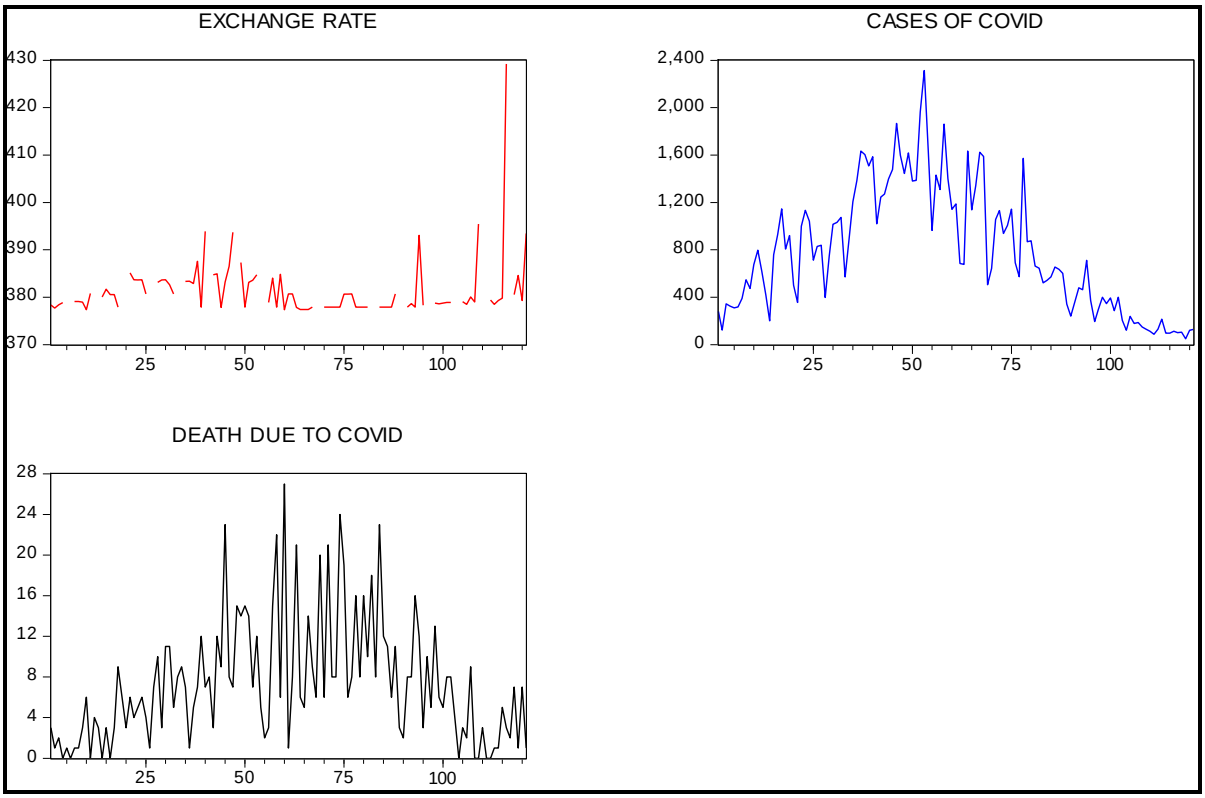


Figure 1: Trends of COVID-19 Second Wave and Exchange Rate in Nigeria
Source: Author's (2021)

As shown in Figure 1, exchange rate fluctuated from N378.35/dollar on December 1, 2020 to N429.25/dollar on March 26, 2021. From a daily confirmed cases of 281 on December 1, 2020, the number rose as high as 1964 on January 21, 2021, about 53 days later. Also, the number of daily deaths due to the second wave of COVID-19 pandemic rose from 3 on December 1, 2020 to as high as 27 on January 29, 2021.

In order to make the Naira remain stable despite the COVID-19 pandemic, the Central Bank of Nigeria, on June 3, 2020 directed forex bidder to up their bidding price to N380 to a US Dollar. After a few weeks, and through bidders, activities, the rate stood at about N380.69, signifying an increase in the amount of Naira that was exchanged for the US Dollar. PFI Capital (2021), an arm of investment and economic analysis of *Prosharengs*tated that this was a devaluation of about 5.54% in the value of the Naira from the pre-COVID-19 exchange rate of about N361 to a Dollar. This inevitably meant that the Nigerian Naira became weak compared to other world currencies. The Naira has since remained in the devalued state.

2.2 Empirical Literature

Pandemics such as Ebola and COVID-19 among others are bound to affect the economy one way or the other. Apart from the fears created in the heart of the working population which leads to unwillingness to work with others, lockdowns and disruptions in economic activities impact negatively on productivity. Dineri and Cutcu (2020) studied the effect of COVID-19 on the exchange rate of Turkey and found that the pandemic significantly affected exchange rate with its attendant uncertainties. In India, Banerjee, Kumar and Bhattacharyya (2020) examined the effect of three phases of COVID-19 pandemic on the Indian Rupee (pre-lockdown, first lockdown and second lockdown) and observed that the effects of the former on the latter varied among the three periods though it was negative. Before the lockdown, it was found that the effect was not statistically significant unlike during the first and second lockdowns when the Rupee was significantly depreciated.

Park, Rosenkranz, andTayag (2020) examined how vulnerable were Asian banks to the US Dollar during the COVID-19 pandemic in Australia, Korea Republic and Indonesia. The authors found that within the first three months of COVID-19 outbreak, exchange rates decreased by as much as 23.6%, 11.0% and 22.6% in Australia, Korea Republic and Indonesia respectively. However, in the USA, which is more developed, Rogoff (2020) found that during the pandemic while the euroappreciated in value (about 6%) against the Dollar, the Japanese Yen remained unchanged for a greater part of the period of study. The author opined that the disparity between the effect of COVID-19 on exchange rate in developed and developing nations is due to the vulnerability of developing countries' currencies vis-à-vis developed ones. Using the Bayesian VAR and vector error correction (VEC) models to analyze the rate of 5 different world currencies (Swiss Francs, Australian Dollar, Euro, Great Britain Pound and Hong Kong Dollar) to the US Dollar, Pasiouras and Daglis (2020) found that while the VEC model revealed that the COVID-19 pandemic had no significant effect on global exchange rates, the Bayesian VAR model showed that the number of confirmed COVID-19 cases significantly affect global exchange rates. The authors also found that the effect of the pandemic on exchange rate differs among the countries and hence there is nothing like a uniform global effect of COVID-19 on exchange rate.

Few months into the outbreak of COVID-19 outbreak in Nigeria, Olusanya and Ahamuefula (2020) predicted a drastic fall in the GDP of Nigeria during the third and last quarters of 2020. Anagun and Oni (2020) equally reported that the pandemic negatively affected Nigeria's GDP leading to a decrease from 0.35 to -9.20 and -6.3 during quarter three and four respectively. These authors stated that COVID-19 pandemic have had negative effects on foreign exchange, especially of developing countries with relatively weak currencies, like Nigeria. More encompassing, Chinery et al (2020) reported that the pandemic significantly and negatively impacted projected oil revenues, foreign remittances, oil price budget and capital imports by as much as 80%, 50%, 61% and 78% respectively. Also, it increased sovereign debt from new borrowing by 49%, job loss by 40%, unemployment by 27% and households skipping of meals by 40% (Figure 2).

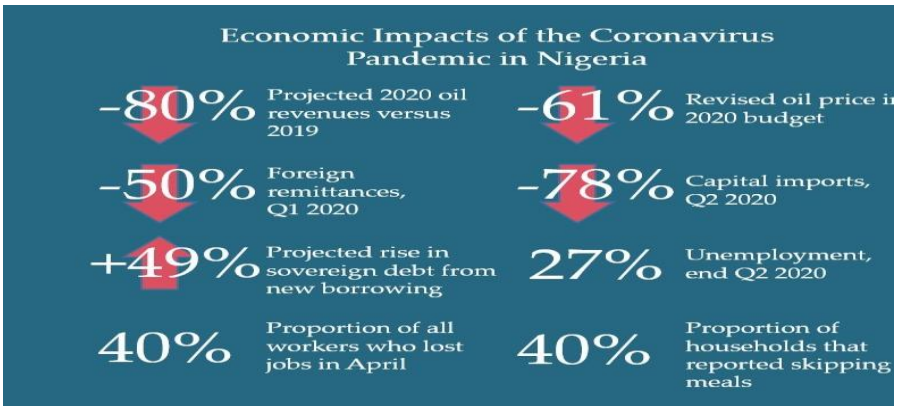


Figure 2: Impacts of COVID-19 on Nigeria Economy

Source: Chinery et al (2020)

On exchange rate in Nigeria during the first and second wave of COVID-19 outbreak, empirical literature are rare. Nevertheless, analysts believe that the dependence of Nigerian on oil exports was bound to cause problem for the Naira. The COVID-19 pandemic worsened the already low oil price in the international market, leading to shrinking reserves in the face of backlog of foreign exchange demands. The lockdown also shrank exports of the very few products that have been hitherto earn foreign exchange for the country.

According to Anaba and Olubusoye (2020), "the pandemic led to a sharp drop in the value of the Nigerian Naira relative to the US Dollar. The Naira which had remained relatively stable at 360/$1 since around mid-2017 plunged to about N430/$1" (p.72). The authors believed that this sharp fall was caused by the activities of bureau de change operators who hoarded the Dollar on one hand, and currency speculators who

were hedging against possible loses due to Naira devaluation. In forecasting the possible effect of the pandemic on the Naira/Dollar exchange rate, Okon and Ikpang (2020) using ARIMA to examine Nigeria's exchange rate from 1991 to 2020 predicted that the Naira will continue to fall relative to the US Dollar in the days to come.

III. Methods

3.1 Data and Model

We obtained secondary daily data of COVID-19 confirmed cases and deaths recorded by the Nigerian Centre for Disease Control (NCDC) from December 1st 2020 to March 31st 2021 covering the period termed the second wave of the COVID-19 pandemic in Nigeria. In addition, daily exchange rates of the Nigerian Naira to the United States Dollar were obtained from the Central Bank of Nigeria website for the same period.

We express our model in a linear form as:

$EXCR = f(CASES; DEATH) \ldots\ldots\ldots\ldots\ldots\ldots (i)$

Where

EXCR = Daily nominal exchange rate of the Nigerian Naira to the US Dollar

CASES = Daily number of COVID-19 second wave confirmed cases

DEATH = Daily number of second wave COVID-19 fatalities

In econometric form, equation 1 is expressed in logarithm as

$lnEXCR = \Omega + \beta_i lnCASES + \beta_2 DlnEATH + \varepsilon \ldots\ldots\ldots (ii)$

where

ln = natural logarithm

β_1, β_2 = regression coefficients

Ω = constant

ε= stochastic error term

The data used in the study are subjected to basic pre-estimation testsincluding descriptive statistics, correlations, stationarity (using the Augmented Dickey Fuller technique) and , Autoregressive Distributed Lag (ARDL) Bound test of co-integration which provided the basis for choosing the appropriate estimation technique. The condition precedent for using an estimation technique depend on the outcome of these various test. In order to use the ARDL, variables examined must be stationary at first difference or be a mixture of stationarity at level and first difference. Furthermore, the ARDL Bound test must have revealed that there exist co-integration between the dependent and independent variables. To determine this, we compare the calculated F-Statistic with the upper and lower bound critical values. An estimated F-Statistic greater than the upper bound critical value indicates the presence of co-integration. The reverse is the case if the F-Statistic is lower than the lower bound critical value then the variables are not co-integrated.

Having subjected the data collected to necessary pre-estimation tests, we employed the ARDL to establish short and long run relationship between Coivd-19 second wave and exchange rate in Nigeria. We thereafter examined whether there exists any causal link between exchange rate and COVID-19 pandemic indicators in Nigeria during the period of study with Granger causality. Results were also tested for residual normality, correlation, homoscedasticity and cumulative sum of squares of recursive residuals

IV. Analysis and Discussion

4.1 Second Wave COVID-19 versus Nigerian Exchange Rate

Results of analysis of data based on our research model is presented in this section starting withthe pre-estimation tests, and thereafter estimation of the short and long-run effects of second wave COVID-19 on exchange rate.

(a). Statistical Parameters of Variables

The statistical properties of exchange rate, COVID-19 confirmed cases and number of deaths are as shown in Table 1

Table 4: Descriptive Statistics

	EXCR	CASES	DEATH
Mean	381.4844	834.7872	7.840426
Median	379.2800	730.5000	7.000000
Maximum	429.2500	2314.000	27.00000
Minimum	377.3500	48.00000	0.000000
Std. Dev.	6.412734	537.1981	6.230869
Skewness	4.825741	0.402285	1.011022
Kurtosis	34.30918	2.269848	3.639086
Jarque-Bera	4204.212	4.623440	17.61360
Probability	0.000000	0.099091	0.000150

Sum	35859.53	78470.00	737.0000
Sum Sq. Dev.	3824.454	26838106	3610.606
Observations	94	94	94

Source: Authors' (2021)

The mean values of EXCR, CASES and DEATH are 381.4844, 834.7872 and 7.840426 respectively while their standard deviations are 6.412734, 537.1981 and 6.230869 respectively. Accordingly, all the variables are skewed to the right side with coefficients of skewness 4.825741, 0.402285 and 1.011022 for EXCR, CASES and DEATH respectively. As revealed by the coefficient of kurtosis, while EXCR and DEATH are leptokurtic (above 3), CASES is platykurtic with a coefficient less than 3. Finally, the Jarque-Bera statistics and corresponding probabilities [(EXCR = 4204.212 (*p=0.00000);* CASES = 4.623440 (*p=0.099091);* DEATH = 17.61360 (*p*=0.000150)] imply that EXCR and DEATH are not normally distributed because their respective probabilities are less than 0.05 significance level, whereas CASES is normally distributed with a probability that is greater than 0.05 significance level.

(b). Correlations

Correlation coefficients indicate how a variable moves as other variables move. A very high correlation coefficient (averagely above 70%) between two variables is regarded as an indicator that such variables are serially correlated whereas a lesser coefficient is an indicator that the variables do not have serial or multi-correlation problem. Table 2 shows the correlation matrix for the variables under study.

Table 2: Correlations Matrix

	EXCR	CASES	DEATH
EXCR		0.027034	-0.157111
CASES	0.027034		0.385209
DEATH	-0.157111	0.385209	

Source: Author's (2021)

The correlation coefficients in Table 2 show that EXCR and CASES move in same direction, but the degree of correlation is 0.027034 (2.7%) while it moves in opposite direction with DEATH with correlation coefficient of -0.157111 (-15.71%). CASES and DEATH move in the same direction with coefficient 0.385209 (38.52%). With these coefficients, it is safe to imply that the variables do not have serial correlation or multi-collinearity problem.

(c). Test of Variables' Stationarity

Table 3 summarizes the results of ADF test of stationarity of the variables. The null hypothesis is that each of the variables has a unit root (non-stationarry).

Table 3: Summarized Results of Stationarity (ADF)Test

Variable	ADF at Level (5%)		ADF at First Difference (5%)		Order	Remarks
	Statistic	Prob.	Statistic	Prob.		
EXCR	-3.707164	0.0052	-	-	I(I)	Stationary at 1st Diff.
CASES	-0.488060	0.8884	-8.299411	0.0000	I(0)	Stationary at Level
DEATH	-3.149874	0.0256	-	-	I(0)	Stationary at Level

Source: Author's (2021)

According to results shown in Table 3, EXCR and DEATH are stationary at level with ADF statistics -3.707164 (*p = 0.0052<0.05)* and -3.149874 (*p = 0.0256<0.005)* respectively. However, CASES is stationary at first difference with coefficient -0.488060 (*p = 0.0000*).

(d). Co-integration Test

Next, we test whether there is long run relationship between exchange rate and COVID-19 confirmed cases and number of deaths. We use the ARDL Bound test for this purpose and the result is shown in Table 4

Table 4: ARDL Bound Test Result

ARDL Bounds Test		
Null Hypothesis: No long-run relationship exist		
Test Statistic	Value	k
F-Statistic	24.20104	2

Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.63	3.35
5%	3.1	3.87
2.5%	3.55	4.38

Source: Authors' computation (2021)

From Table 4 Test-Statistic (F) of 24.20104 under k (2) degree of freedom is greater both lower and upper bound critical values at 5% level of significance (3.87 and 3.1 respectively) implying that the variables are co-integrated. This further attests that there is long-run relationship between the dependent and explanatory variables, the nature of which we used ARDL to establish.

(e). ARDL Short and Long-run Estimation

Table 5 contains the results of ARDL short and long-run relationship

Table 5: ARDL Short and Long-run Effect Results

Short-run ARDL					Long-run ARDL				
Variable	Coefficient	Standard Error	t-Statistics	Prob.	Variable	Coefficient	Standard Error	t-Statistics	Prob.
D(LGEXR(-1))	0.786297	0.133336	5.897115	0.0000	LGCAS	-0.257015	0.187044	-1.374091	0.1724
D(LGCAS)	1.864475	0.539590	3.455356	0.0008	LGDEATH	0.049345	0.014409	3.424564	0.0009
D(DEATH)	0.026328	0.013088	2.011638	0.0468	C	2.342391	0.460192	5.090026	0.0000
CointEq(-1)	-1.628379	0.163167	-9.979808	0.0000	Cointeq = LGEXR - (-0.2570*LGCAS + 0.0493*DEATH + 2.3424)				

Source: Author's (2021)

In the short-run, Table 5 reveals that both number of confirmed second wave COVID-19 cases (CASES) and deaths DEATH) have positive and statistically significant effect on exchange rate with coefficients 1.864475 (*p=0.0008<0.05)* and 0.026328 (*p=0.04568)* for CASES and DEATH respectively. An additional COVID-19 confirmed case will lead to 1.864475 increase in exchange rate (fall in Naira/Dollar rate) while an additional death recorded due to COVID-19 second wave will lead to an increase of about 0.026328 in exchange rate (fall in Naira/Dollar rate).

However, on the long-run, CASES is inversely related to exchange rate but the effect of the former on the latter is statistically insignificant with coefficient and probability -0.257015 and 0.1724 (*p<0.05)* respectively. But the long-run effect of DEATH on exchange rate is positive and statistically significant with coefficient 0.049345 and probability 0.0009 (*p<0.05).*

In all, these results contradict the position of the null hypothesis which states that there exist no significant relationship between COVID-19's second wave and exchange rate in Nigeria, hence the null hypothesis cannot be accepted.

(f). Causality Analysis

Although we have established that COVID-19 second wave affects exchange rate, it is necessary to further examine whether the former causes the changes in the latter. This we did by running the Granger causality test of the variables, the results are presented in Table 6.

Table 6: Granger Causality Test Results

Null Hypothesis	F- Statistics	Probability	Conclusion
CASES does not Granger cause EXCR	1.22375	0.3017	No Causality
EXCR does not Granger cause CASES	0.28212	0.7522	
DEATH does not Granger cause EXCR	0.12970	0.8786	No Causality
EXCR does not Granger cause DEATH	0.12414	0.8935	

Source: Author's (2021)

Table 6 shows that neither the number of COVID-19 confirmed cases nor the number of recorded deaths have any significant causal relationship with exchange rate for the period under study. This means that though COVID-19 second wave have significant effect on exchange rate, it did not significantly cause changes in it. The results of the Granger causality test is in agreement with the second null hypothesis that second COVID-19 did not cause fluctuations in exchange rate, thus the null hypothesis cannot be rejected.

(g). Residual Tests

Results of residual diagnostics tests are presented in appendices I-IV. First, the result of the Jarque-Bera (JB) normality test in appendixI revealed that the residual is normally distributed given the JB statistic (2.760501) and its corresponding probability (0.251516>0.005 level of significance). To test the null hypothesis

that the residuals have no serial correlation, the Breusch-Godfrey Serial Correlation LM Test: was used and the result shows that the residual did not suffer serial or autocorrelation problem based on the F-statistic (0.501300) and its probability (0.6074>0.05) shown in Appendix II. In addition, result of the test of residual homogeneity using Breusch -Pagan-Godfrey residual heteroskedascticitytest revealed that with F-statistic of 0.989007 and probability of 0.3759, the residuals are homoscedastic according to the null hypothesis (Appendix III).Again the residuals were found to be stable as revealed by the result of cumulative sum (CUSUM) of recursive residual which shows that the model's equation line hovers within the critical bounds lines given the 5% level of significance. (Appendix IV).

V. Discussion and Conclusion

This study examined the effect of COVID-19 second wave on Nigerian exchange rate between December 1, 2020 and March 31, 2021. Specifically, the study provided answers to two main research questions: whether COVID-19 pandemic have significant effect on the Nigerian exchange rate and whether there is causality between the two during the second wave. Daily COVID-19 data were sourced from the Nigerian Centre for Disease Control (NCDC) and daily highest official exchange rate were obtained from the official web page of Central Bank of Nigeria.

The first objective was achieved through the use of ARDL to establish the short and long-run effect of COVID-19 second wave on exchange rate in Nigeria. Results of the ARDL showed that in the short run, the number of COVID-19 confirmed cases as well as number of COVID-19 deaths have positive and statistically significant effect on exchange rate. Bearing in mind that our concept of exchange rate denotes the rate at which Nigerian Naira exchanged for the US Dollar (Dollar/Naira rate), this result shows that more Naira were exchanged for a dollar during the period. This is unexpected bearing in mind that the COVID-19 period was characterized by lull in international trade and foreign direct investment caused by global outright and partial lockdowns. Notwithstanding, analysts believe that the fragile nature of Nigerian economy, shortage of foreign exchange during the pandemic, upsurge in online trading activities, partial reopening of national borders, speculation and demand for foreign exchange were some of the factors responsible for this effect.. However, on the long-run, number of COVID-19 confirmed cases exerted a negative but statistically insignificant effect on exchange rate but the number of deaths recorded still affected exchange rate positively and significantly. These two findings still revealed that COVID-19 second wave did not favour the Naira since the negative effect of number of confirmed cases was not significant whereas the number of deaths increased the rate at which the Naira exchanged for the US Dollar.

One probable reason for the resultant effect of COVID-19 second wave on exchange rate is the large dependence of Nigeria on other countries for survival. During the second wave of the COVID-19 pandemic, there was gradual opening up of national borders, airports and seaports which allowed some degrees of cross-border movements and trades. The sudden opening resulted in mad rush for foreign exchange due to import materials, machines and knowhow in order to cover grounds that were lost during the pandemic's first wave.To determine the existence of causality between COVID-19 second wave and exchange rate in Nigeria, results of Granger causality shows that though the former affected the latter, one did not cause the changes in the other.

Based on the aforesaid findings, we conclude that the second wave COVID-19 significantly affected exchange rate though it did not cause the fluctuations in it. We therefore recommend that the Central Bank of Nigeria formulate considerably short-term foreign exchange management strategies that will facilitate stability in Naira exchange rate to the US Dollar.

VI. Limitations and Need for Further Studies

This study is limited to the period of COVID-19 second wave, which as at the time of carrying out the research was yet to subside, hence it is reasonable to assume that taking the full period the pandemic since its inception or extending it beyond the study period may alter the results of the study. Therefore, more studies that cover more period are advocated. Also, there is need to examine the effect of COVID-19 pandemic on other international currencies apart from the US Dollar. A study that examine the effect of COVID-19 on Naira/British Pound, Naira/Euro or Naira/Dutch Mark exchange rate for example will further provide insight into the COVID-19 – exchange rate relationship in Nigeria.

References

[1]. Anaba, S. A. &Olubusoye, O. E. (2020). Nigeria and the coronavirus pandemic, *IAEE Energy Forum, Covid-19 Issue*, 71-73. Retrieved from: https://www.iaee.org/en/publications /newsletter.aspx.

[2]. Anagun, A. &. Oni, O. (2020). The effect of pandemic on the Nigerian economy. Retrieved from: https://www.researchgate.net/publication/344876394.

[3]. Banerjee, I., Atul, K. & Bhattacharyya, R. (2020). Examining the effect of COVID-19 on foreign exchange rate and stock market - An applied insight into the variable effects of lockdown on Indian economy. https://www.researchgate.net/publication/342464956.

[4]. Barro, R. J., Weng, J., & José, U. F. (2020). The coronavirus and the great influenza pandemic: Lessons from the "Spanish Flu" for the coronavirus's potential effects on mortality and economic activity. CESifo Working Paper Series. Retrieved from: http://www.nber.org/papers/w26866%0A.

[5]. Chinery, N., Sayne, A. &Gillies, A. (2020). Nigeria: Updated assessment of the coronavirus pandemic on the extractive sector and resource governance, *National Resource Governance Institute Bulletin*, https://www.resourcegovernance.org.

[6]. Dineri, E. &Cutcu, I. (2020). The COVID-19 process and exchange rate relation: An application on Turkey, Retrieved from: https://www.researchgate.net/publication/343276624. DOI:10.21203/rs.3.rs-49026/w1.

[7]. Hondoyo, R.D. (2020). Impact of Covid 19 on trade, FDI, real exchange rate and era of digitalization: Brief review global economy during pandemic, *Journal of Developing Economies), 5* (2): 86-90.

[8]. Liao, G., & Zhang, T. (2020). Currency hedging, exchange rate movement, and dollar swap line usage during the COVID-19 pandemic. Retrieved from:https://voxeu.org/article/currency-hedging-exchange-rate-movement-and-dollarswap-line-usage-during-COVID-19.

[9]. Lin, C. H. (2012). The co-movement between exchange rates and stock prices in the Asian emerging markets. *International Review of Economics and Finance, 22*, 161- 172.

[10]. Okon, E. J. &Ikpang, I. N. (2020). Modelling and forecasting exchange rate values between Naira and US Dollar to assess the effect of COVID-19 pandemic period on the rate. *Asian Journal of Probability and Statistics 8*(1), 55-65. DOI: 10.9734/ajpas/2020/v8i130200

[11]. Olusanya, E. O &Ahamuefula, E. O. (2020). COVID-19 and the Nigeria economy: Analyses of impacts and growth projections. Retrieved from https://www.researchgate.net/publication/342439011.

[12]. Park, C. Y., Rosenkranz, P., &Tayag, M. C. (2020). COVID-19 exposes Asian banks' vulnerability to US Dollar funding. Retrieved from:https://www.adb.org/sites/default /files/publication/616091/

[13]. Pasiouras, A. &Daglis, T. (2020). The dollar exchange rates in the COVID-19 era: Evidence from 5 currencies, *European Research Studies Journal Volume 23(2)*, 352-361

[14]. Pasiouras, A. &Daglis, T. (2020). 361 shocks: Measuring contagion in the East Asian currency crisis. *Journal of Emerging Market Finance, 3*(3), 305-330.

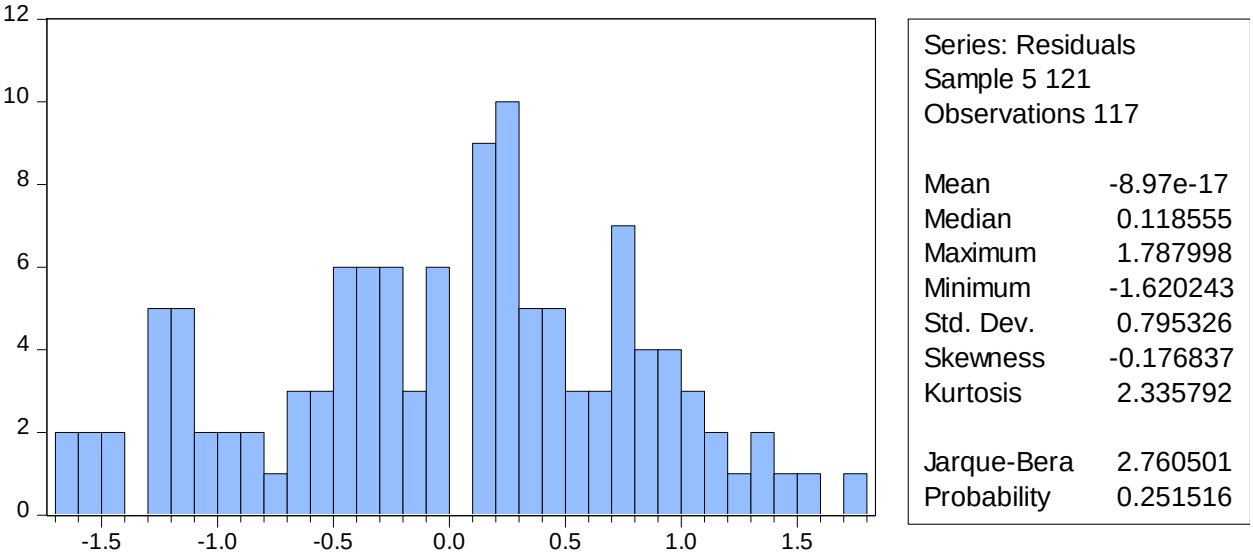
[15]. PFI Capital (2021). Implications of CBN's exchange rate unification. Retrieved from:https://www.proshareng.com/news/Nigeria%20Economy/Nigeria-s-COVID-19-Induced-Foreign-Trade-Decline---PFI-Capital/52417#

[16]. Rogoff, K. (2020). Exchange rates have been stable in the Covid crisis – are we heading for a storm? Retrieved from https://www.theguardian.com/business/2020/nov/16/

[17]. World Bank Group (2020). Rising to the challenge: Nigeria's COVID response. *Nigerian Development Update,* www.worldbank.org/en/country/nigeria

APPENDIX

Appendix I: Jarque-Bera Residual Normality Test Result



Source: Author's (2021)

Appendix II:Breusch-Godfrey Residual Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

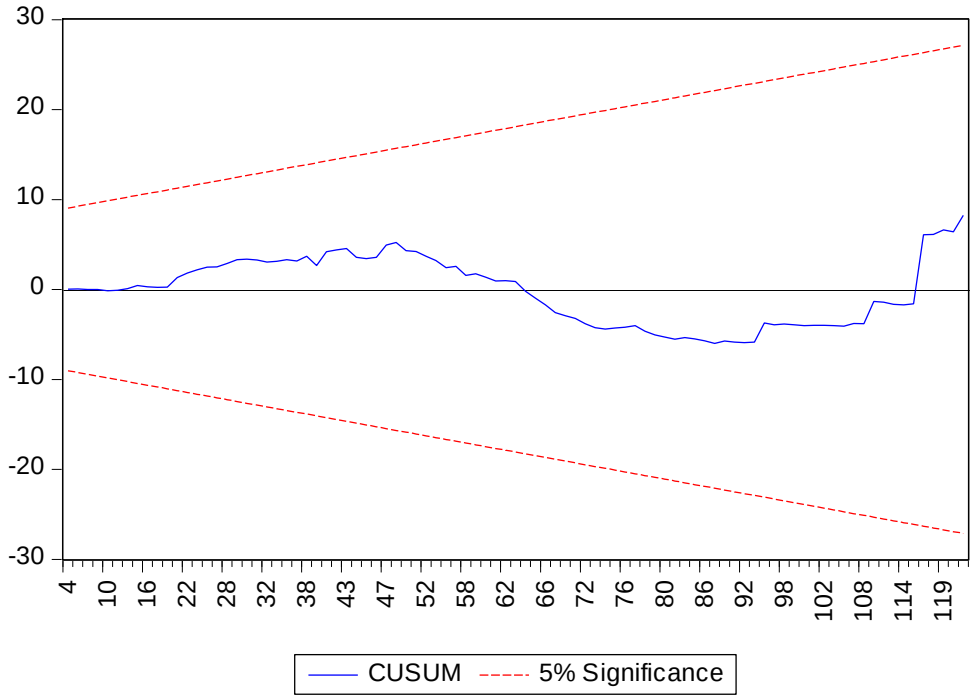
F-statistic	0.501300	Prob. F(2,89)	0.6074
Obs*R-squared	1.047130	Prob. Chi-Square(2)	0.5924

Source: Author's (2021)

Appendix III: Breusch-Pagan-Godfrey Residual Heteroskedasticity Test Result
Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.989007	Prob. F(2,91)	0.3759
Obs*R-squared	1.999756	Prob. Chi-Square(2)	0.3679
Scaled explained SS	33.11143	Prob. Chi-Square(2)	0.0000

Source: Author's (2021)



Appendix IV: CUSUM Test
Source: Author's (2021)

Awosusi, Charles Temitope, et. al. "Covid-19 Second Wave and Exchange Rate: The Nigerian Scenario." *IOSR Journal of Economics and Finance (IOSR-JEF)*, 13(4), 2022, pp. 11-19.