

## COVID-19 Pandemic and E-Banking in Nigeria

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Received 5<sup>th</sup> December 2022, Revised 16<sup>th</sup> December 2022, Accepted 7<sup>th</sup> February 2023

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### ABSTRACT

*The COVID-19 pandemic and technology have redefined the channels through which business and financial transactions can be carried out. The objective of the study is to assess the connectivity between COVID-19 and electronic banking (E-Banking) during the periods of COVID-19 lockdown and the restriction of movement in Nigeria. Ex post facto research design and secondary data were used in the study. The study adopted descriptive analysis as its data analysis method. It was found that online transfer channels were mostly used throughout the periods of COVID-19 and the restriction of movement in Nigeria, and the volume of transactions for all the components of E-Banking (automated teller machines, point of sale transfer, online transfer, and USSD transfer) were low in the month of April compared to other months in the periods of study. The study concluded that COVID-19 increased the online transfer channel of E-Banking in Nigeria during COVID-19 lockdown and the restriction of movement in the year 2020. The study recommended that financial transactions via E-Banking be encouraged in Nigeria, in as much as COVID-19 still persists there. Also, there should be a reduction in the service charges as charged by the banks, telecommunications firms, and the Federal Government on the use of E-Banking for fund transfers in order to encourage more Nigerians to adopt E-Banking.*

**Keywords:** Automated Teller Machines, COVID-19, E-Banking, Online Transfer, Point of Sale

### 1. INTRODUCTION

The arrival of technology has expanded banking activities around the globe. The channelisation of funds from surplus units to deficit units has been enhanced by the use of technology in today's banking activities. The adoption of technology has enabled the use of electronic means to carry out banking activities known as E-Banking. E-Banking enables the use of computers, telephones, and internet devices for banking activities. E-Banking cannot occur without the availability of information and communication technology (ICT). According to Chavda (2021), the most effective approach to carrying out banking services with physical contact is E-Banking which makes financial transactions be carried out conveniently. The Internet is the platform to carry out E-Banking. It saves the time that a customer will spend in the banking hall. Nyasha and Hlanganani (2021) posited that today's banks have created different approaches to E-Banking for their customers. Thus, E-Banking is a self-service technology banking method for customers. Ahmed et al. (2021) pointed out that E-Banking has been more adopted during the COVID-19 period due to the lockdown of economic activities in most parts of the globe. These challenges emerged as a result-of human and natural factors. The arrival of the 21<sup>st</sup> century brought Ebola, Lassa Fever, and SARs as diseases or viruses that posed challenges that had attempted to influence human activities in some and/or all parts of the world. However, the emergence of Corona Virus also known as COVID-19 has dictated the activities of mankind in all aspects.

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It was observed that these rules as strategies have affected the banking activities in Nigeria. Bank activities in the banking hall could not be carried out as usual during the periods of lockdown and movement restriction. This results in the use of E-Banking which continued during the re-opening of economic activities (Okunbanjo, 2021). Some customers were discouraged to go the banks because of the time that would be wasted before being attended to (Okunbanjo, 2021). All these resulted in the use of E-Banking in Nigeria.

Thus, the study wants to provide answers to the following research questions: What is the usage of Automated Teller Machines (ATM) during the COVID-19 lockdown and movement restriction periods in Nigeria? What is the usage of Point of Sale (POS) during the COVID-19 lockdown and movement restriction periods in Nigeria? What is the usage of Online Transfer during the COVID-19 lockdown and movement restriction periods in Nigeria? What is the usage of Unstructured Supplementary Service Data (USSD) during the COVID-19 lockdown and movement restriction periods in Nigeria?

## **2. LITERATURE REVIEW**

### **2.1 Conceptual Clarifications**

E-Banking has been defined by Nyasha and Hlanganani (2021) as the electronic channel that provides retail banking products and services to customers. E-Banking is a system of banking that offers E-Banking services which include withdrawal of cash, transfer of credit, transfer of cash, depositing cash, bills payment, cheque book requests, and other financial requests (Okafor, 2021). E-Banking is seen by Madugba et al. (2021) as the platform that allows a customer of a bank to perform banking and financial transactions electronically without visiting the banking hall.

Chowdhury (2021) sees E-Banking as a branchless banking service that allows the use of technological devices to carry out banking activities. E-Banking can be viewed as an innovative means of delivering banking financial and non-financial services to the banks' customers through the use of the internet. In the view of Abaenewe et al. (2013), E-Banking is the means of providing banking services to the public. It is the electronic service of a bank that enables customers to make use of computers and other technology devices to access banking services. E-Banking implies the channel of transferring the exchange of cash, cheques, and any other banking activities via electronic (Madziro & Ncube, 2021).

Thus, E-Banking can be seen as a banking service that allows customers to carry out financial transactions through the use of internet-connected devices. The studies of Nyasha and Hlanganani (2021), Mustapha et al. (2021), Kaushik et al. (2020), Olajide et al. (2019), and Mutengezwana and Mauchi (2015) among other studies highlighted determinants of E-Banking adoption. These include awareness of new development, knowledge of new development, internet accessibility, security concerns, ease of use, traditional beliefs, and social status.

Kaushik et al. (2020) stated that the adoption of E-Banking is based on the components of E-Banking. The components of E-Banking include ATMs; USSD; Mobile Money; Online/Web Money Transfer; POS; National Electronic Fund Transfer (NEFT); Agent Banking; Tele-Banking; Direct Debits; Real Time Gross Settlement (RTGS); Electronic Clearing System (ECS) (Nyasha & Hlanganani, 2021; Okafor, 2021). Thus, this study selects ATMs, Online Money Transfer, POS, and USSD components of E-Banking in Nigeria. These components are selected because they are the most well-known and widely adopted E-Banking channels in Nigeria as reported by the National Bureau of Statistics (NBS) in 2020.

## **2.2 Components of E-Banking**

For the purpose of this study, the components of E-Banking are defined in the following ways. ATMs are E-Banking channel that enables an individual or a customer to use credit or debit cards to carry out financial transactions through a teller machine. Online transfer transactions are the channel of E-Banking that allows an individual to transfer his financial resources from one bank account to another (Okunbanjo, 2021). POS is the transaction that is carried out via debit card to purchase or made a payment for an activity or service or product at a cash counter. USSD is the E-Banking channel that allows non-smartphones to carry out financial transactions. All these channels of E-Banking are being used in Nigeria for business and commercial purposes before and during the COVID-19 pandemic.

## **2.3 COVID-19 Pandemic in Nigeria**

COVID-19 is an illness caused by a novel coronavirus now called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). COVID-19 is identified as an outbreak of respiratory illness cases in Wuhan City in China. At the beginning of the year 2020, World Health Organisation (WHO) declared the COVID-19 outbreak a global health emergency and pandemic. This was a result of the spread of the virus from one continent to another. This declaration was bound to Nigeria as a member of the organisation.

On February 27, 2020, the first case of COVID-19 was reported in Nigeria through an infected Italian citizen who came in contact with a Nigerian citizen who was subsequently infected with the coronavirus (World Health Organization, 2020). The coronavirus then spread to other citizens in Lagos and to other parts of the country. Several measures have been employed by the Nigerian government to reduce the outspread of the pandemic. Among these measures are social distancing, physical distancing, wearing of face-mask, constant washing of hands, isolation, quarantine, movement restrictions, and lockdown.

The novelty nature of COVID-19 has made several scholars and researchers examine how it has been influencing the activities of mankind in different economies and sectors across the globe.

## **2.4 COVID-19 Pandemic and E-Banking**

Okafor (2021) studied E-Banking and the development of entrepreneurship in Nigeria. The study employed internet banking, POS, and ATM as the measures for E-Banking. Using econometric techniques, the study found that E-Banking positively and significantly affects entrepreneurial development. But the study fails to capture the role of COVID-19 despite being conducted after the arrival of the virus. Thus, there is a need for studies that will capture COVID-19 and E-Banking. Chavda (2021) used primary data to determine COVID-19 and the usage of E-Banking in India. It was reported that Indians made use of the E-Banking channel provided by their banks for financial transactions.

Madugba et al. (2021) investigated the financial performance of deposit money banks by using E-Banking. Using ex-post facto and regression analysis, it was revealed that E-Banking has a positive and significant association with financial performance. The study did not include how COVID-19 could be related to E-Banking. Mustapha et al. (2020) investigated the adoption of mobile banking and COVID-19 pandemic era in the Kano metropolis and indicated that the adoption rate was encouraging and mobile banking is being adopted by bank customers and concluded that mobile banking is related to the COVID-19 pandemic. The study did not cover others metropolis in Nigeria and primary data were utilised. Thus, this requires that a study that will close the gap needs to be done in Nigeria.

Dimensions of mobile banking in Greece during COVID-19 were investigated by Anysiadou et al. (2021) and it was revealed that the demographic, as well as the personal and technology acceptance “factors” contributed significantly to the adoption of this form of online banking in Greece. Primary data were adopted in that study which allowed the respondents to be subjective on the subject matter. There is a need for a study to be conducted using secondary data to arrive at objective findings. The studies of Marcu (2021), and Kaushik et al. (2020) concluded that E-Banking adoption was improved by COVID-19. Baret et al. (2020) investigated the connection between COVID-19, financial markets, and institutions focusing on banks and demonstrated COVID-19 has a significant effect on the financial markets and institutions. However, the study did not capture E-Banking in its objectives. Thus, there is a need for further study.

Xinhua (2020) indicated a strong significant and positive influence of COVID-19 on the Chinese financial market. Tesfaye (2020) explored the impact of the COVID-19 pandemic on Ethiopia's Private Banking System. The study used ten years of historical data from 2010 to 2019 to reveal that the pandemic has an effect on both the balance sheet and income statement of banks. Iwedi and Lenye (2021) revealed a positive relationship between cases of COVID-19 that had been confirmed and the Nigerian banking industry's financing of the economy. Nyasha and Hlanganani (2021) evaluated E-Banking adoption during the COVID-19 era in Zimbabwean. The study used primary data via interviews and questionnaires and correlation analysis to demonstrate that age, cost, access, risk, and other economic behaviour are barriers to the adoption of E-Banking facilities by banking clients. Ogutu and Fatoki (2019) employed secondary panel data to establish the relationship between E-Banking and Kenyan commercial banks' financial performance. It was found that E-Banking components mobile banking, agency banking, ATM banking, and online banking have a significant relationship with the financial performance of commercial banks. However, the study was conducted before the arrival of COVID-19.

## **2.5 Technology Acceptance Model (TAM)**

Technology Acceptance Model (TAM) was developed by Davis et al. (1989). TAM is the first and most traditionally adopted theory in Information Technology (IT) (Benbasat & Barki, 2007). TAM elicited attention in information systems because it can predict and explain the purpose and behaviour of using ICT. The theory focuses on the factors that determine the acceptance and rejection of ICT. Olaoye et al. (2019) pointed out that TAM prioritised usefulness and ease of using technology. According to this theory, the use of technology has to do with the benefits the users derived from it. The use of E-Banking is convenient and ease of use involves the convenience of using technology (Ade-Lawal, 2017). TAM stresses what pushes technology usage at a particular time period.

According to Okunbanjo (2021), Nigerian made use of E-Banking during the COVID-19 period of lockdown and movement restriction. Therefore, the usage of E-Banking was caused by COVID-19. The arrival of COVID-19 brought about movement restrictions and lockdown of economic activities. E-Banking during COVID-19 was conducted via ATMs, POS, USSD, and online transfer. Thus, Nigerians relied on these platforms of E-Banking for financial transactions. This is evidenced that Nigerian made use of information technology for financial transactions.

## **3. METHODOLOGY**

The study employed an ex-post facto research design. This research design was employed because the scope of the study was a lockdown and movement restrictions were past periods. The study used secondary data sourced from the annual reports of NBS. The data were collected on the dimensions of E-Banking which include ATM transactions, POS transactions, online (web) transfer transactions, and USSD/mobile transfer transactions from April to December 2020. The choice of the periods is due to the availability of data and the starting from the period of the formal

declaration of the COVID-19 lockdown in Nigeria. The study utilized descriptive analysis as a data analysis technique to achieve its objectives.

#### 4. RESULTS AND DISCUSSIONS

This part of the study indicated the results and interpretation of the data obtained on ATM transactions, online transfer transactions, POS, and USSD transactions.

##### 4.1 Descriptive Statistics

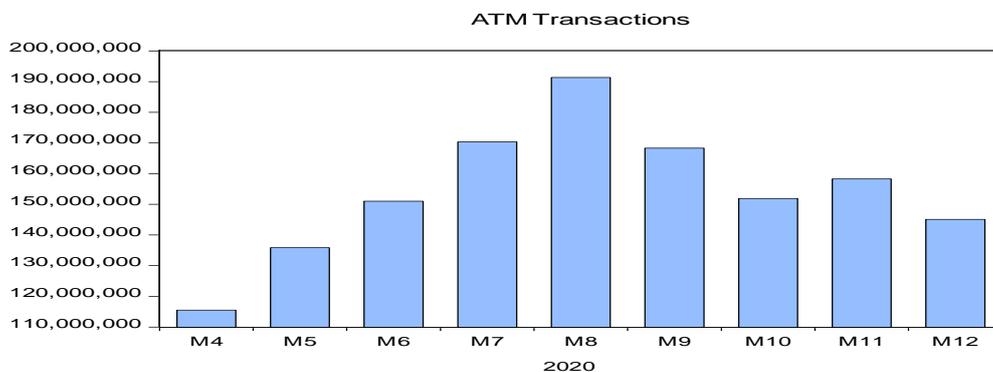
**Table 1** Descriptive Statistics for E-Banking Components during COVID-19

	ATM Transactions	Online Transfer Transactions	POS Transactions	USSD Transaction
Mean	1.5400	5.7200	57346958	42471035
Median	1.5200	5.7300	53904356	43450932
Maximum	1.9100	7.9900	77900738	54931020
Minimum	1.1600	3.7600	40859206	29544362
Std. Dev.	21761486	1.5100	11949600	7340074.
Skewness	-0.081396	0.159551	0.419352	-0.170238
Jarque-Bera	0.034927	0.685231	0.610263	0.078118
Probability	0.982688	0.709911	0.737026	0.961694
Sum	1.3900	5.1400	5.1600	3.8200
Sum Sq. Dev.	3.7900	1.8300	1.1400	4.3100
Observations	9	9	9	9

Table 1 showed the descriptive statistics on the E-Banking components during the COVID-19 period in Nigeria from April to December 2020. It was revealed that ATM transactions had an average value of N154million with a standard deviation of 21761486; online transfer transactions had an average value of N572million with a standard deviation of 15100; POS had an average value of N57346958 with a standard deviation of 11949600 and USSD transactions had an average value of N42471035 with a standard deviation of 7340074. This implies that the mean which is the average value of the components of E-Banking is positive. Thus, E-Banking adoption was high during the period covered in the study.

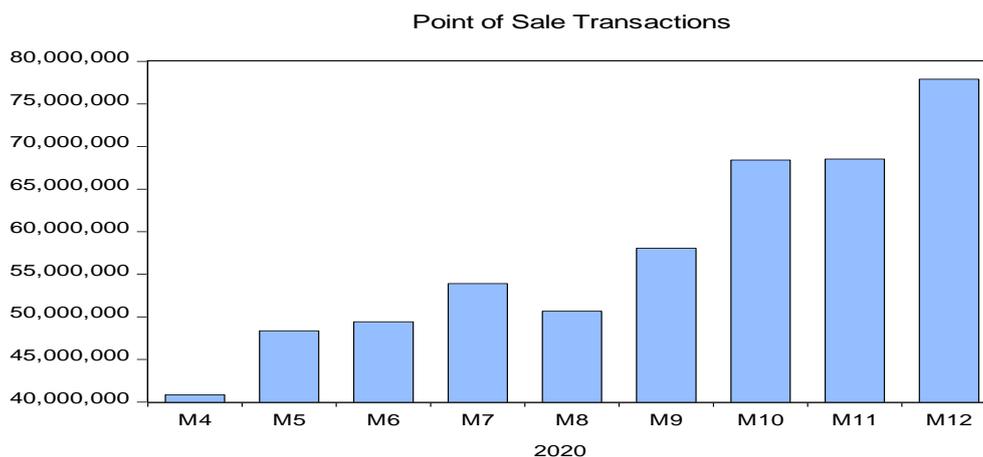
##### 4.2 Graphical Representation of the E-Banking during COVID-19 Pandemic in 2020

The part of the study demonstrated the results of E-Banking during the COVID-19 lockdown and the restriction of movement in Nigeria in graphs. **Research Question 1:** What are the usage ATMs during the COVID-19 lockdown and movement restrictions in Nigeria?



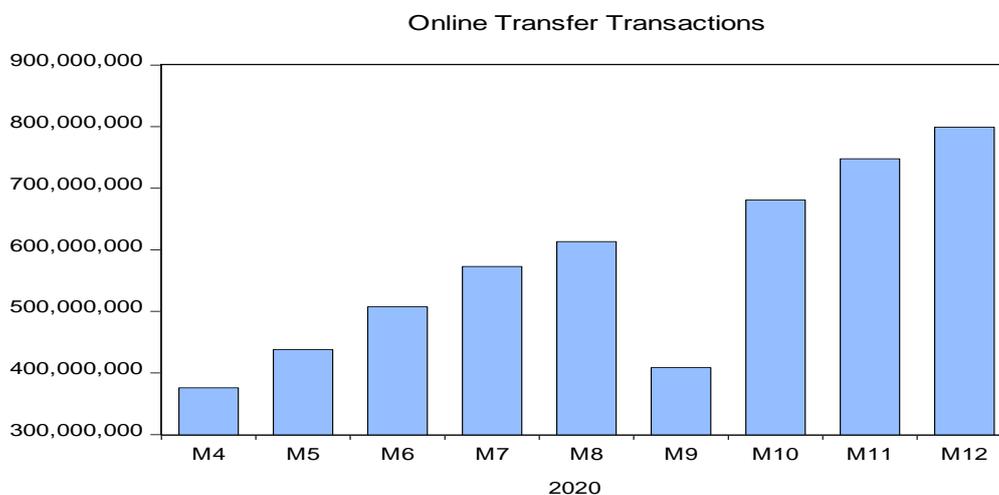
**Figure 1.** ATM Transactions during COVID-19 Lockdown and Movement Restriction

Figure 1 showed the usage of ATMs in Nigeria during the period of lockdown and movement restriction. M4 to M12 represented the month of April to the month of December 2020. It was revealed that 115,518,329 transactions were made in the month of April via the ATMs, 135,857,274 transactions were made via the ATMs in the month of May. 151,026,271; 170,348,417; 191,354,683; 168,325,956; 151,924,854; 158,259,049; and 145,075,140 transactions were made in the months of June; July; August; September; October; November; and December respectively through the ATMs during the 2020 COVID-19 lockdown and movement restrictions in Nigeria. It is evidenced that the COVID-19 lockdown and movement restrictions forced Nigerians to make use of ATMs for their daily financial transactions. This implies that ATMs were seen as an alternative for making payments and withdrawing cash to meet their routine financial expenses. **Research Question 2:** What is the usage of POS during COVID-19 in Nigeria?



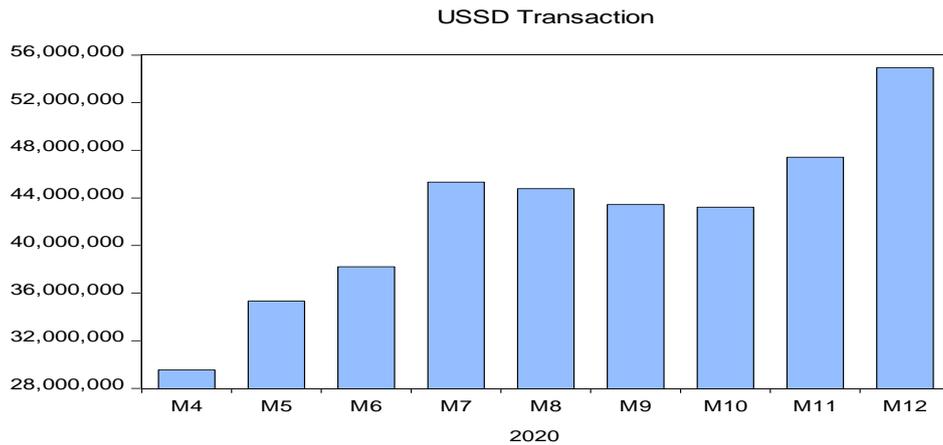
**Figure 2.** POS Transactions during COVID-19 Lockdown and Movement Restriction

Figure 2 showed the answer to the research question “what is the usage of POS during COVID-19 in Nigeria? M4 to M12 represented the month of April to the month of December 2020. It was revealed that 40,859,206 transactions were done via POS in the month of April 2020; 48,371,074 transactions were done via POS in the month of May 2020; 49,421,986 transactions were done via POS in the month of June 2020. 53,904,356; 50,663,508; 58,052,877; 68,411,116; 68,537,758; and 77,900,738 transactions were carried out in the months of July, August, September, October, November, and December respectively. **Research Question 3:** What is the usage of online transfer during COVID-19 in Nigeria?



**Figure 3.** Online Transfer Transactions during COVID-19 Lockdown and Movement Restriction

Figure 3 showed the usage of online transfer transactions carried out during the COVID-19 lockdown and movement restriction in Nigeria from April to December 2020. It was revealed that 376,054,999; 438,264,450; 507,471,371; 572,794,427; 613,377,643; 408,568,313; and 680,837,930 volumes of transactions were carried out in April, May, June, July, August, September, October, November and December respectively. The online transfer transaction increased from April to November and decrease in December. The increment from April to November was a result of partial and full lockdown and movement restrictions that were imposed by the Nigerian government. The decrement in online transfer transactions was a result re-opening of some economic activities which allowed financial institutions to physically open for business operations. **Research Question 4:** What is the usage of USSD transfer during COVID-19 in Nigeria?



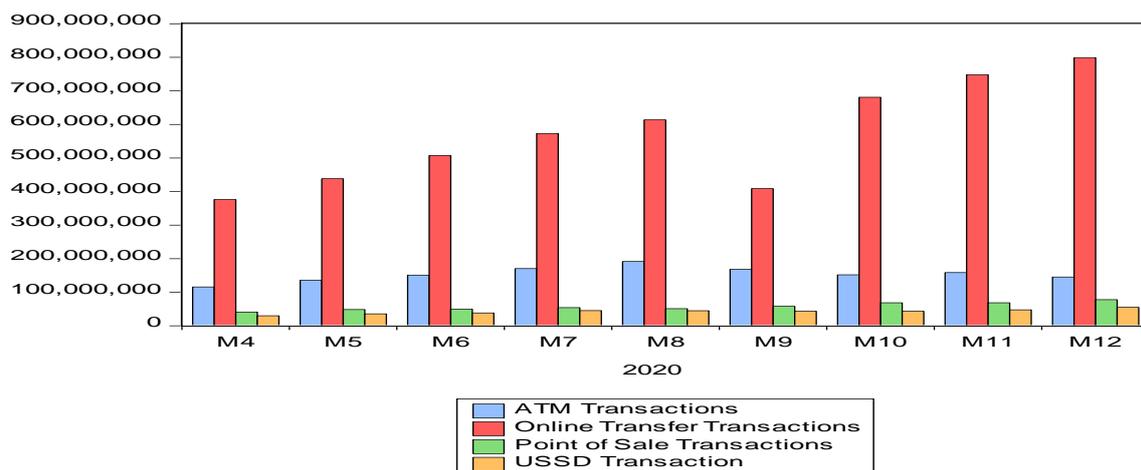
**Figure 4.** USSD Transactions during COVID-19 Lockdown and Movement Restriction

Figure 4 demonstrated the volume of transactions done via the USSD during the COVID-19 lockdown and movement restrictions from April to December 2020. It is indicated that 29,544,362; 35,331,227; 38,217,906; 45,330,508; 44,782,913; 43,450,932; 43,224,858; 47,425,591; and 54,931,020 volumes of the transaction were carried out via USSD from the month of April to December 2020 respectively. USSD transactions increased from April to July because the intensity of lockdown and movement restrictions were high in Nigeria. The decline in the subsequent month was caused by the technical issues Nigerians experienced when using USSD. The measures employed by telecommunication firms in Nigeria leads to the volume of USSD transaction rising.

### 4.3 E-Banking in Lockdown and Movement Restriction Periods

This part of the study showed the usage of E-Banking during the COVID-19 of lockdown and movement restriction in Nigeria. The level of usage of the components (ATMs, online transfer, POS, and USSD) of E-Banking are reflected in the Figure 5.

Figure 5 depicted that online transfer transactions had the highest volume of the transaction during the COVID-19 lockdown and movement restriction. However, online transfer transactions were low in the month of April. It was also indicated that ATM transactions in August are higher than in other months. But ATMs transactions were low at the beginning of the COVID-19 lockdown period. POS transaction was also high in the month of December and low in the month of April 2020. In addition, USSD transactions were also high in the month of December and low in the month of April.



**Figure 5.** Comparative of E-Banking Components during Lockdown and Movement Restriction

It was observed that all the E-Banking components adopted in this study had high volume transactions in December except ATM transactions that were high in August. The high volume of transactions in December could be a result of a series of business/commercial activities that were being carried out by Nigerians in the December festive period. This could be a result of that business activity that was just being unlocked down in Nigeria. However, the volume of transactions for all the components of E-Banking during the COVID-19 lockdown and restriction of movement is low in the month of April because the lockdown just began in Nigeria. The volume of transactions that were high in the month of August could be a result of 2<sup>nd</sup> re-opening of business activities in Nigeria.

## 5. CONCLUSIONS AND RECOMMENDATIONS

The objective of the study is to investigate COVID-19 and E-Banking activities in Nigeria in the year 2020. This objective had been achieved and the study identified that online transfer transaction is higher through the periods of COVID-19 lockdown and restriction of movement while USSD is low. Thus, COVID-19 increases the online transfer channel of E-Banking in Nigeria during the COVID-19 lockdown and restriction of movements in the year 2020. It was therefore suggested that financial transactions via electronic means should be encouraged in Nigeria as much as COVID-19 still exists in Nigeria. Also, there should be a reduction in the service charged by the banks, telecommunication firms, and the Federal Government on the use of E-Banking for funds transfer in order to encourage the use of more Nigerians to adopt E-Banking this could reduce the spread of the pandemic in Nigeria. Banks in Nigeria should be more technologically inclined in their banking activities. This will create more platforms for banking operations to be conducted via the internet to meet the demands of the customers.

## 6. IMPLICATIONS OF THE STUDY

The study explored E-Banking activities during the COVID-19 period of movement restrictions and lockdown in Nigeria. The findings highlighted E-Banking is useful when physical banking activities cannot be conducted. Thus, the study is relevant for banks to prioritise technology in customer financial services. The study will enlighten bank customers that E-Banking is an effective alternative approach to banking without physical contact.

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