Mobile money operations, financial inclusion and socioeconomic factors in the Niger-Delta Region of Nigeria

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ABSTRACT

The improvement in the standard of living of citizenry is beyond lack of money but the poverty to access financial instruments and means to financial platforms. Such that lack of access to financial instruments and services is a major veritable channel for poverty amplification in the society. This paper examines the relationship between Mobile Money Operations (MMOs), Financial Inclusion and socioeconomic factors in the Niger Delta region of Nigeria. The paper also analysis the trends of the instruments of financial inclusion and MMOs in Nigeria from 2012 to 2019. The primary and secondary data were sourced and analyzed with the Net Balance Methods, Instruments of inferential and descriptive statistics. The survey results show a visual cycle of higher number of respondents with secondary school qualifications and less which have led to low income and an ineffective participation to mobile money and financial inclusions in the rural areas. We equally observed that poor internet and mobile networks, epileptic power supply, unclear economic policies among others are major setback for the insignificant relationship between MMOs and financial inclusion in the Niger Delta region. This implies that the growth of mobile banking and financial inclusions to facilitate financial system soundness and enhances economic growth and development required more motivations from institutions other than the financial institutions; as a way of encouraging increased Nigerians participation. Base on the result the paper can assumes that the financial system has provided the needed instrument for citizen participation, but the social and economic conditions of the country is the bottleneck for financial inclusions.

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Introduction

Poverty does not necessarily mean a lack of money. It involves lack of access to the instrument and means through which the poor could improve their standard of livings. It was reported that more than two billion people around the globe do not have access to the formal financial system, (Bill & Melinda, 2013). In many developing countries, more than half of households do not have an account with a financial institution, while small firms usually find it difficult to access and afford financial services. In India, only half of the population has access to financial services. In Nigeria, 39.7% are financially excluded. In the Philippines, only 26.6% of adult have a deposit account, 43% of the deposit accounts and 71% of the amount of deposits are in the National Capital Region. These constraints no doubt become an impediment on their growth part. However, in Kenya 70% of the population are active mobile money subscribers with just 6 licensed mobile money operators, whereas Nigeria with 21 Mobile Money Operators (MMOs) have less than a million (about 0.8%) adults as active mobile money subscribers, (EFInA, 2014). This indicates how low the adoption and acceptance of mobile money is in Nigeria, especially in the rural areas where bank penetration is low (Kama & Adigum, 2013 and Kpong, 2015).

According to a report jointly released by the Microfinance Information Exchange (MIX) and Master Card Foundation (MCF), (2014) it was reported that over 80 million Nigerians do not have access to financial services. Whereas access to quality and affordable

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financial services could improve the wellbeing of households, communities and the economy at large, especially those in developing countries. In another development, the Enhancing Financial Innovation and Access (EFIA) (2012) and the Access to Financial Services in Nigeria (AFinS) (2010), revealed that there was only a marginal increase in the number of those served by formal financial markets within 2005 and 2010, the percentage was 35% to 36.30% five years after the launching of the micro finance policy. The survey emphasizes the setbacks for lack of bank accounts by the people to include, unsteady income, cumbersome eligibility requirements, and low level of financial literacy. Others are high cost of financial services, high level of poverty, diminishing employment opportunities, low-income savings and lack of access to banking services due to inadequate or uneven spread of bank branches especially in most rural communities, etc. From the foregoing, it is succinct that robust economic growth cannot be achieved without putting in place well focused services that increase access of the poor and low-income earners to the mainstream spending flows.

One way to deliver financial services to a wider segment of Nigerians is through digital payments platform, delivered through mobile telephony which is a veritable tool for addressing Financial Inclusion. Since mobile phones have become widely acceptable and used in Nigeria, the ubiquity of cell phone services offers the possibility of services in remote areas of the country where it would be otherwise economically unsustainable to provide banking services. These services could enhance financial inclusion especially when appropriate models are adopted. It is in this regard that the CBN in 2012 licensed 21 MMOs to provide monetary services to millions of Nigerians as a means of bridging the gap between the financially served, the underserved and the un-served. In light of the foregoing, the focus of this paper is to examine the relationship, among MMOs, financial inclusion and socioeconomic factors of Rural Dwellings in Niger Delta Region, the paper equally examined the trend of the instruments of financial inclusion and mobile money operation in Nigeria from 2012 to 2019. The rest of the paper proceeds as follows, following the introduction above, section 2 is Literature review, section 3 deals with the issues of Methodology, section 4 is empirical results and discussions, and section 5 is the Conclusion.

Literature Review

Various scholars of finance have explained mobile money to be electronic accounts (e-wallets) in which customers can deposit and withdraw cash electronically. They argued that mobile money services are not the same as mobile banking as the former is provided by telecommunication industries and financial institutions while the latter is provided by financial institutions alone especially commercial banks, (David-West, Umukoro & Muritala, 2017 and Peruta, 2015). The mobile money operation is explained as a veritable tool to foster the growth of financial inclusion in a financially excluded economy. Joshi (2011) argued that Financial Inclusion is the process of ensuring access to appropriate financial products and services needed by low income groups at an affordable cost, whereas Hannig & Jansen (2010) believed that the aim of financial inclusion is to draw those in the informal financial system into the formal financial system. They argued that it is the opportunity to access financial services ranging from savings, payments, and transfers to credit and insurance through various financial products.

Coulibaly (2019) investigated financial inclusion through mobile money, an examination of the decision to the use of mobile money accounts in WAEMU countries. By engaging both individual-level data and aggregate-level data in a multi-level approach they observed that the use of mobile money accounts is higher among the least vulnerable segments of the population and those with easy access to mobile payment outlets. Their findings are similar in regard to those who use formal accounts only and those who use both types of accounts concurrently.

Achugamonu, Taiwo, Ikpefan, Ochei, Olurinola & Okorie (2016) in their study on Agent Banking and Financial Inclusion uses a sample of 275 bank officials across 6 geopolitical zones in Nigeria. Revealed that geographical spread of bank agents as well as the development of tailor-made financial products will engender financial growth among the active poor in the rural communities. Thus, it recommended the need for the Central Bank of Nigeria to deepen inclusive growth by licensing more agent banks especially in the rural areas across the six geo-political zones of the country. In a cross-sectional, times series and panel framework Zins & Weill (2016), Soumaré et al. (2016), Honohan & King (2013) and Mwangi & Sichei (2009) found out that increase in age, education, gender, residential area, employment status, marital status, household size and degree of trust in financial institutions and income tends to improve the probability of gaining access to financial services. Using the ordinary least squares method (Anson et al. 2013; Allen et al. 2013; and Beck & Brown 2011) discovered that Equity Bank's business model provides financial services to the population segments typically ignored by the traditional commercial banks. They equally, observed that the non-traditional banks generate sustainable profits, which is the solution to the challenge of financial access and has limited the development of inclusive financial sectors in many African countries. It was also revealing that post offices were relatively more likely to provide accounts to the masses that were likely to come from the financially vulnerable groups (the poor, less educated and those outside the labor force) than the traditional financial institutions.

Lastly, they argued that foreign bank ownership was linked with more bank accounts among the educated, high wealth, as well as the high-income households. Whereas, state ownership of banks does not influence/initiate financial inclusion of the rural and poorer households. Thus, insurance coverage on higher deposit, improved payment systems as well as creditor protection facilitate the holding of bank accounts, amongst the high-income and high-wealth households respectively. Siddik et al. (2014) reveals via the Structural Equation Modelling (SEM) that the perceived financial cost, the perceived risk and the subjective standard are the key factors influencing the adoption or continuous use of mobile banking services in Bangladesh. Using the same modelling, Shaikh and

Karjaluoto (2015), as a result of existing studies on the adoption of mobile banking, stressed that compatibility (with the lifestyle and the device), the perceived use and attitude were the most important factors of the intention to adopt mobile banking services in developed as well as developing countries. Furthermore, Asfaw (2015), in a bid to recognize the main demerit and merit for the introduction of mobile banking services in Ethiopia, uses the exploratory research method to observe that an increase in the penetration rate of the mobile telephone was one of the most expedient prospects for the initiation of mobile banking services. Cudjoe et al. (2015), whose analysis was in the case of the Ghanaian clients of “Access Bank” specifically identify awareness, utility, simplicity, compatibility, self-efficacy as well as the credibility of mobile banking services has a certain level of significant effect on the intention of clients to adopt and use mobile banking services provided by “Access Bank”. Hence, the perceived credibility as well as the financial cost have a positive impact on the intention by consumers to not just adopt but also use mobile banking services than the perceived utility and the perceived ease of use. Engaging a three-step process which shows the adoption of mobile banking in Senegal, Fall et al. (2015), uses the sequential logit model, to illustrate that age is the only determinant in the first step. Thus, cognitive factors, which include literacy, level of education, affiliation to a rotating savings and credit association, shows the second step. While the last step, stressed the level of education, salaries, as well as business ownership as the determining factors.

Investigating if socioeconomic factors could be a yardstick for the adoption of mobile money services has also been the focus of several studies. For instance, Murendo et al. (2015) discussed the role of social networks in the adoption of mobile money in Uganda. Employing survey data from 477 rural households in a probit model suggested that training within social networks is a contributor to the spread of information on mobile money as such encouraged adoption. In comparison to poor households, non-poor households were more dependent on social networks in terms of getting information on mobile money. Therefore, their assumption was that the adoption of mobile money services is likely to improve upon should promotion programme is targeted at networks that were more social. Gikunda et al. (2014) examined the socioeconomic effects of the adoption of M-PESA mobile money system on the means of subsistence in the sub-County of Bureti. The findings show a positive and strong correlation between M-PESA and job creation, access to credit facilities the generation of income in the rural and urban zones of Kenya. Similarly, Mbiti & Weil (2011), via an expression of the way M-PESA is used and its economic impact with credit to individual data on financial access in Kenya. Emphasize that the increased usage of M-PESA tends to reduce the probability of the use of formal saving mechanisms including ROSCAs (Rotating Savings and Credit Associations), they argued that there is an increase in the likelihood of their access to banking services. In addition, using aggregated data, the authors explained the speed of M-PESA to be between 11.0 and 14.6 on individual-to-individual transfers per month, as well as M-PESA resulting to a drop in the prices of competition in 12 money transfer services such as Western Union.

Even if there are some fact of people using their M-PESA accounts as a channel for savings, M-PESA has enhanced individual results by encouraging banking services and increasing transfers. Demircuc-Kunt & Klapper, (2012) uses the Global Financial Inclusion (Findex) data of 1,000 nationals of age 15 and above in about 148 countries to reveals that the unbanked are unreasonably clustered in the developing world. They noticed only a small proportion of South Asians, a quarter of Sub-Saharan Africans, and less than a fifth of Middle-Easterners and North Africans have an account at a formal financial institution. Applying data from over 200 banks in 62 countries, Beck et al. (2008) highlight affordability of deposit services and physical distance as limitations to access. Part of the limitations to financial inclusion in Findex are aided by country-level data, including the costs of opening and maintaining an account, branch and ATM penetration, and number of documents required to open an account. For instance, unbanked individuals are more likely to report cost as a barrier in countries with higher banking costs and lower bank branch penetration (Allen et al., 2013). Hence, the authors advocate for changes in government regulations (like easing documentation requirements for small accounts or allowing deposits collections by bank agents) and government subsidized and commercial innovations (like mobile money) intended to alleviate these constraints. Ondiege (2015) demonstrated with qualitative techniques the role of regulatory impact of mobile money and financial inclusion in the provision of financial services such as payments and deposits in selected African countries - Kenya, Nigeria Tanzania and Uganda. He stressed the dissimilarities among the (4) countries and their financial regulatory environment, as well as the impact they had on the introduction of financial inclusion using the mobile financial services. According to him, MMOs still face several challenges in these selected countries that may weaken the growth of financial inclusion if not dealt with. Thus, they are encouraged to update their technology to be able to adopt the emerging mobile banking technology and seek solutions that are user-friendly and easy to implement. As well as the needs for regulators to redress, issues related to enhancement of supportive regulatory frameworks; lack and/or limited interoperability; among others to promote financial inclusion.

Research & Methodology

The paper adopted the voluntary sample procedure (Non-Probability sample techniques) to select 200 households from Bayelsa, Edo and Rivers States. This technique was used due to the difficulty of interface contacts because of increasing cases of Covid-19 pandemic in the country within the study period. The Multistage sampling techniques was further used to distribute the structured questionnaires to the 200 households in the three states. In the first stage, the state was divided into 3 clusters along the senatorial districts. In the second stage, 3 local government areas were randomly selected from each cluster, except Bayelsa state, making 24 LGAs in the three states. We calculated the ratio of households/questionnaire to each state in third stage using the formula,

$$n_s = \frac{\sum P_s}{N} * T$$

Where

N= total numbers of LGAs selected

T = the Non-probability sample Household selected (200)

P_s = number of LGAs selected in a state

n_s = number of households/questionnaires distributed to a state

In the fourth stage, equal numbers of household were purposively distributed to each LGAs in the states. The required data are mainly primarily sourced. They consist of responses from 24 LGAs in the region as shown in table 1. Hence, 50 responses were gotten from Bayelsa, 75 responses each from Edo and Rivers States, respectively.

Table 1: Sectorial Distributions of the Questionnaires

Senatorial District	No. of L.G.A	No. of Selected	Names of Selected L.G.A
Bayelsa Central	3	2	Kolokuma-Opokuma and Southern Ijaw
Bayelsa East	3	2	Ogbia and Nembe
Bayelsa West	2	2	Sagbama
Edo Central	5	3	Esan Central, Esan South East and Igueben
Edo North	6	3	Owan West, Etsako Central and Akoko-Edo
Edo South	7	3	Ovia North East, Egor and Ikpoba-Okha
Rivers Central	8	3	Emohua, Etche and Okrika
Rivers West	8	3	Abua/Odual, Degema and Ahoada West
Rivers South East	7	3	Andoni, Khana and Tai

Source: Authors computation

Structure of Questionnaire

The questionnaire is structured in three parts: the first part address demographic issues concerning the selected household. Part two of the questionnaire addresses issues concerning respondents economic and financial profiles and; the third part or final part of the questionnaire addresses issues concerning mobile money operations and financial inclusion, as well as their interaction with other financial services.

Method of data Analysis

Descriptive statistical tools, simple percentage and charts are used to analyze and reports the responses from the 200 households. Specifically, mean rating on 3-point Likert scale is applied for answering questions on Mobile Money Operations and Financial Inclusion. The Confidence Index (CI) is used to calculate the decisions of the respondents. The decision rule is to maintain the proposition whether the empirical mean score of the Confidence Index is Negative or Positive 3.

The Net Balance Method is used to compute the confidence index. It is the percentage of positive replies, unchanged replies and negative replies indicate the direction of change.

Thus,

$$CI = P - N$$

Where

CI=Confidence Index or the Net Balance

P = Positive Response or Percentage of Agree

N=Negative Response or Percentage of Disagree.

Four different tests statistic were further employed for the analysis of distribution, equality of mean, median and variance for hypotheses testing. The test statistics are the Pearson X^2 test (Chi-Square Analysis) for the analysis of distribution, Fisher Test (ANOVA) for the analysis of the equality of mean for the three states, Kruskal Wallis Test for equality of median between series for the three states and Brown-Forsythe test of equality of variance between series for the three states. The outcome of these statistics are reported on table 7 and it addresses the issues of Mobile Money Operation and Financial inclusion in the three states.

Empirical Results and Discussions

Analysis of Mobil Network and Financial Instruments in Nigeria.

Table 2: Monthly Measure of POS and Mobile Users and GSM Line in Nigeria

	POS			MOBILE			GSM		
Period	2017	2018	2019	2017	2018	2019	2017	2018	2019
	Mn	Mn	Mn	Th	Th	Th	Mn	Mn	Mn
Jan	7.95	16.10	28.16	269.59	470.44	724.80	0.00	237.76	249.22
Feb	8.61	16.73	25.78	403.96	515.69	932.36	0.00	237.62	248.45
Mar	10.09	20.73	29.82	506.31	620.72	1258.53	0.00	238.12	250.26
Apr	10.42	20.75	33.37	479.54	579.53	1446.64	234.60	238.03	253.04
May	11.13	23.18	35.47	511.55	669.67	1788.86	238.79	240.26	254.92
Jun	11.22	23.30	35.10	286.70	605.76	1847.14	236.90	239.34	258.49
Jul	12.74	24.07	39.22	356.97	625.59	2897.73	237.63	238.22	259.14
Aug	13.28	26.12	41.38	405.27	662.18	4398.33	236.60	240.43	263.62
Sep	13.30	25.85	40.74	428.36	610.55	4717.20	237.79	242.75	264.40
Oct	15.05	27.73	41.60	470.18	569.84	6221.41	236.71	243.75	265.61
Nov	15.43	29.41	41.83	502.80	632.41	6741.23	237.01	246.75	268.48
Dec	17.06	31.93	46.14	509.48	667.58	8237.84	236.93	251.65	268.55

Source: Nigeria Inter-Bank Settlement System Plc (NIBSS) and Nigerian Communications Commission (NCC)

Table 2 shows the trend of financial instrument and Mobile in Nigeria, we observed that the monthly measure of POS in Nigeria from 2017 was on the increase from January 2017 down to December 2017, it dropped slightly in January 2018 from 17.06 million subscribers as at December 2017 to 16.10 million subscribers and thereafter have been experiencing an increase on a monthly basis with its highest value at 46.14 million at December 2019. Looking at the number of mobile users, there was an increase on a monthly basis on the number of mobile users. However, there were outstanding increases between July 2019 and August 2019, September 2019 and October 2019 and also between November 2019 and December 2019. Each having an increase of 1500 users. The data on the number of GSM line users were not available for January 2017 to March 2017. The number of GSM line users between April 2017 to July 2017 declines and also increases slightly and hovers around 237.01 million on an average. From August 2018 till December 2019, the number of GSM users have been on the increase.

Plotting the monthly growth rates of POS, mobile money and GSM in Nigeria for the period January 2017 to December 2017 gives the figure below;

Figure 1: Monthly Growth Rates of POS, Mobile Money and GSM in Nigeria, 2017-2018; *Source:* Author's Computations from Nigeria Inter-Bank Settlement System Plc (NIBSS) and Nigerian Communications Commission (NCC).

Figure 2: Monthly Growth Rates of POS, Mobile Money and GSM in Nigeria, 2018-2019; *Source:* Author's Computations from Nigeria Inter-Bank Settlement System Plc (NIBSS) and Nigerian Communications Commission (NCC).

Table 3: Annual Contribution of the Volume of E-Payment system in Nigeria

Period	ATM	POS	Web Pay	Mobile Pay	NIP	NEFT	M-CASH	E-Bills Pay	Remita	NAPS	C.Pay
2009	95.26	0.80	2.36	1.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	94.01	1.68	2.50	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	97.84	0.59	0.54	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	90.30	0.61	0.55	0.55	1.07	6.91	0.00	0.00	0.00	0.00	0.00
2013	79.69	2.54	0.78	4.27	4.62	8.11	0.00	0.00	0.00	0.00	0.00
2014	76.02	3.96	1.06	5.54	7.76	5.67	0.00	0.00	0.00	0.00	0.00
2015	69.96	5.44	1.29	7.09	11.56	4.67	0.00	0.00	0.00	0.00	0.00
2016	65.69	7.09	1.57	5.24	17.10	3.31	0.00	0.00	0.00	0.00	0.00
2017	54.15	9.89	1.96	3.23	25.08	2.10	0.01	0.06	2.69	0.80	0.03
2018	41.18	13.92	2.39	4.10	34.31	1.26	0.01	0.05	2.09	0.64	0.06

Source: Author's Computation from Central Bank of Nigeria (CBN) Statistical Bulletin, 2018.

Table 3 show the annual contribution of ATM to the volume of E-payment system in Nigeria has decline owing the advent of other means of withdrawals and payments. While POS contribution experienced an initial decline between 2010 and 2011 but after which its contribution remain increased due to the increased the number of POS outlets in Nigeria. The contribution of Web pay declined drastically between 2010 and 2011 but has been on the increase afterwards. Mobile pay contribution experienced a decline between 2010 and 2012 but there after experienced a sporadic increase from 0.55 to 4.27 in 2013. It also experienced increase from 2013 down to 2015, thereafter a decline from 2016 to 2017. The contribution of NIP has also increase on a yearly basis. The contribution of NEFT increase between 2012 and 2013 thereafter-experienced decline from 2014 to 2018. M-Cash, E-Bills pay, NAPS, C-Pay and Remita has been contributing slightly to the volume of E-payment system in Nigeria.

Table 4: Annual Contribution of the Value of E-Payment Transaction in Nigeria

Period	ATM	POS	Web Pay	Mobile Pay	NIP	NEFT	M-CASH	E-Bills Pay	Remita	NAPS	C.Pay
2009	85.05	2.48	13.05	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	90.00	0.76	5.64	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	93.44	0.16	3.57	1.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	10.10	0.17	0.16	0.16	19.80	69.53	0.00	0.00	0.00	0.00	0.00
2013	9.98	0.41	0.17	0.50	38.28	50.50	0.00	0.00	0.00	0.00	0.00
2014	9.45	0.71	0.19	0.89	51.15	37.53	0.00	0.00	0.00	0.00	0.00
2015	9.09	0.76	0.21	1.01	58.71	29.96	0.00	0.00	0.00	0.00	0.00
2016	8.41	0.76	0.22	1.28	64.23	24.58	0.00	0.00	0.00	0.00	0.00
2017	6.48	1.10	0.19	1.11	56.57	15.05	0.00	0.55	13.63	5.00	0.01
2018	5.08	1.87	0.32	1.43	63.00	8.64	0.00	0.39	14.49	4.77	0.01

Source: Author's Computation from Central Bank of Nigeria (CBN) Statistical Bulletin, 2018.

Table 4 show the annual contribution of ATM to the value of E-payment transaction in Nigeria has been on the decline owing the advent of other means of withdrawals and payments. There was a sharp decline of ATM's contribution to the value of E-payment from 93.44 to 10.10 between 2011 and 2012; an 89% decline. While POS contribution experienced declines between 2010 and 2012 but after that period, its contribution has been increasing slightly on a yearly basis. The contribution of Web pay declined drastically between 2009 and 2011 but however has been on the increase afterwards slightly with the exception of 2017 where it declined very slightly. Mobile pay contribution experienced decline between 2010 and 2012 but there after experienced increase on yearly basis. The contribution of NIP has been on an increase on a yearly basis from 2012 to 2016 but however there was a decline in 2017 followed by an increase in 2018. The contribution of NEFT experienced decline from 2012 to 2018. M-Cash contributed nothing to the value of transaction for the period under review. E-Bills and C-Pay contributed slightly to the value of E-payment transaction in Nigeria. Remita and NAPS contributed to the value of E-payment transaction just between 2017 and 2018.

Figure 3: Register mobile Money Agent and Transaction in Nigeria, 2012-2018; *Source:* IMF Database. **MMR**=No. of Register Mobile Money Agents; **VMMT** =Volume of Mobile Money Transactions.

From the figure 3 above, the register mobile money agent increases steadily from 2012 to 2015 and was at it peak in 2015. The registration pattern of Mobile Money in Nigeria experienced a sharp decline in 2016, even declined further in 2017, and thereafter increased in 2018.

On the other hand, the volume of mobile money transactions has been on the increase since 2012 to 2018 with sporadically peak in 2018. The sharp increase of volume of mobile money transactions in 2017 and 2018 is trace to the improvement in financial innovation in the country that have led to the advent of easier means of payments and withdrawals as well as progress in financial inclusion.

Figure 4: No. of Mobile Money Agent Per 100000 Adults and 1000km² in Nigeria, 2012-2018; *Source:* IMF Database. **NMMAD**=No. of Mobile Money Agent per 1000km²; **NMMAA** = No. of Registered Mobile Money Agent Per 100000 Adults.

There is a very close connection between the number of mobile money agent per 1000 sq.km and the number of registered mobile money agents per 100000 adults as the movements among them were highly similar. Both increase from 2012 to 2013 and thereafter experienced a sharp decline at 2014, increased a little at 2015 and fell further at 2016 and hit minimum at 2017 and then experienced a sharp increase in 2018 and were at their maximum at 2018 which reveals that more people have become mobile money agent.

Figure 5: Value of mobile money transactions % of GDP, 2012-2018; *Source:* IMF Database.

The value of mobile money transactions as a percentage of GDP has been on a steady increase from 2012 to 2018 showing that more people are carrying out banking transactions using mobile money as it offers easier means of carrying out such transactions. There was a sharp increase in 2018 with an increase of 59% from the preceding year. This shows that over time, the contribution of mobile money transaction and financial inclusion to GDP is increasing significantly.

Table 5: Demographic Characteristics of Respondents

	Details	Bayelsa	Benin	Rivers	Total	Percentage
Gender	Male	29	37	53	119	59.50
	Female	21	38	22	81	40.50
	TOTAL	50	75	75	200	100
Educational Background	Primary School	9	2	11	22	11.00
	Secondary School	14	37	30	81	40.50
	Post-Primary Certificate	12	3	4	19	9.50
	Post-Secondary Certificate	9	8	11	28	14.00
	University	6	16	12	34	17.00
	Graduate (Post-Graduate/Master's Degree)	0	8	4	12	6.00
	Post Graduate (Doctorate Degree)	0	1	0	1	0.50
	No Formal Education	0	0	3	3	1.50
	1 - 18 Years	6	2	0	8	4.00
	19 - 29 Years	18	27	4	49	24.50
Age Brackets	30 - 39 Years	14	25	30	69	34.50
	40 - 49 Years	9	18	17	44	22.00
	50 - 59 Years	3	3	12	18	9.00
	60 Years and above	0	0	12	12	6.00
	Employee of Government Organization	6	31	10	47	23.50
Occupations	Employee of Private Organization not registered with govt.	13	19	1	33	16.50
	Self-Employed	13	14	4	31	15.50
	Self-Employed without employees	15	2	45	62	31.00
	Person without income	3	1	5	9	4.50
	Student	0	6	1	7	3.50
	Agro-Business	0	2	9	11	5.50
Income Class of Respondents	0 - 30,000.00	13	26	38	77	38.50
	0 - 50,000.00	15	11	14	40	20.00
	51,000.00 -100,000.00	6	13	13	32	16.00
	110,000.00 -150,000.00	13	6	3	22	11.00
	160,000.00 - 200,000.00	3	8	3	14	7.00
	210,000.00 - 250,000.00	0	5	1	6	3.00
	260,000.00 - 300,000.00	0	1	3	4	2.00
	310,000.00 - 500,000.00	0	1	0	1	0.50
	510,000.00 and above	0	4	0	4	2.00

Source: field Report

Using the probability sampling technique, 200 questionnaires were distributed such that 50 was sent to Bayelsa, 75 and 75 were sent to Benin and Rivers States respectively. We observed that women participated more than men in Benin whereas the reverse was the case in Bayelsa and Rivers States. In all 119 questionnaires were distributed to the men and 81 distributed to the women. Making women to account for 41% of the total responds rates as well reduces the biasness of gender participations in the study. It was equally

noticed that insignificant number of the respondents have at least a university degree or higher diploma and a significant portion have secondary school certificates and below. 117 of the respondents or 58% earned income of 50,000-naira monthly and below. The low-income gap among the respondent could effect on their participation of financial inclusions and Mobile Money Operation in the region.

Table 6: The Matrix of Confidence Index

Do the following have a constraint on your business financial transaction?	Bayelsa	Benin	Rivers	Total
Insufficient Funds:	15	39	61	115
Network Challenge:	3	39	-20	22
Account Wrongly Debited Without Reversal:	0	17	-50	-33
E-Fraud Situation:	12	-5	-51	-44
Unclear Economic Policies/Laws:	9	-8	-37	-36
Power supply:	7	45	2	54
Competition:	0	25	-26	-1
Low demand:	-6	-6	2	-10

Source: Author's Computation from field Report

Table 6 shows the confidence index of respondent opinion on various constraints of financial inclusion in the region. Positive index implies the constraints are positive on financial inclusion in the region and negative index indicates the constraints are ineffective on financial inclusion.

The table shows the analysis from the three states and the entire regions, which are, signifies as **Total**. In Bayelsa low demand was the only constraints that is ineffective on financial inclusion. In Benin E-Fraud situation, unclear economic Policies and low demand are the constraint that have weaker effects on financial inclusion. In all the respondents are confident that epileptic power supply, insufficient funds and Network challenges are the major setback for the exclusions of persons from the financial stream in the three states. We further demonstrated the validate of our findings using the mean scores on table 7.

Table 7: The Analysis of Respondent on MMO and Financial Inclusion

Questions	X ² -Test	F-Test	U-Test	B-Test
As a user of financial services, how long does it take you to access PoS or related services from your residence?	17.33**	0.0872	0.0288	0.1859
How long does it take your issue to be resolved?	12.0000	0.5564	0.9904	2.2823
How much do you pay as a charge on #5,000.00 withdrawal on PoS?	15.0000	0.0141	0.1193	0.5440
How much do you pay as a charge on #10,000.00 withdrawal on PoS?	10.5000	0.1373	0.9556	0.1803
How much do you pay as a charge on #50,000.00 with drawal on PoS?	15.0000	0.1291	0.4222	0.0048
Do you encounter any issue on your transactions? If yes, what are the issues encountered?	15.0000	3.2188	3.8222	0.5102
How frequently do you encounter such issues?	15.0000	0.7058	1.6889	0.2081
What means do you use to access the MMO?	6.0000	0.0081	0.0347	0.3434
What is the distance from where you stay to the nearest pay point?	18.6667*	0.1086	1.4234	0.0772
What instruments do you use in your financial transactions?	44.0000	2.5238	3.03865	0.6002
How often do you access financial transactions?	42.00**	0.8815	2.3509	0.1993
When issues arise upon executing transactions, how long does it take to be resolved? (e.g. network)	6.0000	0.1092	0.9286	0.1858
When issues arise upon executing transactions, how long does it take to be resolved? (e.g. debit alert but no credit alert)	28.0000	0.2727	0.7308	0.4402
If yes, kindly tick how you got to know about it.	6.0000	6.11**	5.422*	1.1935

Source: Author's Computation from field Report.

The results on table 7. Show that in most cases the mean scores of the tests methods was insignificant, indicating that the results gotten from the three states are statistically unequal; hence, the challenges phased by the states are peculiar to social and economic activities of the states. The results also show respondents attitude and commitment to participating with financial inclusion and the use of it instrument in their respective states, hence there are statistically significant relationship between MMOs and Financial Inclusion in the Niger Delata Region of Nigeria.

Conclusion

Literature have shown that lack of access to financial instruments and services are major channel for poverty amplification in the society. We attempted to explain the effects of mobile money operations on financial inclusion with a survey analysis in this paper. Using information from various secondary sources, we observed that e-banking channel in Nigeria have improved tremendously with little attention given to the rural areas. We observed that POS have gained higher momentum with reduction in ATM channel, whereas

mobile money operation has dwindled in the presence of accelerating GSM Users in the country. However, the study provided evidence that the overall contribution of POS and Mobile-Pay to the e-Payment transaction in Nigeria are gaining momentum. The survey results show a visual cycle of higher number of respondents with educational qualification of secondary school and less which have led to low income and an ineffective participation to mobile money and financial inclusions in the rural areas.

Our empirical finding identifies poor internet and mobile networks, epileptic power supply, unclear economic policy as the major setback of improving financial inclusions using mobile money operations. Other indicators like low demand or patronage, competition, transaction constraint shows insignificant roles in the encouraging of financial inclusions through mobile money operation in Nigeria. This study is of the opinion that participation of Nigerians in mobile banking and financial inclusion are still not encouraging; that is to say that the growth of mobile banking and financial inclusions to facilitate financial system soundness and enhances economic growth and development required more motivations from institutions other than the financial institution as ways of encouraging Nigerians participation. In this regard, we can assume that the financial system (banks and non-banks institutions) have provided the needed instrument for citizen participation but the social and economic conditions of the country is the bottleneck for financial inclusions.

From the findings of this paper, for financial inclusion to be encouraged, an increase level of usage of mobile money must be found among individuals between the ages of 40 and 64, (i.e. the working-age population). They could be sensitized through financial literacy programmes, (for example, the CBN's Customer Forum Programme)

Action must be taken to raise the level of individual income. This can be achieved through an increase in minimum wage, introduction of policies that will encourage ease of doing business for small and medium enterprises, and etc. Also, payment of incentives such as bursary, scholarship and free education will be another catalyst to financial literacy.

Federal government Conditional Cash Transfer for the elderly, and other transfers should be used as an avenue for financial inclusion. Beneficiaries should be compelled to open an account with any deposit money bank as a prerequisite to receiving such transfer.

The need for mobile money operators to register their presence in the rural geographical confines cannot be overemphasized. This is particularly important as it is easily accessible to them. But this cannot be achieved without the enabling infrastructures, such as regular power supply, good internet network, accessible road network, and security. Also, governments should review the degree of their implications in financial sector so that financial institutions' activities could become more competitive.

A major limiting factor of this study is that due to the Covid 19 pandemic, most rural areas were not accessible even after development of a new plan to access the area through mobile phone calls.

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