



# **Managing Financial Inclusion Strategies and Economic Stimulation Effect in Nigeria within the COVID-19 Era**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

In order to chart the future paths of Nigerian economy response to financial inclusion behavior, it becomes necessary to investigate the connectivity between Financial Inclusion strategies in the phase of Covid-19 scourge and the economic stimulation effect. Against this backdrop and taking memory stock, this study assessed financial inclusion strategies and the economic stimulation Effect in Nigeria within the Covid-19 era. The assessment adopted financial accessibility (FA), Capital market (CM) Inclusion, Insurance Sector (IS) Inclusion, Informal financial product (FP), Money Outside (MO) the Banking system, and Informal Sector Mobilized Deposit (DM) for financial inclusion strategies, while the economic stimulation effect were proxies with the gross domestic product per capita. The study adopted a Time series data between 1992 and 2019 extracted from the Central Bank of Nigeria Statistical bulletin, and further applied the Autoregressive Distributed Lag (ARDL) methodology for the analysis. The study found a negative and significant relationship between Money Outside the Banking system, and Insurance Sector and economic stimulation. The study however found a positive and insignificant relationships between DM, FA, FP, CM and economic stimulation in Nigeria within the covid-19 era. The study recommended for a full and deepen financial inclusion society to capture the vulnerable and rural excluded populace of Nigerian environment. Finally, conventional banks should spread more Auto Teller Machine retail outlet and financial education especially in rural areas.

**Keywords:** *Financial inclusion activities; economic stimulation effect; ARDL methodology.*

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## 1. INTRODUCTION

The virus popularly called Covid-19 is an outbreak air disease with unconfirmed cases that claimed many lives in Nigeria. According to the National Centre for Diseases Control (NCDC) in March 18, 2021, about 161,409 confirmed cases, discharged cases 146,890 and 2,027 deaths has been reported. In Nigeria like other countries over the world did not lost lives alone, the economic activities were also paralyzed and disrupted. The international trading was on a halted since flights and ships were not allowed to operate henceforth. The Nigerian financial institutions were among of those sectors been affected. Both the federal and state government impose lockdown curfew restricting movement of people, goods and services. The Nigerian economic was unable to stimulate as was expected. Customers were unable accessed funds in their banking halls or Automated Teller Machine (ATM) outlets. The country was fast recovery from recession of the 2016/2017 and it becomes a nightmare to the top government official in position of trust. Recently the World Bank report on the Nigeria economy as at July 2019 and 2020 reflected that Nigeria is one of the countries with the highest economic growth rate of 8.14% and the Africa largest economy endowed with massive natural resources with an increase population of about 220million, yet with inimical level of poverty compare to other African countries. Its current poverty level stood at 40.2%; with 50.4% of its population living below the poverty line of a dollar per day [1]. The increased poverty rate is however linked or traced to financial exclusion as reported by Obalade and Obisesan, [2]; Sanusi [3]; and Uchenna, Ibukun and Evans, [4].

Financial inclusion was conceived within the scope of this study as the availability of a range of financial services at an affordable cost to all segments of the population or society particularly the disadvantaged and low-income groups. Financial inclusion is about liberalization of access to a complete suite or kit of financial services for all those that were willing and able to afford. It consists of availability of comprehensive financial services, unhindered access to all financial services, affordability and easy access to financial services and the existence of sound financial institutions within the conferment of a state. According to the Central Bank Nigeria publication in 2012 as cited in Onaolapo, [5] described financial inclusion that involves ease of access, availability and usage of the formal

financial system by all members of the economy. Financial inclusion is achieved when adult Nigerians have easy access to a broad range of formal financial services that meet their needs at affordable cost without unethical constraint.

Some critical functions of development finance in the financial system settings were to tactically reduce financial exclusion, promote a more financially inclusive society through the development of a diversified/variety of institutional economy arrangements for financial services and products delivery, funding in order to facilitate the realization of monetary and price stability goal through increased savings, investment and productivity. These financial inclusion strategies were aimed to widen the scope of gainful intermediation services that will assist and mop up the excess cash in the informal financial sector (non-banking public) and channel same to investors who could not access investible funds in actualizing their juicy investment plans. The enlarged intermediation strategies would trigger the economy to achieve allocation efficiency. When the financial system intermediation through its financial inclusion role succeeds in plugging the resources gap in the nation's financial system, it resolves the financial imbalance that will exist between the non-banking surplus and deficit economic units in the economy, then allocation efficiency would be achieved.

However, in the Nigerian context, especially in this critical time of global economic caused by pandemic of COVID-19 outbreak, there appear to be a signal of financial disequilibrium in the financial system. This was identified from the inequities in accessing financial products. Meanwhile, one of the operational responsibilities of the Nigerian financial system is to help close the resources gap and reduce the financial intermediation inefficiency through the financial inclusion mechanism, unfortunately the reverse was the case in Nigeria. According to the Global Findex Survey, the financial inclusion gender gap persisted at 9% between 2014 and 2017 with Women often faced with peculiar challenges in accessing financial products and services hindering the effective contribution of 50% of the global population to growth and development. However, the National Bureau of Statistics reported in 2020, showed that the Nigerian Financial exclusion rate has dropped from 46.3% to 36.8% with 41.1% of women financially excluded in comparison to 32.6% of men. The gender Financial Inclusion gap in Nigeria

therefore stood at 8.5%. again, before then, in 2019, as part of efforts to achieved 80% financial Inclusion in Nigeria, a Financial Inclusion Gender desk was established within the Financial Inclusion Secretariat to drive implementation of policies, schemes and interventions targeted at improving women's access to finance. The Financial Inclusion Gender desk came up with report of insufficient of funding, low level of education and lack of trust in the financial services were major causes of gender financial exclusion in Nigeria. This implied that financial accessibility is a necessary policy tool that needed to be employed by the managers of the economy to fight against financial exclusion and economic growth, given its ability in facilitating efficient allocation of scarce productive resources and reducing the high cost of capitals [6].

The economy would feel the effect of the financial inclusion strategies positively when the ratio of bank loan account per population, bank deposit account per population, deposit and loan per population and the experience of customers demonstrated in their attitudes and opinion towards financial products were on the increase. This will however improve the economic welfare of low-income bracket and increase their access to wider financial services with capacity to raise or stabilize income and build resilience against economic shocks. However, the escalating quantum of cash found outside the formal financial system and the increasing percentage of financially excluded adults from the formal financial sector in Nigeria constituted to some of the worries for this study. Having followed the efforts of the Central Bank of Nigeria (CBN) and the deposit money banks to strategically include more adult Nigeria in the formal financial system, it is expected that there should be poverty reduction and increase productivity since financial inclusion is seen to increase the income earning capacity of economic agents by providing opportunity for the agents to be economically engaged. Instead, income and productivity were fast dwindling toward the vanishing point and this also constituted another motivation of the study. Since most of the government economic policies were geared towards strengthening the formal economy and little attention is paid to the informal sector of the economy, the relatively poor rates at which domestic savings in Nigeria was growing was a source of worry to policy makers in Nigeria. Recent empirical studies in Nigeria stated that to a growing syndrome of the informal sector [7,8]. This hampers the savings mobilization efforts of

deposit money banks and other financial institutions in Nigeria because most informal sector transactions were conducted in cash-basis to avoid official detection [9].

In view of the above, there is urgent need to assess the effect of the financial inclusion strategies on the Nigerian economy within the period of fair covid-19 era. The study adopted the financial inclusion strategies to be considered in this study include, financial accessibility, Informal financial products, money outside the banking system, deposit mobilization to informal sector, insurance sector inclusion, and capital market inclusion. It is therefore imperative that the causes of these dwindling income and productivity in the face of increased strategy for financial inclusion in Nigeria be clearly understood considering the present situation of the world economy prior to the recent covid-19 outbreak. Based on this, the study aimed to assess the management of financial inclusion strategies and economic stimulation effect in Nigeria within the covid-19 era. The utility of this work was embedded in the fact that the volume of output and income are functions of the financial inclusion strategies measures in Nigeria. The findings of this study were expected to be significant to policymakers, the industrial practitioners, scholars/academic as well as the general public. This is for the fact such pandemic has never been experienced and destructive. So, the findings may give path for any forthcoming deadly scourge outbreak. Going by this aim, the objective of this study was sought to:

- i. Investigate the nexus between financial accessibility and Gross Domestic Product per capita in Nigeria.
- ii. Examine the link between Informal financial products and Gross Domestic Product per capita in Nigeria
- iii. Analyze the association between Money outside the Banking System and Gross Domestic Product per capita in Nigeria
- iv. Evaluate the nexus between Informal Sector Mobilized Deposit and Gross Domestic Product per capita in Nigeria
- v. Assess the relationship between Insurance sector inclusion and Gross Domestic Product per capita in Nigeria
- vi. Appraise the nexus between Capital market inclusion and Gross Domestic Product per capita in Nigeria.

Theoretically, the following questions were asked to show empirical evidence on the above objectives:

- i. What is the nexus between financial accessibility and Gross Domestic Product per capita in Nigeria?
- ii. To what extent is the link between Informal financial products and Gross Domestic Product per capita in Nigeria
- iii. What is the degree of association between Money outside the Banking System and Gross Domestic Product per capita in Nigeria?
- iv. What is the nexus between Informal Sector Mobilized Deposit and Gross Domestic Product per capita in Nigeria?
- v. What is the extent of the relationship between Insurance sector inclusion and Gross Domestic Product per capita in Nigeria?
- vi. What is the nexus between Capital market inclusion and Gross Domestic Product per capita in Nigeria?

## 2. THEORETICAL FRAMEWORK

### 2.1 Dissatisfactory Theory of Financial Inclusion

This theory was propounded by Ozil [10] in a study titled *theories of financial inclusion*. The theory posited that in the government financial inclusion programs or strategies, the ex-account holder in the formal financial institution that left the bank account due to dissatisfaction emanating from sharp practices in the institution should be the first target. The rationale behind this ideology was that it is cheaper to capture the previously existing account holder than capturing the new customers. The dissatisfaction which resulted to exit of the previous account holder can be amended, managed and resolved through persuasion. The theory further stated that dissatisfaction could occur in the formal financial institution in various ways. Some of the ways identified in the hypothesis includes; when customers are victims of financial fraud, debit or credit card fraud, financial theft, long waiting hours before depositors are able to withdraw funds, taking too long before payments are cleared, high transaction costs, excessive bank charges, etc. The implication of this theory was that it is easier to financially include previous bank customers account holder that have abandon their account being dormant due to dissatisfaction than focusing on the new populace that have; never been member of the formal financial institution.

### 2.2 Vulnerable Group Theory of Financial Inclusion

The theory postulated that the vulnerable are the most excluded set of people in the formal financial products and strategies. This is because the vulnerable lacks the basic requirement to access financial product from the formal financial institution. This theory was also propounded by Ozil [10] and further explained that in the financial inclusion exercise of the government, the vulnerable members of society like those below average, young youths, women and elderly citizens that suffered more from economic hardship. And that such crisis group should be the target. The vulnerable identified by this theory were those set previously own a bank account. In other word, the vulnerable citizens who own an account should be captured in the financial inclusion programs of the country. This is because it is easy to capture those vulnerable at some point that owned an account and probably stop operating such account dues to some reason that is not too far from economic hardship. The theory however suggested that government financial inclusion programs can bring closer the relationship between the formal financial institution and vulnerable citizens. This relationship could be achieved through government to-person (G2P) social cash transfers into the formal account of vulnerable people. This government to-person (G2P) fund transfer may help in strengthening the vulnerable financial capacity. It may further help in encouraging other vulnerable group to open an account with the formal financial institution as this is the only requirement to benefit government fund transfer. The theory also explained that when other financial inclusion strategies are extended to the vulnerable group, it gives them the feelings of being compensated for the already existing income inequalities gap and further usher privileges to catch up with other segment of the society.

This study however showed a departure from the vulnerable inclusion theory as the theory can only be applicable in a country with vast data base to capture the numbers of vulnerable account holders. It is arguably that in Nigerian, there is no robust data base to capture the degree of vulnerable citizens, in this sense, the financial inclusion program might become a mirage and exercise designed to enrich the first-class citizens because the real vulnerable populace in Nigeria does not operate a bank account. Consequently, the theory can further be

justified and applicable to most African countries if the classes or categories of vulnerable citizens are itemized or measured. This is because those referred to as vulnerable in the United Kingdom, United States, Russian and other European countries could be the second class or middle-class citizens in most of the African countries. Hence, giving proper clarifications or degree of vulnerability will further help in the general acceptability of the theory.

### 2.3 Empirical Review

More recent studies have assessed the financial strategies and its impact on economic growth rate. One of these studies is the work of Erlando, Riyanto and Samakazu [11] that investigated financial inclusion, economic growth and poverty alleviation in the eastern Indonesia. The study used time series and descriptive analysis of the Indonesian region. The Toda Yamamoto vector auto regressive model was incorporated into the study. The study however outlined that the income inequality distribution in the eastern Indonesian was a factor that contributed to financial exclusion in the country. Within the conferment of the study, a significant relationship was identified between financial inclusion, economic growth, poverty alleviation and income distribution in the eastern Indonesia. Meanwhile, financial inclusion was said to have occurred in the eastern Indonesia due to income inequalities different social cultural level and gender inequalities.

Nwanfor and Yomi [12] analyzed the nexus between financial inclusion and economic growth in Nigeria between the period 1991 and 2016. The study measured financial inclusion using Financial Deepening Index expressed as Broad Money Supply to GDP, Financial Deepening Index expressed as Bank Credit to GDP, Commercial Banks Deposit from Rural Areas, Commercial Bank Loans to Rural Areas, Commercial Bank Loan to Deposit Ratio, Commercial Bank Loan to Small and Medium Scale Enterprises, while gross domestic product was a measure of economic growth. The least square regression methodology was employed. Findings revealed that financial inclusion have a significant impact on the Nigerian economy, and that financial industry intermediation have not influenced financial inclusion within the period under review.

Harley, Adegoke and Adegbola [13] examined the relationship between financial inclusion,

economic growth and poverty alleviation in developing countries using the panel methodology. The study scope covered the periods 2006 to 2015 while three African countries were under investigation. The records of active ATM, bank branches and government expenditures selected from three Africa countries were the most robust predictors for financial inclusion while the gross domestic product was a measure of economic growth. The finding showed that ATM in developing economy was outdated and thus required a technological upgrade to have a significant impact in rural areas. The coefficient of determination was high as it showed that about 92 percent of the total variations in real growth rate of gross domestic product were explained by all the independent variables in the model.

Gretta [14] evaluated the development countries in the Middle East and middle north of the African region. The study proxies' financial inclusion using financial literacy, financial intermediaries' ratios and numbers of automated teller machine in operation. The study employed the vector auto-regression methodology to identify the relationship between financial inclusion strategies, financial literacy and growth. The results showed that financial inclusion strategies in the Middle East and North African were mild, and could not go round the populace. Hence, larger percentage of the populace are not covered in the financial inclusion strategies.

Okoye, Adetiloye, Erin and Modebe [15] investigated financial inclusion as a strategy to accelerate economic growth and development in Nigeria using secondary data between the periods 1986 to 2015. The study employed the ordinary least square technique in analyzing the data. The study measured financial inclusion using loan to deposit ratio, financial deepening indicators, loan to rural areas and branch network. Measures of financial deepening adopted in the study were ratios of private sector credit to GDP and broad money supply to GDP. The economic growth was proxies as growth in GDP over successive periods while per capita income was adopted as a measure of poverty, hence an index of development. The findings revealed that ratio of broad money supply to GDP, ratio of loan to deposit and liquidity ratio of commercial banks significantly boost economic growth in Nigeria. Although, the economic development nexus that transpired did not significantly showed that financial inclusion has a help in promoting the Nigerian economy.

Uwajumogu, Ogbonna and Ojike [16] evaluated the impact of financial sector liberalization on the financial landscape of rural Nigeria represented by resource mobilization and allocation using time series data from 1981 to 2014. The study was motivated by the high level of financial exclusion in the rural area and the search for solution to this problem. The study adopted Autoregressive Distributed Lag (ARDL) model as the preferred method of analyzing the data. It was found that financial liberalization had a significant impact on the rural financial landscape. Specifically, the study found an increase number of bank branches in the rural areas insignificantly improved resource mobilization but had significant positive effect on the allocation. It was also found that lending rates significantly encourages resource allocation while deposit rates encouraged resource mobilization, though insignificant.

Nkwede [17] examined the African financial inclusion scenario and how it can boost African economy using Nigeria as case study. The study developed a model to capture some existing challenges in the African wing and how the predicament has hindered economic growth in West Africa. The study found a negative relationship between financial inclusion proxies and economic growth in Nigeria. These results however were referenced point to other African countries as Nigeria is presumed to be the giant of Africa.

Migap, Okwanya and Ojeka [18] investigated the Nigerian financial inclusion tactics as a parameter for inclusion economic growth in Nigeria using time series data between the periods 1980 to 2013. The study adopted the financial index of some emerging economies in the upper- and middle-income countries both in African and Asian. The results showed that indicators of financial inclusion in Nigeria were shallow compared to all other African countries under investigation.

Ifionu and Reginald [19] analyzed the nexus between informal financial sector and economic growth syndrome in Nigeria. The study sourced for data from the relevant statistical bulletin between the periods 1981 to 2013. The data were equally subjected to stationary test alongside long run co-integration test. Informal financial sector was measured using insurance sector contribution, rate of interest, total saving and deposit with the financial institution. The findings revealed that informal financial institution

and services has a negative impact on the Nigerian economic growth over time.

### 3. METHODOLOGY

To establish the significance of the study variables, the study employed the econometrics research design where data were sourced from the Central Bank of Nigeria (CBN) Statistical bulletin between 1992 and 2019. The studied variables under assessment include, financial accessibility, Informal financial products, Money outside the Banking System, Deposit Mobilization to Informal Sector, Insurance sector inclusion and Capital market inclusion while Gross Domestic Product per capita in Nigeria was proxies for economic simulation.

#### 3.1 Model Clarification

The functional form the model can be formulated thus:

$$GDPPC_t = f(FA, FP, MO, DM, IS, CM) \quad (1)$$

Transforming the functional form into a mathematic equation by introducing slope and coefficient, thus:

$$GDPPC_t = \beta_0 + \beta_1FA_t + \beta_2FP_t + \beta_3MO_t + \beta_4DM_t + \beta_5IS_t + \beta_6CM_t \quad (2)$$

To introduce error term to the above equation into econometrics, thus:

$$GDPPC_t = \beta_0 + \beta_1FA_t + \beta_2FP_t + \beta_3MO_t + \beta_4DM_t + \beta_5IS_t + \beta_6CM_t + \lambda_t \quad (3)$$

Where;

- GDPPc = Gross Domestic Product
- FA = Financial Accessibility
- FP = Informal financial product
- MO = Money outside the Banking system
- DM = Informal Sector Mobilized Deposit
- IS = Insurance Sector Inclusion
- CM = Capital market Inclusion
- $\beta_0$  = Constant Term
- $\beta_1 - \beta_6$  = Coefficients of variables
- $\lambda_t$  = Error term

#### 3.2 A-priori Expectation

The expected relationship between the studied variables differs, as suggested by the various literature review. As such, the relationships in a mathematically form according:

$$\beta_1, \beta_2, \beta_4, \beta_5, \beta_6, > 0. \beta_3 < 0$$

This showed that only money outside bank (MO) can create a significant negative in economic growth as theoretically stated. While other variables in the model possess positive theoretical expectation.

### 3.3 Operational Definition of Variables

**Gross Domestic Product Per Capita (GAPC):** GDPC was captured as the growth rate of real gross domestic output aggregate of all classified sectors in Nigeria dividend by the total population during the covid-19 outbreak.

**Financial Accessibility (FA):** FA was captured by the totality of financial institution outlets in operation especially banking halls which include microfinance institutions and deposit money banks both in the rural and urban area.

**Informal Financial Products (FP):** FP was captured as the various credit packages delivered by the financial institutions and aggregate credit services disbursed to the informal, rural sector including microcredits.

**Money Outside Bank (MO):** MO was captured by changes in the rate of currency outside the banking hall.

**Informal Sector Mobilized Deposit (DM):** DM was captured by the rate of changes in savings generated by the deposit money bank and microfinance banks both in the rural and urban areas.

**Insurance Sector Inclusion (SI):** SI was conceptualized as the total policies sold to insurance client and the rate of income generated from premiums on various insurance policies.

**Capital Market Inclusion (CM):** CM was conceptualized using the total volume of monetary activities and transaction in the capital market.

**Estimation Tools for Analysis:** This study employed the following estimation tools

- i. **Unit Root Test:** The unit root test is a test of reliability that sought to establish the reliability strength of the data. Following the postulation of Gujarati and Porter 2009, that time series data are prone to

stationary problems, data are subjected to unit root test to avoid having spurious result.

Considering the nature of the data scope 1992-2019 (27 years), this study adopted the Autoregressive distributive lag (ARDL) mechanism. This model is used basically on two conditions: (i) when the number of observations or sample size under consideration is less than 30 years. ( $N < 30$ ) and when there is a mixed stationary response of the time series under investigation. That is, when data becomes stationary at order 1(1) and order 1(0), Autoregressive distributive lag (ARDL) mechanism is appropriate. On this assertion, the Autoregressive distributive lag (ARDL) mechanism could be designed thus:

$$yt = \beta_0 + \beta_1 t \sum_{i=1}^p \phi_i yt - 1 + \beta xt + \sum_{i=0}^p \beta_i + \Delta xt - 1 + \pi t \quad (4)$$

Where  $x_t$  represents the dimension of 1(1) variable which is stationary;  $\beta_1$  represents the matrix which makes autoregressive process stable;  $yt$  is the lag of the explained variable while  $\pi t$  is the error term. As such, the model relationship of the employed variables which showed the dynamic relationship between E-banking and economic growth in Nigeria below:

The Auto Regressive Distributive Lag Modelling was designed with the inclusion of lag of the explained variables, thus:

$$GDPPC_t = a_0 + \sum_{i=1}^p a_1 GDPPC_{t-1} + \sum_{i=1}^p a_2 FA_{t-1} + \sum_{i=1}^p a_3 FP_{t-1} + \sum_{i=1}^p a_4 MO_{t-1} + \sum_{i=1}^p a_5 DM_{t-1} + \sum_{i=1}^p a_6 IS_{t-1} + \sum_{i=1}^p a_7 CM_{t-1} + \bar{a}_2 FA_{t-1} + \bar{a}_3 FP_{t-1} + \bar{a}_4 MO_{t-1} + \bar{a}_5 DM_{t-1} + \bar{a}_6 IS_{t-1} + \bar{a}_7 CM_{t-1} + \pi t \quad (5)$$

$a_0$  is the constant, where  $l = 1, 2, 3, 4, 5, 6, 7$  signified short term coefficients which reflects short term effect of independent variables on economic simulation and  $\bar{a}_{2,3,4,5,6,7}$  reflect the long-term co-integration coefficient of the independent variables which affect the dependent variable.

- ii. **Granger Causality Test:** This sought to test for the influence of one variable on the other. Since the topic was to examine the behavior of macroeconomic variables on government spending, this estimation tool would help in ascertaining the influence of one variable on the other.

**4. DATA PRESENTATION AND RESULTS DISCUSSION**

**4.1 Result Interpretation and Discussion**

Time series data are prone to stationary problems (Gujarati and Porter, 2009), to establish a stationary stability among the studied variables, we subjected our series to unit root test using the augmented dickey fuller test accordingly. Result of the test is presented in Table 1.

The results in Table 2 showed a mixed stationary level among the studied variables thus conforming to the ARDL methodology. The study found that IS, CM, FA and GPPc are stationary at 1<sup>st</sup> differencing while FP, MO and DM are

stationary at level. Hence, mixed stationarity level of 1(0) and 1(1) was identified. Therefore, this justified the rationale behind the use of ARDL methodology.

The null hypothesis was that there is no long run relationship among employed variable. Hence, the study accepts the null hypothesis if the critical value of the bound test is greater than the F- statistics and reject if otherwise. From the result presented in Table 3, the test statistics exhibited a high F-statistics of 5.82311 which is greater than the critical value bounds at all level. Hence, null hypothesis was not accepted and thus concludes that there exists a long run relationship among the employed variables under investigation.

**Table 1. Data Presentation of GPPc = Gross Domestic Product per capita, FA = financial accessibility, FP = informal financial product, MO = Money outside the banking sector, DM = Informal sector mobilized deposit, IS = Insurance sector inclusion and CM = Capital market inclusion from 1992 to 2019**

Year	GPPc	FA	FP	MO	DM	IS	CM
1992	243.1552	1108	135.8	58.97309	25.65815	0	32.59166
1993	239.9807	1386	654.5	57.37786	242.1201	0	48.29199
1994	233.7013	1665	1220.6	56.627	47.0021	0	65.5981
1995	231.2864	1446	1129.8	17.92745	-11.8786	0	173.7121
1996	233.8551	1368	1400.2	8.683298	1.471107	0	267.8287
1997	233.889	1349	1618.8	12.52747	10.62476	0	257.0907
1998	233.2902	1266	2526.8	19.93457	39.98554	0	233.07
1999	228.2372	1264	2958.3	18.97692	-7.04685	0	259.1345
2000	234.375	1603	3666.595	46.95724	85.71998	0	397.0576
2001	243.3081	1469	13655	23.59784	162.3078	0	542.011
2002	271.3683	1491	13253.1	14.2531	21.76957	0.079007	609.0453
2003	289.1878	1496	21206.7	6.515933	57.27012	0.091189	1053.313
2004	310.8241	1475	45472.3	11.26549	122.379	0.09687	1593.137
2005	323.7017	1479	44610.3	22.81914	-23.1814	0.177078	2128.484
2006	336.238	1788	40724.8	15.57291	-43.7206	0.185414	3657.786
2007	351.161	2116	50113.7	13.35348	19.29029	0.201473	9163.497
2008	366.3709	2284	89274.54	20.98052	69.25487	0.259654	6469.772
2009	386.3316	2518	73806.16	3.871603	6.639538	1.293824	4629.512
2010	411.8572	2567	69423.48	16.72266	-5.25004	0.813242	6355.79
2011	422.0994	2274	70908.6	15.04583	-21.6001	2.906138	6408.472
2012	428.0707	2575	113002.2	4.499533	66.35579	32.78298	8983.881
2013	439.4767	2503	833978.9	11.18231	23.27654	44.81633	11269.74
2014	454.3183	2334	981057.9	-0.64032	-8.80342	58.00286	9701.68
2015	454.4935	2444	223439.5	1.300946	118.0483	69.94717	9524.999
2016	435.3171	2632	235207.5	25.02025	0.684128	85.28058	8839.428
2017	427.1609	2651	369669.1	1.293881	14.71547	42.59794	10055.15
2018	423.7331	2714	389076	3.15534	12.7754	44.961	10543.49
2019	432.9023	2801	391083	4.30292	13.4353	45.6738	10892.2

Source: Extraction from Central bank of Nigeria Statistical bulletin (2019)

**Table 2. Presentation of stationary test**

Variable	ADF t-statistics	Critical Value 5%			Order of Integration	Prob.
		1%	5%	10%		
D(GDPPc)	-5.148618	-3.639407	-2.951125	-2.614300	I(1)	0.0002
D(FA)	-4.99469	-3.71145	-2.981038	-2.62990	I(1)	0.0004
D(FP)	-3.788030	-3.01236	-3.00509	-2.64611	I(0)	0.0048
D(MO)	-3.65687	-3.19987	-2.97626	-2.62742	I(0)	0.0335
D(DM)	-4.238113	-3.632900	-2.948404	-2.612874	I(0)	0.0021
D(IS)	-4.77377	3.711457	2.981038	2.62990	I(1)	0.0008
D(CM)	-6.04061	-3.71145	-2.98103	-2.62990	I(1)	0.0000

Source: Extraction from E-view Output

**Table 3. Presentation of bound test result**

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic K	5.823114 6	10%	1.99	2.94
		5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99
Actual Sample Size	27	Asymptotic: n=1000		
		10%	2.254	3.388
		5%	2.685	3.96
		1%	3.713	5.326
		Finite Sample: n=35		
		10%	2.334	3.515
		5%	2.794	4.148
		1%	3.976	5.691

Source: Extraction from E-view Output

The results of the dynamic regression in Table 4 showed that the proxies for financial inclusion strategies identified in this study, only two appeared to be negative and significant in boosting economic stimulation in Nigeria, while the other variables four appeared to be insignificant. In essence, Money outside the Banking system and Insurance Sector Inclusion exhibited a significant P-value of 0.0432 and 0.002 respectively alongside a negative coefficient of -0.3143 and -0.5350 respectively. Thus, suggested an existence of inverse relationship among the series. By implication, the results suggested that further increase in money outside the banking system will bring decrease in economic stimulation to the turn of 0.31436 unit leaving more citizens financially excluded. The results were in line with the *a priori* expectation and economic reasoning.

Further, the insurance sector inclusion exhibited a significant nexus with economy stimulation, but in a negative manner. The negative contribution

of insurance sector inclusion to economic stimulation could however be attributed to mild level of initiative awareness about insurance product and services to the citizens alongside the loss of confidence of citizens on insurance product and services thereby keeping more citizens off insurance product. Oftentimes, the uneducated circle which occupy the largest percentage of the Nigerian populace have little or no idea about the benefit attached to insurance policies, as such are largely excluded from the financial system activities. Other financial inclusion activities like financial accessibility, informal financial product and informal sector mobilized deposit did not significantly boost the economic stimulation in Nigeria. This was identified from insignificant P-value of 0.6978, 0.0657 and 0.1686 respectively. By implication, this sets of financial inclusion strategies did not boost economic stimulation at the moment, but could eventually contribute to the growth of the economy in the future if proper economic and financial policies are put into action.

**Table 4. Presentation of dynamic results**

Dependent Variable: GDPPC  
 Method: ARDL  
 Date: 02/22/21 Time: 14:34  
 Sample (adjusted): 1993 2019  
 Included observations: 27 after adjustments  
 Maximum dependent lags: 1 (Automatic selection)  
 Model selection method: Akaike info criterion (AIC)  
 Dynamic regressors (0 lag, automatic): CM DM FA FP IS MO  
 Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDPPC(-1)	1.093346	0.078450	13.93678	0.0000
CM	-0.001189	0.001528	-0.778199	0.4460
DM	0.042451	0.029662	1.431172	0.1686
FA	0.004136	0.010490	0.394267	0.6978
FP	2.10E-05	1.07E-05	1.952693	0.0657
IS	-0.535055	0.118155	-4.528411	0.0002
MO	-0.314368	0.145146	-2.165873	0.0432
C	-17.30882	17.80509	-0.972127	0.3432
R-squared	0.993268	Mean dependent var		336.1680
Adjusted R-squared	0.990787	S.D. dependent var		87.50454
S.E. of regression	8.398846	Akaike info criterion		7.335260
Sum squared resid	1340.272	Schwarz criterion		7.719212
Log likelihood	-91.02601	Hannan-Quinn criter.		7.449429
F-statistic	400.4641	Durbin-Watson stat		1.573985
Prob(F-statistic)	0.000000			

\*Note: p-values and any subsequent tests do not account for model selection.

Source: Extraction from E-views Output

From the global statistics, findings showed the utility of satisfaction which stood at 0.9932 while the adjusted coefficient of determination exhibited a coefficient of 0.99078 thus suggesting that financial inclusion activities amounted for variation in economic stimulation to the tune of 99 units. The Durbin Watson statistics with the coefficient of 1.5739 suggested absence of auto-correlation. Meanwhile, the overall F-statistics coefficient of 400.46 alongside a significant P-value of 0.0000 affirm the overall significance of the model. To further justify the efficacy of this model, the ARDL was subjected to diagnostic test as this will enable to ascertain the model justification.

**4.2 Residual Test**

To ascertain reliability of the results presented above, the study introduced residual diagnostic test accordingly.

These tests were residual test that helped to justified the fitness and reliability of a research model. The assumption was that when the P-value of the chi-square is greater than 0.05 alpha

level, the study refused to accept the null hypothesis and if otherwise is accepted. From the results presented in Table 5, the Prob Chi-square exhibited a coefficient of 0.2061 which was greater than the 0.05 alpha level, as such refused to accept the null hypothesis and thus conclude that the model was free from serial correlation. The result further revealed that the output/recommendation from this study could be used for decision making.

To further justify the fitness and reliability of the model such that *heteroskedasticity* test was conducted. The findings showed that the model was free from *heteroskedasticity* problems which was in consonant with the regression model assumption. This conclusion was drawn on the basis that all the P-value are greater than 5% significant level. Hence, the study refused to accept the null hypothesis.

The study found a unidirectional relationship between Gross Domestic Product per capita, Capital markets Inclusion, Financial Accessibility and Informal financial product with a causality flowing from GDPPc to CM, FA, and FP.

**Table 5. Presentation of LM serial correlation test**

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.126354	Prob. F(2,17)	0.3472
Obs*R-squared	3.159197	Prob. Chi-Square(2)	0.2061

*Source: Extraction from E-views Output*

**Table 6. Presentation of heteroskedasticity test**

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.196416	Prob. F(7,19)	0.9825
Obs*R-squared	1.821977	Prob. Chi-Square(7)	0.9690
Scaled explained SS	1.363055	Prob. Chi-Square(7)	0.9867

*Source: Extraction from E-views Output*

**Table 7. Presentation of causality test**

Pairwise Granger Causality Tests  
 Date: 02/23/21 Time: 11:52  
 Sample: 1992 2019  
 Lags: 1

<b>Null Hypothesis:</b>	<b>Obs</b>	<b>F-Statistic</b>	<b>Prob.</b>
CM does not Granger Cause GDPPC	27	0.29072	0.5947
GDPPC does not Granger Cause CM		11.9313	0.0021
DM does not Granger Cause GDPPC	27	0.10159	0.7527
GDPPC does not Granger Cause DM		1.56655	0.2228
FA does not Granger Cause GDPPC	27	0.30358	0.5867
GDPPC does not Granger Cause FA		7.01675	0.0141
FP does not Granger Cause GDPPC	27	0.33744	0.5667
GDPPC does not Granger Cause FP		5.30174	0.0303
IS does not Granger Cause GDPPC	27	15.5363	0.0006
GDPPC does not Granger Cause IS		6.61019	0.0168
MO does not Granger Cause GDPPC	27	1.99371	0.1708
GDPPC does not Granger Cause MO		2.03140	0.1670

*Source: Extraction from E-views*

By implication, the result implied that the growing capacity of the economy determine the quantum of financial inclusion strategies. That is, the Nigerian economic growth level determines the populace financial accessibility, capital market inclusion and informal financial product. The findings further indicated a bi-directional relationship between IS and GDPPc with causality from both sides. By implication, this suggested that there is a symbiotic relationship between insurance sector inclusion and the Nigeria’s economy growth such that both reinforced each other.

**5. CONCLUSION**

The covid-19 pandemic disrupted the Nigeria economy in virtually all sectors expect the ICT. It is pertinent to note that the ICT was the only medium that aided and survived Nigerians in the covid-19 era. Nigerians are still not out from the

losses and barriers in doing businesses or carrying out personal daily struggles. The banking system was one on the front burner during this period. The need for money as a medium of exchange make it necessary for the massive users of the banking institution. Apparently, Nigerian are in the gateway to exit covid-19 but it is important to recalled the circumstance wittiness within the pandemic and make some appropriate adjustments. Surprisingly, there is only few studies to support this aspect. This study becomes a valuable subject to policy-makers to assist in recovery fast from the losses/ recession caused by the covid-19 pandemic.

Thus, it can be concluded that the extent of reactions by the economy is a function of the magnitude and direction of these effects have that played in the financial system emanating from the various measures adopted to increase

financial inclusion in Nigeria. To this end, this study assessed financial inclusion strategies using financial accessibility, Capital market Inclusion, Insurance Sector Inclusion, Informal financial product, Money Outside the Banking system and Informal Sector Mobilized Deposit while economic stimulation effect was proxies with gross domestic product per capita.

The empirical evidence provided that Money outside the Banking system and Insurance Sector Inclusion exhibited a significant relationship respectively alongside a negative coefficient thus suggesting the existence of inverse relationship among the series. Further findings have indicated that insurance sector inclusion was significant variable that enhanced economy stimulation though reflected in a negative form. However, other proxies of financial inclusion strategies were insignificant in boosting economic stimulation in Nigeria.

Meanwhile, the results of the causality test provided an evidence to assert that unidirectional relationship prevailed between Gross Domestic Product per capita, Capital market Inclusion, Financial Accessibility, and Informal financial product with causality flowing from GDPPc to CM, FA, and FP. By implication, the result implied that the growing capacity of the economy determine her quantum of financial inclusion activities. That is, the Nigerian economic growth level determines the populace financial accessibility, capital market inclusion and informal financial product. Hence, as the economy grows more financial inclusion strategies begin to unfold and the likelihood of more populace being financially included was practically feasible. Finally, it can be concluded that to perform its output and economic stimulation function optimally, the economy must learn to react appropriately to the dictates of financial inclusion strategies and to financial education within the financial system.

## 6. RECOMMENDATION

Based on the findings from this study, the study recommended the following:

1. The Central Bank of Nigeria in collaboration with the federal government should deepen the financial inclusion strategies to capture the vulnerable and rural excluded populace. This gesture is necessary since the modern economy is ICT driven and this will help the financial

system to achieve its economic stimulation target.

2. The deposit money banks should extend Auto Teller Machine retail outlet to the rural areas in order to encourage financial inclusion and captured those unable to live in urban environment. This may be possible if the Nigerian economy identify and work with some economic stimuli indices that will help in speeding and boosting economic growth progression of the nation by constructing and extending good roads, electricity, and public health, at the rural areas.
3. The insurance industry should build and guarantee trust from the populace. This is possible if all insurance policy-holder that suffered loss is indemnified and restored to his/her former position other citizen will be interested for a cover. Also, creating of awareness on financial product is of necessity as this will help in enlightening people on the benefit attached to such service.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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