



Research article

Impact of COVID-19 on economic growth in Nigeria: opinions and attitudes

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ABSTRACT

The study examined the impact of COVID-19 on economic growth in Nigeria: Opinions and attitudes. The purpose was to ascertain respondents' perception of the effect of the COVID-19 pandemic on economic growth in Nigeria. The cross-sectional survey research design was employed and a mix-method was used in collecting the research data. Content validity index and face validity served to validate the research instrument while Cronbach alpha was used to assure its reliability. The secondary data were analysed using percentage changes while the primary data were analysed using a one-sample t-test and least-squares method. Results of the respondents' opinion indicated that the COVID-19-induced lockdown has significantly constrained economic activities and the circular flow of income. Lastly, the perceived reduction in the circular flow of income in the wake of the COVID-19 lockdown has negatively impacted on economic growth in Nigeria. The need for policymakers to take drastic measures to curtail the pandemic and forestall a recession that may be consequent upon the pandemic was suggested, among others.

1. Introduction

There are four major economic agents, among others, that facilitate economic activities in any economy; they are – the government, the apex institutions, the firm and the household, which is the central bank. The extent to which these agents can efficiently and effectively perform their roles has implication on the circular flow of income and hence the level of income in the economy. The circular flow of income describes the flows of money among the sectors of an economy. As individuals and firms *buy and sell goods and services*, money flows among the different sectors of an economy. The circular flow of income describes these flows of money for goods and services. On the one hand, firms require productive resources to facilitate the production of goods and services; they reward these productive resources for their contribution to the production of goods and services. This is consistent with the classical economic dictum that “supply creates its own demand.” On the other hand, labour, having been rewarded in the form of wages and salaries, can demand and pay for the goods and services of the firm. Furthermore, firms and households pay taxes to the government; this revenue from taxes coupled with borrowing enables the government to fund capital projects to create an enabling environment for business to thrive.

Firms and government also export what they have to the rest of the world and import what they don't have from the rest of the world. Imports stimulate outflows while exports stimulate inflows. This completes the circular flow of income. Since the advent of the COVID-19 pandemic,

major economic activities have been crippled worldwide, Nigeria inclusive, owing to the lockdown in major economies of the world. The implication is that the circular flow of income has been significantly constrained since a reasonable proportion of the productive factors are currently lying idle. Most firms are currently shut, thus constraining their capacity to pay tax to the government. There is also a significant reduction in international trade following the closure of seaports and airports to curtail the spread of the pandemic. Ironically, the government's transfer payments have increased considerably, owing to the expenditure on palliatives by various governments across the globe to cushion the effect of the lockdown on citizens. This paper thus seeks to ascertain the significance of all these perceived consequences of the lockdown on the Nigerian economy. Thus, it examines the possible influence of the COVID-19 pandemic lockdown on economic growth in Nigeria.

2. Literature review

2.1. COVID-19 pandemic

Before the advent of this present pandemic, the world had some experiences of coronavirus in the past. The two most recent experiences, the Severe Acute Respiratory Syndrome, which happened in China in 2002, 2003 and the Middle-East Respiratory Syndrome, which occurred in some Middle East and some other countries outside the Middle-East in

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2012 (Zhong et al., 2003). However, Previous Coronaviruses did not cause devastating consequences. They caused “mild infections in immunocompromised people and were not considered to be highly pathogenic in humans until they circulated in the Guangdong province of China in 2002 and 2003 during the Severe Acute Respiratory Syndrome (SARS) outbreak” (Zhong et al., 2003). The cumulative number of infections recorded was 8437. Out of this number, 813 (9.6%) of the cases were fatal while 7452 (90.4%) of the cases recovered (WHO, 2003).

Another wave of coronavirus known as the Middle East respiratory syndrome was experienced between 2012 and 2013. “The first documented cases of MERS occurred in Jordan in early 2012. Globally, to date, there has been a total of 55 cases confirmed by laboratory testing. Out of these, 40 have occurred in KSA, and the rest have been reported from other countries in the Middle East (Qatar and the United Arab Emirates), from Tunisia in North Africa, and France, Germany, Italy and the United Kingdom of Great Britain and Northern Ireland in Europe” (WHO, 2013). Despite having a limited number of cases, the death rate of MERS was about sixty per cent (60%) (WHO, 2013). Thus, the combined cases of infections from SARS and MERS amounted to 8492.

The coronavirus, also known as COVID-19, which began in China in 2019, was linked to a novel Coronavirus that was named SARS-CoV-2 (Zhu et al., 2020). It is pertinent to note that “the new strain of coronavirus had not been previously identified in humans and the disease associated with it has been dubbed Coronavirus diseases 2019 (COVID-19) by the WHO (Bawazir et al., 2020). The virus has spread to over 155 countries, causing severe morbidity and mortality since its emergence in 2019 (Wu et al., 2020). However, as of 14th May 2020, the world had witnessed five million, one hundred and three thousand, and six (5, 103, 006) cases of COVID-19 (following the applied case definitions and testing strategies in the affected countries), including 109, 536 fatalities, representing 2.15% of the infections. The results also indicate that 74,256 of the infections are from Africa, 182,278 are from South East Asia, 2,282,488 are from America, as well as 1,987,657 from Europe and 172,696 from Western Pacific, among others. The fatalities associated with the different continents as of 14th May 2020 were 2504 (Africa), 5119 (South-East Asia), 62,221 (America) and 21,413 (Europe). As of October 2021; barely one year after the commencement of the COVID-19 pandemic, the total confirmed cases rose to 34,804,348 with 1,030,738 (2.96%) fatalities globally (WHO, 2020a; 2020b). This partly explains why COVID-19 appears to have attracted more global attention in terms of sensitisation and lockdowns than the previous cases.

2.1.1. COVID-19 lockdown and economic activities

Spillovers from the COVID-19 pandemic precipitated a decline in demand for oil products as well as constrained economic activities following the enforcement of the physical distancing policies (Ozili, 2020b). The degree of economic crises caused by the COVID-19 pandemic is unprecedented; there is no doubt that it has left dramatic rippling effects across the global economy, significantly constraining the level of economic activities in every region of the world (Copenhagen Economics, 2020). The COVID-19 pandemic has so far had its toll on economic activities and there seems to be no end in sight for now. This has led to a significant impact on social policies as well as the social and economic well-being of citizens, especially the drastic reduction in economic activities (Ozili, 2020a). Barnett-Howell and Mobarak (2020) observe that in poor countries of the world, the costs of lockdowns may be higher because interrupting economic activities presents a large public health threat of its own because the people's livelihoods depend on day-to-day wages. Given the foregoing, the following hypothesis was tested:

H₀1. COVID-19 pandemic has not had any significant influence on economic activities in Nigeria

2.1.2. COVID-19 lockdown and circular flow of income

The circular flow of income is used to model the flow of productive resources as well as the flow of goods and money in an economy.

Specifically, it is “used to model how goods and services move between different agents (or decision-makers) in a closed system. For example, circular flow of income can model how the ownership of products moves between sellers and buyers in a commerce market, or model income moving between households, business, and governments in an economy” (Feng, 2020). The movement of productive resources and of goods and money, constitutes the key to the circular flow. “Without movement, the agents can't interact with one another. Without flow, the system or economy stagnates and breaks down” (Feng, 2020). These movements, flow of people, the flow of information, flow of goods and flow of money have met a brick wall since the global lockdown that was induced by the COVID-19 pandemic, thus constraining the circular flow of income across the nations of the world whether developing, less developed or developed. Paolo and Galeotti (2020) see the COVID-19 induced lockdown as an impairment in the circular flow of income. This is because the lockdown has constrained human and vehicular movement and thus economic activities.

Following the curtailment of household spending and the attendant economic uncertainty, there is a fall in economic transactions, which precipitates loss in firms' revenues. Within a short time after the lockdown, individuals and firms ran out of cash needed to make the required transactions. The situation is further compounded by the curtailment of transport services, which could constrain farming activities (Inegbedion, 2020) and thus jeopardize economic growth since green revolution (enhancement in food production) is a prerequisite for industrial revolution (Inegbedion et al., 2020). The lockdown has also led to the inability of households to spend adequately, especially in the Sub-Saharan African states thereby resulting in a series of demand and supply shocks. Given the above, the following null hypothesis was formulated and tested:

H₀2. COVID-19 pandemic has not had any significant influence on the circular flow of income in Nigeria

While economic growth is crucial to welfare and development, not all economies experience a growth at all times; even economies that experience economic growth sometimes witness economic stagnation and recession. Economic stagnation is used to refer to a period of stagnancy in economic growth while recession refers to negative growth. One known major cause of stagnation is a deficiency in demand. Nigeria's heavy dependence on crude oil, which is an exhaustible asset, for its foreign exchange earnings has been largely responsible for its inability to make optimistic financial plans (Inegbedion et al., 2020) that can stimulate economic growth. This has become obvious in the period of the lockdown as a fall in oil prices has constrained government earnings and made her resort to external borrowing.

2.2. Empirical review

The empirical review is categorised into; COVID-19 pandemic/economic activities and circular flow of income as well as COVID-19 pandemic and economic growth.

2.2.1. COVID-19 pandemic/economic activities and circular flow of income

Ozili (2020a) examined “COVID-19 in Africa: Socio-economic impact, policy response and opportunities in Africa.” The design employed was discourse analysis. The results show that the coronavirus pandemic has had a significant effect on African countries. The pandemic is having its toll on economic activities and social interaction through the safety measures put in place to curtail the pandemic, such as physical distancing. A major implication of the study is the influence of social policies on the social and economic well-being of citizens, especially the drastic reduction in economic activities. Teachout and Zipfel (2020) examined “the economic impact of COVID-19 lockdowns in sub-Saharan Africa,” they sought to quantify the impact of lockdowns on people's livelihoods. Consistent with the outcomes of recent surveys of income streams under lockdowns, assumptions were made on the likely impact of

COVID-19 containment measures on various sectors in sub-Saharan Africa. They hypothesise that workplace closures occasioned by the lockdown are likely to have a severe effect on the economy.

Thurlow (2020) examined “COVID-19 lockdowns are imposing substantial economic costs on countries in Africa”. He presents an assessment of the economic effects of COVID-19 in some African countries with a specific focus on their varied effects on different sectors and types of households. The challenges for governments in responding to the crisis and progressing to policy formulation and implementation for medium- and longer-term economic recovery are indicated. Dzobo et al. (2020) examined the “COVID-19 pandemic situation in Zimbabwe and viewpoints on important considerations and strategies for lifting the lockdown” given the likelihood that socio-economic pressures will challenge the sustainability of the lockdown, owing to the possible consequences of lockdown on the economy.

2.2.2. COVID-19 pandemic and economic growth

Maryla et al. (2020) examined “the potential impact of COVID-19 on GDP and Trade” by utilising a standard global computable general equilibrium model to model the shock as: Underutilization of labour and capital, an increase in international trade costs, a drop in travel services, and a redirection of demand away from activities that require proximity between people. The results indicate significant declines in GDP in both developing industrial countries. The declines were observed to be approximately 4 per cent below the benchmark for the world. The outputs of domestic services as well as traded tourist services are observed to be worst hit by the pandemic lockdown.

Organisation of Economic Cooperation and Development (2020) observes that the containment measures put in place to check the spread of the COVID-19 pandemic have led to the temporary shutdown of many businesses, widespread financial market turmoil, an erosion of confidence, heightened business uncertainty, as well as restrictions on travel and mobility. The major impacts are: decline in the level of output of between twenty per cent (20%) to twenty-five per cent (25%) in many economies, with consumers’ expenditure potentially dropping by around one-third. This has adversely affected GDP growth in most countries within service sectors, retail sectors, non-essential construction work and the manufacturing sector; with the manufacturing sector experiencing the least effect since most manufacturing firms are less employment-intensive.

Ruzvidzo (2020) observed that “the economic impact of COVID-19 on African cities is likely to be acute through a sharp decline in productivity, jobs and revenues.” COVID-19 is expected to have severe employment effects in urban areas. The urban-based sectors of the economy (manufacturing and services) which currently account for 64% of GDP in Africa are expected to be worst hit by the COVID-19 induced lockdown, leading to significant losses in productive jobs (ECA, 2020). Specifically, most “Africans in informal urban employment (approximately 250 million) are expected to be at risk. Also vulnerable to the COVID-19 pandemic are firms and businesses in the cities, especially the small and medium enterprises, which account for about eighty per cent (80%) of employment in Africa” (ECA, 2020). These risks are compounded by a likely hike in the cost of living, which is expected as shown for example by some initial reports of up to 100% increase in the price of some food items in some African cities (Ruzvidzo, 2020).

Lucas (2020) investigated the “Impacts of COVID-19 on inclusive economic growth in middle-income countries.” The design was a literature review of studies on coronaviruses. His findings indicate that COVID-19 is likely to cause much greater economic damage than any recent disease outbreak or economic crisis as its economic impacts are broader and much more severe than most of the previous crises. More worrisome is the fact that COVID-19 has exerted significant disruptions on global value chains, which currently account for above two-thirds of world trade; and an end to the disruptions is not in sight. An extract from an Oxford University study revealed that COVID-19 has brutalised communities by unleashing infection and death indiscriminately across

the world (Shretta, 2020). IMF forecasted that the global economy is likely to contract by -3% in 2020 (Crutsinger, 2020) and that “the cumulative loss to global GDP over 2020 and 2021 from the pandemic crisis could be around 9 trillion dollars, making it the worst economic downturn since the Great Depression” (Gopinath, 2020).

It is pertinent to note that like past epidemics and pandemics, most of the economic impacts of COVID-19 are consequences of the measures taken to curtail the spread of the disease rather than a direct effect of the disease itself. COVID-19 has adversely disrupted global value chains, which now account for over two-thirds of world trade (Dollar, 2019), and there is no end in sight to the disruptions as countries restrict economic activity to control the disease (Baldwin and Freeman, 2020; Jonas, 2013). The disruption in the value chain during the pandemic is likely to stimulate future debates about de-globalisation. The manufacturing sector will be disrupted by the lockdown through labour shortages, supply chains and transportation disruptions, and declining demand (Baldwin and di Mauro, 2020) while SMEs are also expected to be significantly vulnerable (Baldwin and di Mauro, 2020; Baldwin and Tomiura, 2020; and Shretta, 2020). In view of the foregoing, the following null hypotheses were formulated and tested:

H₀₃. There is no significant relationship between economic activities and economic growth

H₀₄. There is no significant relationship between the circular flow of income and economic growth.

2.2.3. Gaps in literature

Owing to the high level of concern that the COVID-19 pandemic has generated globally, a lot of studies have been carried out on the problem within the short time that the pandemic has lasted. Some of the studies examined the impact of COVID-19 lockdown on economic activities (Ozili, 2020a; Teachout and Zipfel, 2020; Maryla et al., 2020). Others examined the impact of COVID-19 pandemic lockdown on economic growth (Baldwin and di Mauro, 2020; Baldwin and di Mauro, 2020; Organization of Economic Cooperation and Development, 2020; Maryla et al., 2020; Gopinath, 2020; Ruzvidzo, 2020; Shretta, 2020; and Thurlow, 2020), while Dzobo et al. (2020) investigated a perspective for lifting lockdown in Zimbabwe. The results of the studies indicate that the COVID-19 pandemic lockdown has had significant socioeconomic effects on African economies (Ozili, 2020a; Ozili, 2020b; Teachout and Zipfel, 2020; Dzobo et al. (2020) as well as adverse impacts on economic growth (Baldwin and di Mauro, 2020; Baldwin and Freeman, 2020; Jonas, 2013; Baldwin and Tomiura, 2020; and Shretta, 2020; Dollar, 2019; Gopinath, 2020; Maryla et al., 2020; Ruzvidzo, 2020; Shretta, 2020).

The majority of these studies are review papers and virtually none has undertaken an empirical investigation of the subject matter. Furthermore, none of the studies undertook a detailed examination of the influence of COVID-19 lockdown on economic activities and the circular flow of income to link it to impairment of economic growth. Besides, the impacts of the COVID-19 pandemic on economic growth is an on-going phenomenon for now. This study sought to fill the identified gaps to expand the frontiers of knowledge.

3. Research methods

This study employed quantitative methods and the research design was a cross-sectional survey. The population of the study consisted of online respondents from the six geopolitical regions of Nigeria. Respondents’ participation was requested through social media. Random sampling was employed in selecting the respondents. The sampling technique is consistent with Inegbedion and Obadiaru (2018) as well as Inegbedion et al. (2019). Mix method, consisting of secondary and primary techniques, was used to generate the research data. Secondary data were obtained from daily data on the COVID-19 pandemic in Nigeria for the period 30th April to 14th May 2020 from the Nigeria Centre for Disease Control (NCDC). Primary data were elicited from

the sampled respondents using a structured questionnaire which was administered through social media (Facebook and WhatsApp). The question-response format of the research instrument was the Likert-type scale.

3.1. Validity

The instrument (questionnaire) was constructed by the author and given to experts in the department of Business studies at the author's institution and another institution for validation before pre-testing in a pilot survey. After the experts' validation, the instrument was pretested. The results of the pilot test were analysed using validity estimates for validity tests. Results of the items content validity index (I-CVI) showed that the coefficients of the 20 items used in measuring the four constructs were, 0.865, 0.69, 0.728 and 0.68 for the entire instrument, economic activities, economic activities and the circular flow of income, and circular flow of income respectively. All the coefficients were greater than 0.7 or approximately 0.7 (see Table 1). The result of the scale content validity index (S-CVI) of the 20 items was 0.766. It was based on the expert judgments and content validity (item and scale level) that the instrument was deemed adequate for administration and subsequently administered in the main survey. This is consistent with Inegbedion et al. (2020).

3.2. Reliability

Cronbach alpha was used to test for the reliability of the instrument. The coefficients of reliability were found to be 0.795, 0.917, 0.784, 0.730 and 0.650 for the comprehensive questionnaire, economic activities, economic activities and circular flow of income, economic growth, and circular flow of income respectively (see Table 2). All but one of the coefficients of reliability were greater or equal to 0.7, even the coefficient of reliability of the circular flow of income which was less than 0.7 is 0.65, which is approximately 0.7. To this end, the items are internally consistent and the instrument is deemed to be reliable.

3.3. Method of data analysis

The data obtained from NCDC were analysed using frequency tables and percentages. The data elicited from the sampled respondents were analysed using a one-sample t-test and least-squares technique. One sample t-test was used to test for the significance of respondents' perceptions while the least-squares technique was used to examine the predictive validity of the constructs.

3.3.1. Model specification

$$OEG = f(EA \text{ and } CFI)$$

$$OEG = \beta_0 + \beta_1EA + \beta_2CFI + e$$

Where

OEG = Opinion on Economic growth

EA = economic activities;

CFI = circular flow of income; and

e = stochastic error term

Ethical approval

The author sought and got ethical approval from the Landmark University Research Ethical Board and the study complied with ethical standards. There was no number attached to the approval.

4. Results

The results of the secondary data analysis are presented, followed by the results of the primary data analysis.

4.1. Findings from secondary data

Within the period 30th April to 15th May 2020, the number of infections rose from 1932 on 30th April 2020 to 4971 on 14th May, indicating a percentage increase of 157.3% in two weeks. Furthermore, the fatality rate increased from 58 on 30th April 2020 to 164 on 14th May 2020, indicating a percentage change of 182.76% in two weeks. But the daily fatality rate has remained constant at 3% despite the increasing number of daily infections (see Table 3).

The demographic distribution of COVID-19 cases in Nigeria indicates that a greater proportion of the infected people are males with the proportion of infected males fluctuating between 67% and 69% daily while the proportion of females fluctuates between 33% and 31% daily. Furthermore, the results also indicate that the most gullible age group is 21–40 years and the percentage of infected people within this range has been ranging between 22% and 25% (see Table 4).

4.2. Findings from primary data

Out of a total of four hundred and seventy-two (472) persons that were contacted, two hundred and seven (207), representing 43.9% of them responded. Two inferential tests were performed, one-sample t-test and regression analysis (see Tables 5, 6, 7, 8 and 9).

4.2.1. One sample T-test

A comparison of the COVID-19 pandemic with economic activities showed that the mean score associated with respondents who believed that economic activities have not been affected since the commencement of the COVID-19 pandemic was 1.5797 with a standard deviation of 0.5541 and a standard Error Mean of 0.0385. Against a test value of 3, this resulted in a mean difference of -1.4203. A t-test for significance of this mean difference resulted in a computed t and an associated significant probability of -33.88 ($P < 0.001$). Consequently, the mean score of people who agreed that COVID-19 has not influenced economic activities is significantly lower than the test value. The implication is that, at the ninety-nine per cent confidence level, we can conclude that the COVID-19 pandemic has significantly retarded economic activities in Nigeria (see Table 10).

A comparison of the COVID-19 pandemic with the circular flow of income showed that the mean score associated with respondents who believed that the circular flow of income has been slowed down since the commencement of the COVID-19 pandemic was 3.572 with a standard deviation of 1.5709 and a standard Error Mean of 0.0397. Against a test value of 3, this resulted in a mean difference of 0.572. A t-test for significance of this mean difference resulted in a computed t and an associated significant probability of 14.41 ($P < 0.001$). Consequently, the mean score of people who agreed that COVID-19 has significantly constrained circular flow of income in Nigeria is significantly higher than the

Table 1. Validity tests.

Construct	S-CVI	I-CVI	Number of Items
Entire Instrument	0.766		20
Economic Activities		0.865	7
Economic Activities and circular flow of Income		0.69	7
Economic Growth		0.728	3
Circular flow of Income		0.705	3

Source: Author's computation.

Table 2. Reliability of instrument.

Variable	Cronbach Alpha Coefficient
Entire Instrument	0.795
Economic Activities	0.917
Economic Activities and circular flow of Income	0.784
Economic Growth	0.730
Circular flow of Income	0.650

Source: Author's computation.

test value. The implication is that, at the ninety-nine per cent confidence level, we can conclude that the COVID-19 pandemic has significantly constrained the circular flow of income in Nigeria (see Table 11).

A comparison of the COVID-19 pandemic with economic growth showed that the mean score associated with respondents who believed that the COVID-19 pandemic has constrained economic growth in Nigeria was 3.4375 with a standard deviation of 0.5840 and a standard Error Mean of 0.0406. Against a test value of 3, this resulted in a mean difference of 0.4375. A t-test for significance of this mean difference resulted in a computed t and an associated significant probability of 10.78 (0.016). Consequently, the mean score of people who agreed that COVID-19 has resulted in constrained economic growth in Nigeria is significantly higher than the test value. The implication is that, at the ninety-nine per cent confidence level, we can conclude that the COVID-19 pandemic has significantly contributed to restrictions in economic growth in Nigeria (see Table 12).

Results of the least square model show that the computed value of R square is 0.44, thus indicating that 44% of the variation in perceived economic growth in this period is explained by the explanatory variables (circular flow of income and economic activities) (see Table 13). The computed F statistic and its associated asymptotic significant probability were 5.752 (0.004), thus indicating that the overall significance of the model is good (see Table 13.1).

The regression coefficients were 2.794, 0.046 and 0.260 for constant, economic activities and circular flow of income respectively (see Table 13.2). The regression model based on these coefficients is thus:

$$OEG = 2.794 + 0.046 EA + 0.26 CFI \tag{1}$$

Table 3. COVID-19 Infections in Nigeria within the period 30/04–14/05 2020.

Date	Samples Tested	Cases	New	% Δ	Recoveries	New	% Δ	Death	New	% Δ
30/04	15759	1932	204		319	12		58	7	3
01/05	16588	2170	238		352	32		68	10	3
02/05	17566	2388	220		385	34		85	17	3
03/05	18536	2558	170		400	15		87	2	3
04/05	19512	2802	245		417	26		93	6	3
05/05	21208	2950	148		481	64		98	5	3
06/05	22492	3145	195		534	52		103	5	3
07/05	23835	3526	381		601	67		107	4	3
08/05	25014	3912	386		679	78		117	10	3
09/05	25951	4151	239		745	66		128	11	3
10/05	27078	4399	248		778	65		143	17	3
11/05	28418	4641	242		902	124		152	10	3
12/05	29408	4787	146		959	57		158	6	3
13/05	30657	4971	184		1070	111		164	6	3
14/05	31702	5162	193		1180	110		167	3	3
15/05	32942	5445	288		1320	140		171	4	3
16/05	33970	6521	176		1472	152		175	5	3

Source: Nigeria Centre for Disease Control (NCDC) <https://www.bbc.com/pidgin/tori-52374646>.

Table 4. COVID-19 infections in Nigeria by demographics.

Date	Male	%	Female	%	% Δ	Most affected Age Group	%	% Δ
30/04	1289	67	643	33		31–40 Years	22%	
01/05	1289	68	643	32		31–40 Years	24%	2
02/05	1648	69	740	31		31–40 Years	23%	-1
03/05	1767	69	791	31		31–40 Years	23%	0
04/05	1813	68	889	32		31–40 Years	23%	0
05/05	2026	69	924	31		31–40 Years	24%	1
06/05	2163	69	982	31		31–40 Years	24%	0
07/05	2401	68	1125	32		31–40 Years	23%	-1
08/05	2644	68	1268	32		31–40 Years	23%	0
09/05	2828	68	1323	32		31–40 Years	23%	0
10/05	2998	69	1401	31		31–40 Years	24%	1
11/05	3178	68	1463	32		31–40 Years	24%	0
12/05	3303	69	1484	31		31–40 Years	25%	1
13/05	3445	69	1526	31		31–40 Years	25%	0
14/05	3577	69	1585	31		31–40 Years	24%	-1
15/05	3763	69	1682	31		31–40 Years	24%	0
16/05	3897	69	1724	31		31–40 Years	25%	1

Source: Nigeria Centre for Disease Control (NCDC) <https://www.bbc.com/pidgin/tori-52374646>.

Table 5. COVID-19 and economic activities.

	N	Mean	Standard Deviation	Standard Error Mean		
Responses	207	1.5797	0.5541	0.0385		
Test Value = 3						
	t.	df	Sig. 2-Tailed	95% confidence interval of the Difference		
				Mean Difference	Lower	Upper
Responses	-36.88	2-6	0.000	-1.4203	-1.496	-13.444

Source: Author's computation.

Table 6. COVID-19 and circular flow of income.

	N	Mean	Standard Deviation	Standard Error Mean		
Responses	207	3.572	1.5709	0.0397		
Test Value = 3						
	t.	df	Sig. 2-Tailed	95% confidence interval of the Difference		
				Mean Difference	Lower	Upper
Responses	14.408	206	0.016	0.5717	0.4934	0.6499

Source: Author's computation.

Table 7. COVID-19 and economic growth in Nigeria.

	N	Mean	Standard Deviation	Standard Error Mean		
Responses	207	3.4375	0.5840	0.0406		
Test Value = 3						
	t.	df	Sig. 2-Tailed	95% confidence interval of the Difference		
				Mean Difference	Lower	Upper
Responses	10.78	206	0.000	0.4375	0.3575	0.5176

Source: Author's computation.

Table 8. Model summary.

Model	R	R-Square	Adjusted E square	Std Error of Estimate	DW-Statistic
	0.66	0.44	0.41	0.9057	1.717

Predictors: (constant), circular flow of income and economic activities.
 Dependent variable: Economic Growth.

Table 9. Demographic variables.

Item	Category	Frequency
Gender	Male	120
	Female	87
	Total	207
Highest Educational Qualification	HND/First Degree	113
	Master's Degree	88
	PhD	6
	Total	207
Zone	Federal Capital Territory	33
	South	66
	Lagos	70
	North	38
	Total	207

Table 10. Respondents' opinion on economic activities.

Item	Very Low	Low	Normal	High	Very High	Total
Q1	103	94	10	0	0	207
Q2	97	97	13	0	0	207
Q3	102	94	11	0	0	207
Q4	98	100	9	0	0	207
Q5	97	96	14	0	0	207
Q6	97	96	14	0	0	207
Q7	99	95	13	0	0	207

Table 11. Respondents opinion on Economic activities and Economic Growth.

Item	SD	D	NV	A	SA	Total
Q8	0	7	81	101	18	207
Q9	0	19	72	97	19	207
Q10	3	44	54	83	23	207
Q11	4	14	77	88	24	207
Q12	2	7	58	100	40	207
Q13	4	96	59	39	9	207
Q14	23	12	56	101	15	207

Eq. (1) indicates that a unit change in economic activities and circular flow of income as a result of the COVID-19 lockdown, that is, reduction in economic activities and circular flow of income as a result of the COVID-19 lockdown will lead to 4.6% and 26% reduction in economic growth (note that the questions were put in negative form). The computed t values and associated significant probabilities are 8.324 ($P < 0.001$), 2.468 ($P < 0.001$) and 3.264 ($P < 0.001$) for constant, economic activities and circular flow of income respectively. The implication is that constraints to the economic activities and circular flow of income significantly constrain economic growth at a one per cent (1%) level (See Table 13.2).

4.3. Discussion of findings

The first hypothesis was tested to examine whether the COVID-19 pandemic has had any significant influence on economic activities in

Table 12. Respondents' opinion on economic growth.

Item	SD	D	NV	A	SA	Total
Q15	1	34	57	87	28	207
Q16	6	24	51	97	29	207
Q17	3	9	48	108	39	207

Table 13. Respondents opinion of circular flow of income.

Item	SD	D	NV	A	SA	Total
Q18	0	7	81	101	18	207
Q19	0	19	72	97	19	207
Q20	3	44	5	83	23	207

Table 13.1. ANOVA table.

Model	Sum of Squares	df.	Mean Square	F.	Sig
Regression	5.988	2	2.994	5.752	0.004
Residual	106.190	204	0.521		
Total	112.178	206			

Dependent variable: Economic Growth.
 Predictors: (constant), circular flow of income and economic activities.

Table 13.2. Coefficients.

Model	Unstandardized Coefficients		Standardized Coefficients		Sig
	B	Std. Error	Beta	t	
Constant	2.794	0.336	8.324	0.000	
Economic Activities	0.046	0.091	0.034	2.468	0.000
Circular flow of Income	0.260	0.080	0.224	3.264	0.001

Dependent variable: Economic Growth.
 Source: Author's computation.

Nigeria. The items examined respondents' perception of the degree of economic activities on a five-point Likert scale. The results indicated a significant negative difference at the one per cent level, thus situating respondents' perception of economic activities as low. The implication is that the COVID-19 pandemic has constrained economic activities in Nigeria. The results are consistent with Ozili (2020a), Ozili (2020b), Teachout and Zipfel (2020) as well as Dzobo et al. (2020).

The second hypothesis was tested to examine whether the COVID-19 pandemic has had any significant influence on the circular flow of income in Nigeria. The items examined the extent to which respondents agreed that the lockdown, in the wake of the COVID-19 pandemic, had constrained the circular flow of income in Nigeria using a five-point Likert scale. The results indicated a significant positive difference at the one per cent level, thus indicating that the COVID-19 pandemic has significantly constrained the perceived circular flow of income in

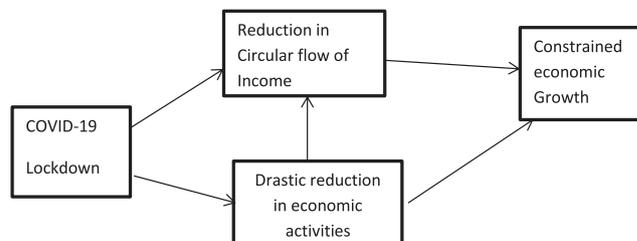


Figure 1. Proposed model of COVID-19 lockdown and opinion on economic growth in Nigeria.

Nigeria. The results are consistent with Feng (2020) and Galeotti and Bayry (2020).

The third hypothesis was tested to examine the relationship between restrictions of economic activities as a result of the COVID-19 lockdown and economic growth in Nigeria. Results of the least-squares test indicate that there was a positive relationship between COVID-19-induced lockdown economic activities and economic growth, thus indicating that the more the restriction on the circular flow of income owing to COVID-19 induced economic lockdown, the higher the constraints to economic growth. Furthermore, the result was statistically significant at the one per cent level, thus indicating that constrained economic activities occasioned by the COVID-19 pandemic lockdown have significantly influenced economic growth. The results are consistent with Ozili (2020a), Ozili (2020b), Teachout and Zipfel (2020) as well as Dzobo et al. (2020). The significance of the results is a confirmation that the COVID-19 pandemic has significantly constrained economic activities and that the constraint to economic activities is having its toll on economic growth in Nigeria.

The fourth hypothesis was tested to examine the relationship between restrictions of the circular flow of income as a result of the COVID-19 lockdown and economic growth in Nigeria. Results of the least square test indicate that there was a positive relationship between COVID-19 induced lockdown circular flow of income and economic growth, thus indicating that the more the restriction on the circular flow of income owing to COVID-19 induced economic lockdown, the higher the degree of constrained economic growth. Given that demand is a major stimulant of the circular flow of income vis-à-vis the fact that deficiency in demand is a predictor of negative economic growth. This result is consistent with Blecker (2014).

4.4. Proposed model of COVID-19 and economic stagnation/recession

Given the findings, a model of COVID-19 and economic growth/recession was proposed. The model shows the perceived consequences of lockdown on the circular flow of income. The lockdown caused by the COVID-19 pandemic can influence the circular flow of income through the crippling of economic activities and idleness of productive factors as well as through a reduction in firms' earnings due to deficiency in household demand, leading to a reduction in company taxes (see Figure 1).

4.5. Implication of findings

The results of the secondary data analysis indicate that the percentage increase in infectious was 157.3% in two weeks while the percentage change in deaths was 182.76% in two weeks. If this trend continues, economic inactivity will be prolonged, necessitating increased transfer payments to cushion the effect of the lockdown on the poor. Combining these transfer payments with the cost of managing the COVID-19 pandemic will cause the economy to go into recession with attendant consequences. To this end, the need for policymakers to take deliberate steps to curtail the pandemic becomes very expedient. No effort should be spared in seeking homegrown treatment as Madagascar has done. This will help to rule out the likelihood of the activities of external conspirators in fuelling the pandemic. Furthermore, there is the need for policymakers to begin to recognise that health is wealth and thus give the health sector the attention that it deserves through adequate budgetary allocation and monitoring to ensure that adequate facilities and equipment are provided to ensure that the health system is up and doing.

5. Conclusion

This study concludes, based on respondents' opinions and attitudes, that the COVID-19 induced-lockdown has significantly constrained economic activities and hence, the circular flow of income in Nigeria.

Furthermore, the perceived reduction in economic activities and the circular flow of income has precipitated challenges to economic growth in most economies and if the trend continues unabated, it may lead to an economic recession. This study has made a significant contribution to knowledge in the social and management sciences. It is the first empirical study to have embarked on this problem in this magnitude. Secondly, it has modelled the economic consequences of the COVID-19 pandemic, thereby creating the necessary awareness for policymakers and relevant stakeholders on the need to manage the pandemic adequately to prevent economic decadence through a possible stagnation-induced recession. The proposed model of COVID-19 and economic growth/recession will prove useful to stakeholders in analysing the economic impact of COVID-19.

The study encountered some limitations which suggest the need for further studies. Firstly, the dearth of extant studies on the research problem constrained the researcher's ability to review different perspectives of the pandemic. Nevertheless, this setback motivated the focus on the current title, which the researcher is convinced will attract the interest of stakeholders. Furthermore, the COVID-19 induced lockdown made it extremely difficult to elicit data from respondents on a face-to-face basis. However, this limitation was curtailed by the use of the online administration of the research instrument. The daily updates on COVID-19 infections, recoveries and fatalities by the Nigeria Centre for Disease Control (NCDC) was useful in the collection of secondary data. Future studies in the post-COVID-19 period should leverage the benefits of the post-lockdown period to employ a face-to-face method in data collection to examine whether the responses will differ.

Declarations

Author contribution statement

Henry Egbezien Inegbedion: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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The authors declare no conflict of interest.

Additional information

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