

## **Impact of COVID-19 on digital financial inclusion in Nigeria: A study of IMO STATE in the South-East geopolitical zone**

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### **Abstract**

**Purpose:** The general objective of the study is to investigate the impact of COVID-19 on digital financial inclusion in Nigeria. However, the study specifically examines the extent to which COVID-19 enhance digital financial services in Imo State Nigeria; the extent to which COVID-19 increase online financial transaction in Imo State Nigeria and the extent to which COVID-19 increase digital financial transaction in the rural areas of Imo State Nigeria.

**Methodology:** The study adopted a quantitative research methodology.

**Results:** Findings revealed that COVID-19 enhanced digital financial service and on-line financial transaction in Imo State Nigeria, but COVID-19 did not significantly increase digital financial transaction in the rural areas of the State.

**Originality:** This is an original manuscript, which deals with the impact of the COVID 19 crisis in a particular geopolitical region of Nigeria in Africa.

**Keywords:** COVID-19, Financial Inclusion, Digital Financial Inclusion, Digital Payments, Financial Institution, Imo State, Nigeria.

## **Impact du COVID-19 sur l'inclusion financière numérique au Nigéria :**

### **Une étude de l'Etat de l'IMO dans la zone géopolitique du Sud-Est**

#### **Résumé**

**Objectif :** L'objectif général de l'étude est d'étudier l'impact du COVID-19 sur l'inclusion financière numérique au Nigeria. Cependant, l'étude examine spécifiquement dans quelle mesure le COVID-19 améliore les services financiers numériques dans l'État d'IMO au Nigeria ; la mesure dans laquelle le COVID-19 augmente les transactions financières en ligne dans l'État d'IMO au Nigeria et la mesure dans laquelle le COVID-19 augmente les transactions financières numériques dans les zones rurales de l'État d'IMO au Nigeria.

**Méthodologie :** L'étude a adopté une méthodologie de recherche quantitative.

**Résultats :** Les résultats ont révélé que le COVID-19 a amélioré les services financiers numériques et les transactions financières en ligne dans l'État d'IMO au Nigeria, mais que le COVID-19 n'a pas augmenté de manière significative les transactions financières numériques dans les zones rurales de l'État.

**Originalité :** c'est un manuscrit original, qui traite de l'impact de la crise COVID 19 dans une région géopolitique particulière du Nigeria en Afrique.

**Mots clés :** COVID-19, inclusion financière, inclusion financière numérique, paiements numériques, institution financière, État d'OMI, Nigeria.

## Introduction

Over the course of COVID-19 pandemic, governments have hastened to provide financial assistance to citizen, creating opportunities and challenges for expanding financial inclusion. Financial inclusion is considered a significant strategy for boosting the productivity of business, facilitates empowerment of marginalized groups, such as women and rural residence and reducing poverty and income disparity (Sreenivasamurthy, 2021). Financial inclusion is an effort to make financial products and services accessible and affordable to all individuals and businesses, in other to meet their needs which include their transaction need, payment, savings, credit and insurance need (Dluhopolskyi et al., 2023). The world Bank Group considers financial inclusion as a key enabler to decrease severe poverty and boost prosperity. Being capable to access a transaction account is the initial step towards broader financial inclusion since a transaction account allows individuals to save, send and receive money.

The emergence of the COVID-19 pandemic in 2019 and government intervention to provide financial assistance to citizens, created opportunities for expanding financial inclusion and reinforced the need for increased digital financial inclusion. Achieving a digital financial inclusive and sustainable world is the key to deal with the COVID-19 challenges that heavily affected the world. Digital financial inclusion involves the utilization of the cost-saving digital means to reach financially excluded populations with a range of formal financial services suitable to their needs and delivered at a cost affordable to customers. Before the outbreak of COVID-19 pandemic, the government and the private sector has made effort to reduce financial exclusion. The efforts by the government and the private sector propelled financial technology to reduce financial exclusion to 39.7% from 46.3% of adult population in 2010. However, as at the end of 2020, 36.8% of Nigeria adult population (38 million Nigerian adult) still did not have access to formal financial services (Obilikwu & Muhammad, 2022). Ozili (2020) supported the notion that the COVID-19 took the world by surprise, resulting to collapse of economies. Poor individuals are facing the consequences of the pandemic, the government and the financial institution are expected to play their role in providing financial resources to these poor people to survive even after the pandemic. According to United Nation (2021) reports, technology has been instrumental in closing the wealth gap between the rich and the poor in terms of financial resources, both in developed and developing countries.

COVID-19 had a greater impact on people without access to banking services than on those who did, particularly in developing countries (Mhlanga, 2020). These countries relied on restructurings, private sector innovation, and a drive to open low-cost accounts, including mobile and digitally enabled payments. Due to the lockdown and social distances, it was said that the COVID-19 pandemic has boosted financial inclusion globally (Mhlanga, 2022). For example, it was estimated that from the beginning of the pandemic, about 40 million individuals in Latin America were financially inclusive at the beginning of the pandemic. Government measures like subsidies have been instrumental in reducing cash-only-users to online and recurring service providers. Machasio (2020) highlighted that shifting payments from cash to accounts might potentially boost usage and account ownership at the same time. It is believed that some banks have since implemented digital banking for new account holders as well as virtual loan and mortgage requests and payments. This presents a viable means of enhancing financial inclusion on its own. However, the drop in remittances is likely to cause a decline in financial inclusion in Nigeria, even though financial inclusion has increased as a result of the usage of various digital instruments. The inflow of remittance has a direct and positive influence on inclusiveness (Yamada et al., 2020). Despite all these, Mhlanga, (2022) stated that a variety of

worldwide government measures, such as subsidies, were crucial in the shift from cash-only consumers to recurring services. According to the Consultative Group to Assist the Poor (CGAP), 150 million people are expected to live in extreme poverty by the end of 2021 as a result of the double global crises of the COVID-19 pandemic and economic lockdowns. These reports indicated that the poor will be severely impacted. South Asia and Africa are the two global regions most likely to be affected, according to World Bank forecasts. Governments have been able to increase the importance of ensuring that the poorest and most vulnerable people especially in the rural areas have access to formal financial services through the advancement of financial inclusive economic recovery and resilience (Hunter & Rosenkranz, 2022). The COVID-19 pandemic also accelerated the adoption of digital payments in developing countries around the world. However, close to one-third of adults are still unbanked in 2021, according to the latest Findex data (The World Bank, 2021). Though digital financial inclusion has increased due to social distancing and other restrictions measure to combat the spread of COVID-19 (OECD, 2022), yet some microfinance institutions and other credit-issuing organizations are having trouble providing the necessary credit to the rural residence.

The main contribution of this study was in measuring the extent of the impact of COVID-19 on digital financial inclusion in Nigeria. This was considered directly from the point of view of the extent to which COVID-19 enhanced digital financial services, the extent to which it improves online financial transaction and the extent to which it increases digital financial transaction in the rural areas of Nigeria. Existing studies relating to financial inclusion and COVID-19 reviewed such as the impact of COVID-19 pandemic on digital financial inclusion based on global Findex database indicator by Dluhopolskyi et al., (2023), Impact of COVID-19 on digital services and digital financial inclusion by Shafeeq & Beg (2021) and many others were based on different countries other than Nigeria and should not be applied to Nigeria as the countries differ structurally. Again, most studies reviewed used secondary data. Not much studies have been done in Nigeria using primary data. Against this background, this study fills the country gap in literature and add to the discourse by critically evaluating the impact of COVID-19 on digital financial inclusion in Nigeria using primary data.

### **Statement of the Problem**

The global COVID-19 health crises and government responses, such as lockdowns, social distances and restriction of economic activities, increased the need for contactless financial products and services. It also accelerated the shift to digital finance in many economies. Looking at the past two decades according to Constantinescu & Schiff (2014), the banking sector had predominantly been plagued by the traditional financial services where large pool of customers was excluded financially. Lack of access to financial services, especially in rural areas led to the frustration consumers experience in the financial service industry. There has been considerable success in the use and adoption of digital financial services in Nigeria, although the adoption rate is yet to reach majority of the population. Despite the overwhelming number of operators, most digital financial services are not accessible to most vulnerable segments of the society, especially the unbanked poor who are underequipped and lack the resources to take advantages of the solution and services that exist.

Though many financial technology companies are developing enhanced and affordable products to address payment issues, quick loans and flexible savings and investments among others, yet these products are not accessible by all individuals in the society. Many scholars have demonstrated that the use of digital financial services has an impact on economic growth through promoting equitable

growth strategies and lowering poverty (Zulfiqar et al., 2016; Karlan et al., 2016). There has been increased efforts towards utilizing digital financial services to bridge the gap between the unbanked/underbanked, and the financially included segments of the population. Because of this, a large portion of adult population roughly 40% of Nigerian who are financially excluded continues to have strong demands for financial services (Nkechika, 2022). According to David-West et al. (2016), the under-banked and unbanked citizens of Nigeria are predominantly women and youths between the ages of 18 and 35 with minimal education and either unemployed or in the low-income earning jobs." Also included in the under-banked and unbanked citizen are those in the rural areas of the country. This information was reported in their 2016 State of the Market Report on Digital Financial Services in Nigeria. This observation highlights differences based on age, gender, and class. It is expected that the usage of mobile phones and other devices will technically trigger the enhancement of financial inclusion, given that access to mobile phones and the internet presently exceeds bank penetration (Nartey & David-West, 2015).

Recent changes to Nigeria's digital financial services ecosystem and the way telecommunications companies are offering banking services, payment methods, and service delivery solutions are indications of this realization. Consumers of digital financial services encounter several difficulties, such as poor user experience, affordability concerns, and limited access to services that is poor network, particularly in rural areas. COVID-19 era and its safeguarded measures brought severe transformation on the financial ecosystem (Ugwuanyi & Okore, 2022). It also brought financial crisis to Nigeria. Financial services were disrupted negatively as noted by Sahay et al., (2020). This has spurred many researchers to start in-depth study into identifying the impact of the pandemic on digital financial inclusion. There is need to enhance digital financial inclusion. According to Ozili (2020), developing countries, have the largest share of the world unbanked population. During the pandemic, International Monetary Fund (2020) observed that digital payment, digital lending, e-commerce lending, online lending by banks, mobile lending and peer-to-peer lending were greatly used by customers. In recent years digital financial inclusion is considered an important factor in mitigating the negative effect of economic crises on poor households thus improving their welfare (Ozili, 2020). Nigerians are faced with low level of digital financial development, lack of access to digital financial services, Point of Sale (POS) challenges, low number of ATM machines, fraudulent activities on digital transfer of fund. There is very low enabling environment for financial technology to thrive as a driver for digital financial inclusion.

While COVID-19 has prompted greater use of digital finance, not all communities or consumers were able to rapidly pivot toward digital financial products and services. Consumers needed connectivity, including ownership of mobile phone, access to internet and digital skills to manage mobile apps and online applications to use digital financial services. These tools and skills are not evenly spread across communities, particularly among rural population and poor adults, who tend to show gaps in access to digital technologies and skills. GSM Association data indicate that there are 600 million rural consumers living in areas without mobile coverage. Income also drives digital skill development. Low income led to difficulty in affording mobile phone, data and internet access. Also, there is limited demand for an investment in digital skills building. Bridging these gaps requires better access to financial technology and capacity building which can involve leveraging other parts of the digital finance ecosystem.

It is expected that the effect of the COVID-19 crises on the unbanked population will be more severe in Nigeria if Nigerian government do not incorporate policies to stimulate rapid digital financial inclusion especially in rural areas. According to Oluikpe et al., (2020), financial inclusion rate is much lower in rural areas with 45.6% exclusion rate compared to 21.6% in the urban areas. The Shared Agent Network Expansion Facilities (SANEF) conducted a webinar on "COVID-19 and digital banking". Major

behavioural change was observed in the conduct of financial transactions as the lockdown and closure of most banks has led to an increase in the adoption and usage of alternative channels which include mobile phone, credit/debit cards, ATM and point of sale (POS). The committee of E-Business Industry Head (CEBIH) advocate for further digitalization of cash disbursement and reinforced the need to expand the digital distribution channels (Oluikpe, 2020). Accordingly, SANEF leverage on the lockdown period to increase customers account opening and Bank Verification Number (BVN) enrolments which facilitated the digital transfer of palliatives to customers from their family and friends across the country (Oluikpe, 2020). Yet there still exists a gap between the banked and unbanked, the poor, the vulnerable and the rural population are not left out. Could it be as a result of lack of access to digital financial services. Hence this study attempts to access the impact of COVID-19 on digital financial inclusion in Nigeria measuring with its impact in digital financial services, online financial transaction and digital financial transaction in rural communities of Nigeria. Moreover, recent literature has emerged that examined the impact of Covid-19 on economic activities (Fernandes, 2020; Atkeson, 2020; Mallum & Kadiri, 2020). The impact of COVID-19 on digital financial inclusion in Nigerian has not been explored vastly in the recent literature. This study fills this gap in the literature.

### **Objectives of the study**

The general objective of the study is to investigate the impact of COVID-19 on digital financial inclusion in Nigeria. However, the study specifically examines the following:

1. the extent to which COVID-19 enhance digital financial services in Imo State Nigeria.
2. the extent to which COVID-19 increase online financial transaction in Imo State Nigeria.
3. the extent to which COVID-19 increase digital financial transaction in the rural areas of Imo State Nigeria.

### **Research questions**

1. To what extent did COVID-19 enhance digital financial services in Imo State Nigeria?
2. To what extend did COVID-19 increase online financial transaction in Imo State Nigeria?
3. To what extent did COVID-19 increase digital financial transaction in the rural areas of Imo State Nigeria?

### **Research hypothesis**

H0<sub>1</sub> COVID-19 did not significantly enhance digital financial services in Imo State Nigeria.

H0<sub>2</sub> COVID-19 did not significantly increase online financial transaction in Imo State Nigeria.

H0<sub>3</sub> COVID-19 did not significantly increase digital financial transaction in the rural areas of Imo State Nigeria.

### **Literature Review**

#### **Conceptual Review**

This section discusses the concept and theories that are involved in digital financial inclusion. Digital financial inclusion can be broadly defined as the digital access to the use of formal financial services. The concept of financial inclusion came up when some individuals and businesses could not access the appropriate financial services from the main financial service providers (Nwanne, 2015). Financial inclusion is the provision of, and access to financial services to all members of the population particularly the poor and the other excluded members of the population (Ozili, 2020). Financial

inclusion is also defined as the use of, and access to, formal financial services. By this definition, each member of the population should have access to available financial services. Digital financial inclusion involves getting unbanked adults into the formal financial system using devices that have digital interface such as a computer, mobile phone or other digital devices that uses internet which is not limited by space or distance (Silvia & Jorge, 2017; Islam, Silvia & Jorge 2017; Adeyinka & Olugbamila 2015). There are three key components of digital financial services: a digital transactional platform, retail agents and the customer device such as mobile phone and computer. Digital financial inclusion introduces new market participants and allocates roles and risk in different ways. Digital financial inclusion itself could be at risk, driven by unequal access to digital financial services and potential biases intensified by new data sources and data analytics (UNSGS, 2022). Lack of access to mobile phone, computers, or the internet could lead to new forms of exclusion, which could be exacerbated as the shift to digital financial services accelerated. Literature regarding COVID-19 and its impact on other economic variables are ongoing globally as a result, effort is made to present its impact on digital financial inclusion.

### **Impact of COVID-19 on Digital Financial Inclusion**

It is well recognized that financial development is important for economic growth. During the pandemic, government, central banks and financial service providers put in place various special measures to help people make digital payments. In Nigeria a policy known as cashless policy was introduced. The cashless policy of the Central Bank of Nigeria was tailored towards provision of mobile services, financial inclusion of Nigerians, cost reduction and provision of suitable financial services for all and sundry (Adu, 2016). The major cashless banking instruments as used in the Nigerian context includes Automated Teller Machine (ATM), Internet Banking Transactions, Mobile banking, Point-Of-Sale (POS) Machine and Cheque (Kazeem, Ademola & Adegboyegun, 2021). These instruments became very effective during the COVID-19 and Post COVID era. Measures taken to guarantee continued access to e-banking services including government services, example, payment of utilities, payment of all forms of tax and refund of excess tax payments to organizations/business or individuals were done through online banking which is otherwise refers to as electronic banking. E-banking promote digital financial inclusion. COVID-19 accelerated online financial services. However for effective e-banking penetration, investing in education and marketing of e-banking products should be key strategy use to attract customer and increasing security for e-banking product. People cannot be financially included if they are not involved in digital financial transaction (Noor, Hossain & Shirazi 2022). COVID-19 crises created opportunities for greater digital financial inclusion. This includes access to new account opened to receive digital payment as well as new opportunities to use accounts for additional digital financial services. It also created opportunities for digital merchant payments and digital wage payments. Additionally, digital payments, including government payments which have been expanded in many countries as a response to COVID-19 have historically been an important driver of digital financial inclusion. Evidence suggests that digital payments have expanded as a result of COVID-19 safeguard measures (World Bank Group, 2021).

Digital financial inclusion leads to digital economy. Digital economy helps to increase capital and labour productivity (Adaramola, 2022; Akiwumi, 2022). It ensures continues access to financial services by maintaining credit flows to households and businesses while keeping people safe (Sahay et al., 2020). It is assumed that COVID -19 affected the digital financial inclusion of Nigeria as measured by the following indicators in this study:

- Digital financial services: is a financial service accessed and delivered through digital channels, including payments, credit, savings, remittances and insurance. It also involves mobile financial services. It is characterised by low marginal cost and greater transparency (World Bank Group, 2021).
- Online financial transaction: is a payment method in which the transfer of fund or money happens online over electronic fund transfer.
- Digital financial transactions in rural communities: This is a process by which transactions takes place without the use of cash in the rural communities. Financial transaction involves transfer of money or items of value. Types of financial transaction are cash transactions, credit transactions and electronic transactions. Rural finance is the provision of financial services to rural population. The global index database has an accumulated statistical data that shows different financial services such as payments, savings, and borrowing (Database, The Global Findex, 2021). Traditionally, formal financial institutions have failed to offer sustainable services in rural area. Hence the need for digital transaction arises.

### **Challenges of Digital Financial Inclusion in Nigeria**

The rural part of the country is challenged with lack of bank branches, and this has continues to be the roadblock to financial inclusion. Lack of close-proximity service points has resulted to low banking density (CBN, 2013). The economic downturn, the security challenges in most parts of the country and low trust in financial service providers are the factors militating against financial inclusion in Nigeria (Shannon, 2019). Challenges militating against digital financial inclusion include poor literacy rate, low levels of financial literacy, unequal access to digital services, lack of trust in digital technology, lack of data protection, cybersecurity problem, fraudulent transactions and underdeveloped technology ecosystems. According to World Bank Group (2021), While COVID-19 has increased the usage of digital finance, not all customers or communities were able to quickly switch to digital financial services and products. In order to use digital financial services, consumers need connection, which included having a smartphone, having access to the internet, and having digital literacy to manage online and mobile applications. Communities do not have equal access to these tools nor the abilities to access the financial technology, especially people living in rural areas, and disadvantaged adults, who frequently exhibit gaps in their knowledge and proficiency with digital technology.

### **Theoretical review**

The study used two theories which include public good theory of financial inclusion and systems theory of financial inclusion.

The Public Good Theory of Financial Inclusion: this theory argues that formal financial services should be considered as a public good. The theory argues that formal financial services should be made available to everyone for the good of everybody. There should be unfettered access to finance for everyone. As a public good, access to formal financial services to one individual does not decrease its availability to other individuals. This implies that all members of the population can enter into the formal financial sector and everyone can be included in it. This theory holds that everyone benefits from financial inclusion and that no one is left out. Under the public good theory of financial inclusion, free debit cards can be given to any individual who opens a formal bank account. They are not required to pay a transaction fee when using the Automated Teller Machines (ATMs). The cost of providing formal financial services is a sunk cost of doing business for providers of such services such as financial institutions. Government can grant subsidies to those financial institutions to help them cope with any resulting cost challenges that may arise from offering free services.

There are three advantages of public good theory of financial inclusion. First, according to public good theory, financial inclusion will benefit everyone irrespective of status, income level or demographic variations. Second, the government will subsidize the expense of providing formal financial services to citizens. Thirdly, public goods provide the governments an opportunity to assume accountability for advancing financial inclusion (Ozili 2020). Relating this theory to the current study, since the theory holds that everyone benefits from financial inclusion and that no one is left out, no one should be excluded in digital financial inclusion plan. The theory also holds and that free debit cards can be given to any individual who opens a formal bank account. Since COVID-19 has increased the introductions of digital financial inclusion, effort should be made to ensure that all citizens including the poor, vulnerable and those in the rural communities are financially included, by providing them with free debit card and other financial technology needed to access digital financial services.

**The Systems Theory of Financial Inclusion:** According to Ozili (2020), the system theory of financial inclusion, states that the outcomes of financial inclusion are achieved through the sub-systems that exist and are necessary for financial inclusion such as the economic, social and financial systems. As a result, increase financial inclusion will benefit these sub-systems. A significant change in a sub-system can have a substantial impact on the anticipated outcome of financial inclusion. For instance, imposing regulations on financial sector agents can help them align their interest with those consumers of basic financial services and force them to provide users with affordable, high-quality financial services. However, because a change in a subsystem must be made at the sub-system level, but a significant change at the entire system level, such as replacing the existing national financial inclusion plan with a completely new plan, may not always result in a change in the existing sub-systems. The theory argues that the success or failure of a national financial inclusion will be determined by the efficiency and effectiveness of the sub-systems.

There are certain advantages of system theory of financial inclusion. First, the systems theory of financial inclusion recognizes the role of existing economic, financial and social systems or structures in a country in promoting financial inclusion. Secondly, in contrast to other theories that provide a micro-view, it provides a macro perspective of financial inclusion. Thirdly, the systems theory of financial inclusion considers how financial inclusion outcomes are affected by the interrelationship between the sub-systems that financial inclusion depends on. The assumption is that there is a direct relationship between financial inclusion outcomes and the systems it relies on. Relating this theory to the current study, the significant change in the country as a result of COVID-19 has affected the expected financial inclusion outcome, moving the financial inclusion from traditional financial inclusion to digital financial inclusion.

### **Empirical Review**

Obilikwu & Muhammad (2022) carried out a study on the COVID-19 pandemic and financial inclusion in Nigeria. The study employed Interrupted Time-series Qusi-Experimental Designed (ITSQED). Event Study methodology was employed for the assessment. A t-test of paired significant mean was use in the analysis. Findings revealed that the pandemic exerted a positive impact on fiancial inclusion in Nigeria. It was recommended that the experience garthered under the pandemic be incorporated into policies by the Nigeria Financial Inclusion Strategies Committee and CBN so as to stimulate rapid financial inclusion in Nigeria.

Mhlanga (2022) studied Covid-19 and digital financial inclusion: policies and innnovation that can accelerate financial inclusion in a post COVID world through Fintech. The study relied on secondary data and data from government reports, peer-reviewed journal articles and news pieces were used.



The data was analysed with the use of documentary analysis which is a type of qualitative research that employs a systematic approach to examine documentary data to answer specific questions. The study discovered that it is important to invest in better infrastructure that promotes better payment service through fintech. This will help in promoting partnerships among traditional financial institutions and digital financial service providers.

Uwah, Udoayang & Uklala (2022) studied Post Covid-19 and the acceptance of financial inclusion as a new normal in financial transactions: implication for Nigerian accountants and other financial service providers. The study adopted the survey research design using judgemental sampling technique. Questionnaire was used as a method of collecting data from 102 respondents. Data was analyzed using descriptive and inferential statistics. Findings revealed that there is a significant relationship between the social-economic development structure in Nigeria and the acceptance of financial inclusion as a new normal. It was recommended that private and public financial institutions be ready to provide enabling environment for financial technology to thrive as a driver for financial inclusion in Nigeria.

### **Methodology**

This study was carried out in Imo State, Nigeria. It adopted descriptive survey research design. The population of the study were government workers, private sector workers, bankers, and household consumers in Imo state. The respondent was selected randomly within Imo state, which consist of a sample of 140 individuals from each category of the target population given a total of 560 respondents. The primary source of data was questionnaire, which was administered to a sample of 560 respondents in Imo State using simple random sampling technique. Out of the 560 questionnaires administered to the respondents, 500 were filled and returned. Therefore, responses of the respondents emanated from the question on 5-point Likert rating scale were subjected to item analysis to ensure its validity and reliability. Reliability test was carried out with Cronbach's Alpha reliability test. It was used to determine the internal consistency of the research instruments used. The data obtained from the study were analyzed using descriptive statistics with respect to mean and standard deviation to answer the research questions. Making decisions on research questions depended on the level of dispersion of the mean. Mean responses rated below 3.0 were below average or expectation, while those above 3.0 were above expectation on a 5-point Likert scale. Also, correlation coefficient was used to determine the extent of the relationship between COVID-19 Pandemic and digital financial inclusion in Nigeria. Pearson correlation test was further used to ascertain the level of the effect of the Covid-19 on the three variables used. Acceptance or rejection of null hypotheses was based on the probability value. When the value is less than 0.05, the hypothesis was rejected, but if otherwise, it was accepted.

### **Model specification**

The model of the study established the relationship between the dependent and independent variables.

Dependent variable: Digital Financial inclusion

Independent Variable: Covid-19 Pandemic

The model presents the functional relationship between Covid-19 pandemic and digital financial inclusion as measured by enhanced digital financial services, increased online financial transaction, and increased financial transaction in rural areas.

## Discussion of findings

### Research Question 1

To what extent did COVID-19 enhance digital financial services in Imo State Nigeria?

**Table 1.1 Respondents Opinion to Research Question One**

	The extent to which COVID-19 enhanced digital financial services.	VHE	HE	A	LE	VLE	TOTAL	X	SD
1	Ownership and use of debit or credit card and purchase directly from an account using the phone increased during Covid-19.	100 500	200 800	100 300	50 100	50 50	500	3.50	1.205
2	Digital account opening and digital transfer of fund increased during Covid-19.	50 250	300 1200	50 150	100 200	0 0	500	3.60	0.916
3	Covid-19 led to the increase in retail transaction through customer devices like phone.	150 750	150 600	150 450	50 100	0 0	500	3.8	0.990
4	The use of point of sale (POS) terminal, and ATM to enrich electronic monetary fund transmissions increased during Covid-19. .	250 1250	100 400	100 300	50 100	0 0	500	4.09	1.054
	Pooled Mean							3.74	1.0412

Source: Author's field survey, 2023

Table 1.1 presents the extent to which COVID-19 enhanced digital financial services in Imo State Nigeria using mean value and standard deviation. Analysis showed that the value of the pooled mean rating is 3.74 on a 5-point Likert scale. This means that the extent to which COVID-19 enhanced digital financial services in Imo State Nigeria is above average or above expectation, since the observed mean score of 3.74 is more than the expected value of 3.0 on a 5-point Likert scale. The standard deviation value of 1.0412 showed that the respondents' responses are spread around the mean. The correlation coefficient of 0.673 (see table 1.2 below) which shows the extent of relationship between COVID-19 and enhancement of digital financial services is positively and highly correlated at 67%.

### Test of Hypothesis 1

H<sub>01</sub> COVID-19 did not significant enhanced digital financial services in Imo State Nigeria.

**Table 1.2** Correlation Relationship Between Covid 19 and Digital Financial Services

Variables	N	R (Correlation coefficient)	r (P-value)	Remark
COVID 19	500	0.673	0.001	reject the null hypothesis
digital financial services in Nigeria	500			

Source SPSS 20

Where

N = Number of Respondents

r = Probability value

R = Correlation coefficient

Presented in table 1.2 above is the correlation relationship between Covid-19 and enhancement of digital financial services in Imo State Nigeria. Analysis shows that the probability value of 0.001 is significant at 5% level of significance since the significant probability of 0.001 is less than 0.05 ( $P < 0.05$ ). Results therefore led to the rejection of the null hypothesis one which stated that: COVID-19 has not significantly enhanced digital financial services in Nigeria and conclude that COVID-19 has significantly enhanced digital financial services. Reliability test was carried out with Cronbach's alpha reliability test, it was used to determine the internal consistency of the instrument and average reliability coefficient of 0.89 was obtained which proved that there is internal consistency of research instrument used. Table one which was the extent to which COVID-19 enhanced digital financial services which include increase in the ownership of and use of debit card, increase in retail transaction and increase in the use of point of sale (POS) terminal and ATM to enrich electronic monetary fund transmission were all accepted by respondent. This findings agreed with the findings of Ademola & Adegboyegun (2021) which stated that the major cashless banking instruments as used in the Nigerian context which includes Automated Teller Machine (ATM), Internet Banking Transactions, Mobile banking, Point-Of-Sale (POS) Machine instruments became very effective during the COVID-19 and Post COVID era.

### Research Question 2

To what extent did COVID-19 increase on-line financial transaction in Imo State Nigeria.

**Table 1.3 Respondents Opinion to Research Question Two.**

	The extent to which COVID-19 increased on-line financial transaction.	VHE	HE	A	LE	VLE	TOTAL	X	SD
1	Covid-19 facilitated digital payment of worker's salary.	100 500	200 800	100 300	50 100	50 50	500	3.50	1.205
2	Covid-19 facilitated on-line payment of utility bills or on-line payment of education fees.	250 1250	100 400	100 300	50 100	0 0	500	4.09	1.054
3	On-line marketing and on-line purchases increased during Covid-19.	150 750	150 600	150 450	50 100	0 0	500	3.70	0.990
4	The use of mobile payment services increased during Covid.	50 250	300 1200	50 150	100 200	0 0	500	3.60	0.916
	Pooled Mean							3.72	1.041

Source: Author's field survey, 2023

Table 1.3 presents the extent to which COVID-19 increase on-line financial transaction in Imo State Nigeria using the mean value and standard deviation. Analysis showed that the value of the pooled mean rating is 3.72 on a 5-point Likert scale. This means that the extent to which COVID-19 increased on-line financial transaction in Imo State Nigeria is above average or above expectation, since the observed mean score of 3.72 is more than the expected value of 3.0 on a 5-point Likert scale. The standard deviation value of 1.041 showed that the respondents' responses are spread around the mean and the opinion of respondents were consistent with one another. There is correlation coefficient of 0.670 (see table 1.4 below) which shows that the extent of relationship between COVID-19 and increasing on-line financial transaction is positively and highly correlated at 67%.

#### Test of Hypothesis 2

H<sub>02</sub> COVID-19 did not significantly increased on-line financial transaction in Imo State Nigeria.

**Table 1.4 Correlation Relationship Between Covid-19 and Online Financial Transactions**

Variables	N	R (Correlation coefficient)	r (P-value)	Remark
Covid-19	500	0.670	.001	reject the null hypothesis
online financial transactions in Nigeria	500			

Source SPSS 20

Presented in table 1.4 above is the correlation relationship between Covid-19 and on-line financial transaction in Imo State Nigeria. Analysis shows that the probability value 0.001 is significant at 5% level of significance since the significant probability of 0.001 is less than 0.05 ( $P < 0.05$ ). Results therefore led to the rejection of the null hypothesis two which states that COVID-19 has not significantly increased on-line financial transaction in Nigeria. The conclusion is that COVID-19 has significantly increased on-line financial transaction. Reliability test was carried out with Cronbach's alpha reliability test, it was used to determine the internal consistency of the instrument and average reliability coefficient of 0.88 was obtained which proved that there is internal consistency of research instrument used. Table two which was the extent to which COVID-19 increased on-line financial transaction which include facilitating digital payment of worker's salary, increase in on-line payment of utility bills and education fees, increase in on-line marketing, and increase in the use of mobile payment services were all accepted by the respondent. World Bank Group (2021) are of the view that Covid-19 brought in several first-time digital payment users and there was an expansion of digital utility bill payments. This view agrees with the findings of this study that COVID-19 facilitated a significance increase in on-line financial transaction.

### Research Question 3

To what extent did COVID-19 increase financial transaction in the rural area of Imo State Nigeria?

**Table 1.5 Respondents Opinion to Research Question Three**

	The extent digital financial increase financial transaction in the rural area of Imo state	VHE	HE	A	LE	VLE	TOTAL	X	SD
1	Covid-19 facilitated cash and electronic transaction in the rural areas.	100 (500)	50 (200)	300 (900)	50 (100)	0 0	500	3.40	0.916
2	Covid-19 facilitated increase in the receipt/payment of money through bank or ATM in the rural areas.	50 250	200 800	50 150	150 300	50 50	500	3.10	1.220
3	Covid-19 facilitated digital transfer of fund in the rural areas.	100 500	200 800	100 300	50 100	50 50	500	3.50	1.205
4	Covid-19 increased money saving by people in the rural areas.	0 0	0 0	50 150	350 700	100 100	500	1.90	0.702
	Average							2.97	1.010

Source: Author's field survey, 2023

Table 1.5 presents the extent to which COVID-19 increased financial transaction in the rural areas of Imo State Nigeria using the mean value and standard deviation procedure. Analysis showed that the value of the pooled mean rating is 2.97 on a 5-point Likert scale. This means that the extent to which

COVID-19 improve financial transaction in the rural area of Imo State Nigeria is below average or expectation, since the observed mean score of 2.97 is lower than the expected value of 3.0 on a 5-point Likert scale. The standard deviation value is 1.010.

### Test of Hypothesis 3

H<sub>03</sub> COVID-19 did not significantly increase digital financial transaction in the rural areas of Imo State Nigeria.

**Table 1.6 Correlation Relationship Between COVID-19 and digital financial transaction in the rural area**

Variables	N	R (Correlation coefficient)	r (P-value)	Remark
COVID-19	500	-0.019	0.937	Accept the null hypothesis
digital financial transaction	500			

Source SPSS 20

Presented in table 1.6 above is the correlation relationship between COVID-19 and digital financial transaction in the rural area of Imo State Nigeria. Analysis showed that the probability value of 0.937 is not significant since the probability value of 0.937 is greater than 0.05 ( $P > 0.05$ ). Results therefore led to the acceptance of the null hypothesis three which states that: COVID-19 did not significantly increase digital financial transaction in the rural areas of Imo State Nigeria. The conclusion is that COVID-19 did not significantly increase digital financial transaction in rural areas of Imo State Nigeria. Reliability test was carried out with Cronbach's alpha reliability test, it was used to determine the internal consistency of the instrument and average reliability coefficient of 0.85 was obtained which proved that there is internal consistency of research instrument used. Financial inclusion is considered a significant strategy for boosting the productivity of business, reducing poverty. The implication of the findings is that there will be low productivity in rural areas. Also, with low digital financial transaction in rural area, the effort of government and the private sector to reduce financial exclusion will be futile, hence there is need to invest in digital financial development especially in rural areas. Machasio (2020) suggested that Government need to invest in digital infrastructure with more focus on financial inclusion expansion channels in rural and marginalized area. The study agrees with Machasio (2020) suggestion because it is very critical, considering the findings.

### Conclusion and recommendations

#### Conclusion

The global COVID-19 health crises and government response increased the need for contactless financial services accelerating the shift to digital finance in many economies. Conclusively, Covid-19 has affected many economies. The study was conducted to examine the impact of COVID-19 on digital financial inclusion in Nigeria. This study adopted a descriptive survey research design methodology through a field survey to assess the impact. Findings revealed that COVID-19 had a significant impact on digital financial service and on-line financial transaction. This position agrees with the findings Sahay

et al., (2020) and the findings of Obilikwu & Muhammad (2022). But COVID-19 did not significantly increase digital financial transaction in the rural areas of Imo State Nigeria.

### **recommendations**

The following recommendations can help to enhance the positive impact of Covid-19 on digital financial inclusion and narrow digital financial inclusion gap in Nigeria.

1. It is therefore recommended that the experience gathered under the pandemic be incorporated into policies by the Nigeria Financial Inclusion Strategy Committee and CBN to stimulate rapid digital financial inclusion in Nigeria. Hence, Government (federal and states) in Nigeria should provide the enabling environment for financial technology to thrive as a driver for digital financial inclusion.
2. The deposit money bank should improve their e-banking services in other to enhance accessibility to digital financial services like digital payment, mobile financial services, digital transaction platform.
3. Financial institute should invest in broadband cellular network. These technologies will provide the much-needed bandwidth, allowing service providers to offer more sophisticated digital financial services beyond payments and remittances. This can help increase advance accessibility to on-line financial transaction.
4. Most rural areas are underequipped. People in the rural areas lack the resources and so are digitally constrained, therefore, government should stimulate rapid digital financial inclusion in rural areas of the country by investing in digital infrastructure, digital financial education to enhance digital financial literacy with more focus on financial inclusion expansion channels in rural areas.

### **Limitation**

This study was faced with difficulty in accessing some of the respondents especially the rural area respondents. Due to time constraints, the study could not conduct the study in other states of the country, only one state was sampled.

### **Suggestion for further studies**

It is essential to mention that this research has been limited in its scope. Future research may consider studying other states and other Geopolitical zone of the country. Finally, future research should consider other related variables that have not been considered in this study.

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**Appendixes**

Appendixes 1

Table 1

Mean

Covid-19 and access to digital financial infrastructure.

Report

	5.000000	5.000000	5.000000	5.000000
Mean	3.50	3.60	3.8	4.09
N	499	499	499	499
Std. Deviation	1.205	.916	.990	1.054

Reliability

Scale: ALL VARIABLES

Table 1

Reliability Statistics

Cronbach's Alpha	N of Items
.89	4

Appendix 2

Table 2 mean

COVID-19 and financial services close to customer's residence.

	5.000000	5.000000	5.000000	5.000000
Mean	3.50	4.09	3.70	3.60
N	499	499	499	499
Std. Deviation	1.205	1.054	.990	.916

Table 2

## Reliability Statistics

Cronbach's Alpha	N of Items
.88	4

## Appendix 3

## table 3 mean

Financial inclusion and the disadvantaged during COVID-19.

## Report

	5.00000 0	5.00000 0	5.00000 0	5.00000 0
Mean	3.40	3.10	3.50	1.90
N	499	499	499	499
Std. Deviation	.916	1.220	1.205	.702

## Reliability Statistics

Cronbach's Alpha	N of Items
.85	4

## Appendix 4

## Correlation result between covid and financial inclusion in Imo state Nigeria

## Correlations

		covid	fin serv	Online	rural
covid	Pearson Correlation	1	.673**	.670**	-.019
	Sig. (2-tailed)		.001	.001	.937
	N	20	20	20	20
fin serv	Pearson Correlation	.671**	1	.320	.118
	Sig. (2-tailed)	.001		.169	.619
	N	20	20	20	20
online	Pearson Correlation	.671**	.320	1	-.017
	Sig. (2-tailed)	.001	.169		.944
	N	20	20	20	20
rural	Pearson Correlation	-.019	.118	-.017	1
	Sig. (2-tailed)	.937	.619	.944	
	N	20	20	20	20

\*\* . Correlation is significant at the 0.01 level (2-tailed).