
Nexus between E-Banking and the Upsurge of Crime in Kaduna State, Nigeria

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Abstract

This study examines the nexus between e-banking and the upsurge of crime with a focus on Kaduna metropolis Nigeria. A systematic sampling technique was used through Taro Yamane formula to calculate the sample size. The study used semi-structured questionnaires, interview guides, and tape recording to sample 400 residents. The data were analysed using percentage method, frequency and logit regression. The findings revealed that E-banking has significant effect on crime upsurge in Kaduna state. The study concludes that Crime level reduced in terms of frequency and prevalence but the pattern of crime changed, New type of crimes such as Kidnap for ransom and Automated teller machine (ATM) theft increased. The study therefore recommends that urgent measures by the CBN through the banks should be taken so that information and telecommunication can be used in order to curtail the new pattern of crime caused by E-banking in Nigeria.

Keywords: E-banking, Crime, ANOVA, Kidnapping, ATM, Cashless policy

JEL Classification: O33

1. Introduction

Adoption of Information and Communication Technology in the banking sector is commonly referred to as electronic banking (E-banking), and the application of its concepts, techniques, policies, and implementation strategies to banking services has become a subject of fundamental importance and concern to all banks, as well as a prerequisite for local and global competitiveness, because it directly affects management decisions, plans, and products and services to be offered. It has continued to change the way banks and corporate relationships are organized around the world, as well as the variety of service delivery innovations Adewuyi, (2011). An electronic-based cashless banking policy was emphasized in Nigerian society and subsequently implemented in 2012 by the Central Bank of Nigeria. The policy became effective on June 1, 2012. It started with a cumulative daily limit of N500,000 and N3 million on cash withdrawals and lodgements by individual and corporate bodies, respectively, free of processing fees (or cash handling charge or service charge). In addition, Nigerian banks ceased cash in transit lodgement services rendered to merchant customers from January 1, 2013 Ezeudu & Anyanwu, (2014). One of the government agencies saddled with the responsibility of monetary policies of the government_ the central bank of Nigeria outlined various aims and objectives for the introduction of e-banking in Nigeria. Other aims of the cashless system and its intensification with the deployment of the e-banking system is to curb “some of the negative consequences associated with the high usage of physical cash in the economy, including the high cost of money that is

in production, handling and movement from bank to bank and the general public, high subsidy and corruption CBN, (2011). Owners of credit and debit cards, like millions of other people around the world, are not left out and may be subjected to fraud as e-payment becomes more widely accepted. The CBN (2016) reported a N2.19 billion loss by the country's commercial banks due to e-fraud in the 2016 fiscal year. In 2016, there were 19,531 reported cases, compared to 10743 in 2015. Between 2015 and 2016, there was an 82% increase in e-fraud cases. From the years since, the figure has skyrocketed.

As e-payments become more widely accepted, fraudsters are rapidly devising new ways to commit cybercrimes. Owners of credit and debit cards, like millions of other people around the world, are not excluded and may be victims of fraud. In the 2016 fiscal year, the country's commercial banks lost N2.19 billion to e-fraud, according to CBN; In 2016, there were 19,531 recorded cases, compared to 10743 in 2015. Between 2015 and 2016, there was an 82% increase in e-fraud cases, since then, the figure has been rising dramatically. A breakdown revealed that the highest value was accounted for by across-the-counter transactions, with a total value of N511.07 million. Following that were ATM transactions worth N464.5 million, Internet banking transactions worth N320.66 million, and mobile banking transactions worth N235.17 million. Other losses include e-commerce transactions worth N132.25 million, web transactions worth N83.77 million, cheques worth N4.55 million, kiosks worth N10.19 million, and others worth N190.97 million, Amaefule and Onu, (2019). Acha, Clement, & Agu (2017) conducted a study on the identification of e-banking platforms, challenges, and prospects of e-banking, by grouping all the challenges, problems, and prospects without isolating each segment of the entire system. The findings of this study may particularize or segment the issues and challenges of the e-banking system. That is, the study will provide impetus for categorizing the various segments of the system chain. This study intends to look at the effects of the e-banking system on crime. Armeiy, Lipow & Webb (2014) and Wright et al. (2014) in their studies on less cash, less crime, were unanimous in their findings on the reduction of cash-related crimes in their various areas of study with the introduction or enforcement of electronic benefit transfer systems. The need, therefore, to replicate their studies in Nigeria in general and Kaduna state, in particular, to verify, confirm, and validate their studies can never be overemphasized. The fundamental research problem of interest for this research is that we need to find the link between e-banking and the upsurge of crime, using Kaduna State as a case study. And our objective is to identify the nexus between e-banking and the upsurge of crime in Kaduna state. This study is significant because it will provide a deeper understanding of what cashless banking policy constitutes in an economic system. In particular, explain why money-related crimes continue to occur in the country despite introducing and implementing a cashless banking system.

2. Literature Review

Conceptual Review

E-banking: This refers to the using an electronic purse, which can be done via the Internet on P.C.s, laptops, and other devices. Bank customers who have subscribed to internet banking can do online banking transactions in the comfort of their homes or offices. Felix et al. (2015) summarise all the cited conceptualizations of electronic banking, which is this study's working conceptualization. E-banking is the "conduct of banking business electronically that involves using information technology to drive banking business." This study, therefore, is working with the definitions and conceptualizations of electronic banking as outlined above.

More so, the Basel Committee report on banking and supervision, in Olanipekun et al. (2013) sees e-banking as the provision of retail and small value banking product and services through electronic channels such as deposit-taking, account management, provision of financial advice, e-bill payment, and the provision of other e-payments and services. Gupta (2017) sees e-banking or virtual banking as an electronic payment system that enables customers of a bank or other financial institutions to conduct various financial transactions through the financial institution's websites. Essentially, e-banking is an electronic bank that provides financial services for individual clients utilizing the Internet. Similarly, Ikpefan, Enobong, Osuma, Evbuomwan & Ndigwe (2015) posit that e-banking connotes conducting banking business electronically. It involves the use of the Internet to perform various banking transactions. Essentially, therefore in this study, e-banking connotes the provision of alternative payment channels that enables a minimized use of physical cash in transactions. As much as it encourages electronic systems, any concept cash-less system in this study is constructed to be the same as the electronic banking system.

Crime: Crime is an action or omission which constitutes offences and, therefore, is against the law. Ismaeil, Musa & Magaji (2019) contend that it is deterrence to compliance on a particular issue, policy, or law. Economic crime is a product of stagflation: the coexistence of inflation, unemployment, and stagnation (Aluko & Magaji, 2019). From a Sociological perspective, poverty, illiteracy, and moral decadence caused crime (Magaji, Dagachi & Ja'far, 2018). It is also a product of mis-governance by those in charge of the constituted authority, or at best mismanagement, corruption, leadership crisis and instability (Magaji, Gurowa, & Abubakar, 2014). This results in dire consequences on social setting and economic growth as well as stagnation (Magaji & Dagachi, 2013).

Empirical Literature

Ebem, Onyeagba & Ugwuonah (2017) identifies the following challenges inherent in the e-banking system: identify theft, with attendant techniques such as email-based phishing scan, short message scan, and phone calls related scan. The research revealed that 70% of the respondents answered yes as to whether they have ever lost money to internet fraudsters or yahoo. However, 21% responded negatively for Yahoo boys while only 9% responded with 'Don't Know. For example, a study on the mechanics, benefits, and problem of e-banking in Nigeria, Acha, et al., (2017) show that 34% of the respondents cited the issue of internet fraud, 15.5% noted problems of limited POS/ATM, 19.6% of the respondents cited illiteracy among users and 30.7% were neutral. For example, many phone users in Nigeria have experienced receiving "fake" messages from fraudsters ostensibly sent by their banks; billions of naira has been lost in the process. Similarly, Armye, et al., (2014) investigate the impact of electronic financial payment on crime. The study opined that even though to date, no country has fully implemented a genuinely cashless economy, therefore, there is no way to confirm with certainty whether and to what extent the elimination of physical cash would reduce criminal activity; however, money must be eliminated of criminals are to be forced into using electronic financial transactions (as alleged in some quarters in Nigeria where criminals use P.O.S. to commit robbery), the study concluded that greater access to the electronic banking system should straightforwardly lead to fewer robberies and thefts.

Adu (2016) examines the introduction of e-banking, seven systems/channels were identified in Nigeria viz A.T.M., P.O.S., Mobile voice, Web. Interbank has to have both positive and negative effects on the policy, in addition to the benefits of the approach to

stakeholders viz: the consumers, corporations, bank, the economy, and government, even though one of the positive effects as established by the volume of cash movement through bullion vans, the use of electronic banking system will no doubt reduce the incidence of robbery in the society. However, the article did not give statistical details for the bogus claim of the capacity of the system to, among others, reduce crime - robberies. Moreover, today, society is witnessing a manifestation of other typologies of crime that may result from cashless banking. Okpala (2015) in a study on E-banking and economic effects in Lagos state, uses the structured questionnaire to develop set information from the respondents, and the instrument was validated by experts. Exploratory factor analysis (E.F.A.) was conducted to confirm the reliability in addition to Contech's Alpha Reliability Coefficients. The findings were astonishing as they reveal, among others, that there is a relationship between electronic banking and the quality of banks services. Furthermore, bank robbery also translates to the claim that the introduction of e-banking has reduced cash-related robberies (bank) in Lagos state to a large extent. Ayuba, Mugu, Tanko, & Bulus (2016), in a study aimed at mapping and analyzing of crime in Kaduna metropolis before electronic banking, the geospatial technique was applied, delineating police districts according to divisional police headquarters within the Kaduna metropolis. The study identifies Tudunwada, Sabon Tasha, Rigachukun, and Rigasa as major crime hot spots, and theft/stealing/hurting/fighting ranked highest with 19.29% and 16.82%, respectively. Worthy of note is that the study was silent based on crime causation, particularly as it bothers on a possible linkage between e-banking. However, this assertion has been contradicted by Pritchard (2019), who believes that cashless banking leads to decrease in the crime rate. He maintained that it's easy to steal money, both large and small amounts of money with cash.

Again, the introduction of Point of Sale (P.O.S.) has resulted in other forms of criminal activities in Nigeria. Thieves now go about with P.O.S. in their vehicles. Victims are compelled to slot in their A.T.Ms for instant withdrawals, which is more accessible than using riffles to rob on the highways, as used to be the case in the past. In other instances, robbers will accompany their victims to the nearest banks to withdraw money from the A.T.M. quietly without gun shorts (Ilia, 2018). Amaefule and Onu (2019) examine prevalence of electronic fraud in Nigeria banking system, the data for the study were obtained through structured questionnaires and various secondary sources. The responses obtained from majority of respondents, were of the opinion that electronic banking is a convenient way to carry out financial transaction and manage finances. The result shows significant majority expressing their concern in rapid increasing trend of electronic banking fraud and payment system, which has become a potent threat to the Nigerian banking industry. Also various secondary sources have provided substantial report on e-fraud cases in banking industry. Olaleye and Fashina (2019) examine Electronic Banking Fraud in Nigeria: Effects and Controls. The study adopted a case study research design for data collection, which was based on the use of secondary; the study focuses on the Nigerian Electronic Fraud Forum (NeFF) Annual Report 2016. It was observed that the year 2016 witnessed 19,531 fraud cases reported as against the 10,743 recorded in the year 2015, and this represented an 82% increase. However, there was a marginal reduction in attempted fraud value and actual loss. The study revealed that there is a significant relationship between e-banking practices in Nigeria and the rate of increase in the security of banking transactions. The practice of e-banking has significantly increased the volume of banking transactions. It has also improved service delivery to customers and made it easier. The study shows that the effect of electronic

fraud would result in the loss of money that belongs to either the bank or customers. It could also destroy the bank's reputation, among others. The study concluded that despite the security problems associated with electronic banking practice in Nigeria, it has improved the operational efficiency of banks.

Theoretical Framework

Diffusion of Innovation (DOI) Theory, developed by Rogers in (1962), is one of the oldest social science theories. It originated in communication to explain how, over time, an idea or product like the electronic banking system gains momentum and diffuses (or spreads) through a specific population or social plan (Rogers in (1962)). The result of this diffusion is that people (the banking industry in Nigeria), as part of the global social system, adopt a new idea, behaviour, or product (the electronic banking infrastructure platforms). Adoption means that a person does something different from what they had previously (shift from the analogue system of banking – the innovation). The key to adoption is to perceive the idea, behaviour, or product as new or innovative. It is through this that diffusion is possible. Adopting a new idea, behaviour, or product (that is, "innovation") does not happen simultaneously in a social system; instead, it is a process whereby some people are more apt to adopt the innovation than others. Researchers have found that people who embrace an innovation early have different characteristics than people who adopt an innovation later. Therefore, when promoting innovation to a target population, it is essential to understand the features of the target population that will help or hinder the adoption of the invention. There are five established adopter categories: Innovators, Early adopters, Early majority, Late majority, and Laggards.

3. Methodology

The research adopted survey design. Random samples of 400 respondents were selected using adjusted Taro Yamane formula for calculating sample size. A questionnaire was used to elicit responses and data was analyzed using percentage method, frequency, chi-square and ANOVA. The study area for this research is Kaduna Metropolis in Kaduna State of Nigeria. It has population of 1,828,911 as at 2021 based on projection. It is the state capital of Kaduna, fourth largest city of Nigeria and an industrial and commercial centre with well-established commercial banks. Bank customers, bank officials and law enforcement agents in the state constitute the respondents. A systematic sampling technique was used for this study. The adjusted Taro Yamane (1968) formula was used in selecting the sample size of 400. Hence our sample size is 400. The study targeted all the police officers in charge of all the police posts numbering 65, 20 Economic and Financial Crimes Commission (EFCC) officials, 60 bank managers and 255 customers to get total of 400 sample.

To assess the nexus between e-banking and the upsurge of crime in Kaduna state, Nigeria, the study employed the *Logit Probability Model* given as follows:

$L = P = 1$, if e-banking increases crime in Kaduna; promotes fraud; $(1 - P)$, if otherwise.

$Prob(y = 1) = 1/1 + e$ 1

Taking the logarithm is:

$Z_i = \alpha + B_1Y_1 + B_2Y_2 + \dots + B_kY_k$ 2

If the error term (e) is taken into account, the logit model becomes:

$Z_i = \alpha + \sum_{i=1} B_i Y_i + e_i$ 3

Therefore, $Z_i = \alpha + \beta_1 Y_1 + \beta_2 Y_2 + \beta_3 Y_3 + e_i$ 4

$EB = \alpha + \beta_1 AS + \beta_2 OF + \beta_3 ML + e_i$ 5

Where; $Y_1 = AS =$ ATM Skimming, $Y_2 = OF =$ Online Fraud, $Y_3 = ML =$ Money Laundering

4. Result

In this section, analysis of frequencies and patterns as opinionated by both respondents of the questionnaire and interview before and after the introduction of E-banking is presented and analysed. Only 317 responses were obtained out of the targeted sample.

Table 1: Respondents' view on the rate of crime before and after E-banking

Statement	Yes (2)	No (1)	Total	Mean score	Decision
Do you think E-banking has reduced the rate of crime?	38 (12%)	279 (88%)	317	1.11	No
Was cyber-crime common in Kaduna metropolis before E-banking?	248 (78%)	69 (22%)	317	1.78	Yes
Do you think that E-banking has reduced cyber-crime?	42 (13%)	275 (87%)	317	1.13	No
Do you think that E-banking has increased financial crime?	285 (90%)	32 (10%)	317	1.90	Yes

Source: Author's Computation

The result from Table 1 indicates respondents' views on E-banking and crime rate. E-banking has reduced cyber-crime because the mean item scores of 1.11 and 1.13, respectively, were less than the 2 – Dichotomous scale measurement mean of 1.5. It can also be seen from the result that respondents agreed that; 78% and mean score of 1.78 and the E-banking has increased financial crime with the frequency of 285 respondents, 90% and mean score of 1.90. These two items' mean scores were greater than the 2 – Dichotomous scale measurement means of 1.5, implying that the respondents agreed that cyber-crime was not common in Kaduna metropolis before the introduction of the E-banking in the economy and that it has increased financial crime in Kaduna state.

Table 2: Respondents' view on Type of Crimes Prevalent before E-banking

Type of Crimes	Frequency	Percentage
Burglary	23	7.3
Robbery	25	7.9
Theft	54	17
Obtaining by pretence	34	10.7
All of the above	181	57.1
Total	317	100%

Source: Author's Computation

Table 2 presents the respondents' view on the type of crimes prevalent in kaduna before the introduction of cashless policy. A breakdown of the result indicates that crimes like burglary with the frequency of 23 represents 7.3% of the total crimes. Robbery, records 25 frequency (7.9%), Theft gets 54 frequencies (17%) and obtaining by pretence has frequency of 34 (10.7). However, 181 (57.1%) of the respondents reports that all of the four cases of crimes were prevailing.

Table 3: Respondents' view on Type of Crimes that are Trending after E-banking

Type of Crimes	Frequency	Percentage
Kidnap for Ransom	54	17.0%
Theft of ATMs	67	21.1%
Bank related cyber-crime	89	28.1%
Others	107	33.8%
Total	317	100%

Source: Author's Computation

Table 3 presents the type of crimes trending in Kaduna state after E-banking. A breakdown of the result indicated that crimes like kidnapping for ransom became prominent after E-banking, with the frequency of 54 representing 17%. Theft of ATMs, ATM cards and other bank-related cyber-crimes were also prevalent after E-banking in Kaduna state, with frequencies of 67 and 89 representing 21% and 28%, respectively.

Table 4 Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
AS(1)	4.325	1.405	2.811	1	.004	10.542	.672	165.449
OF(1)	6.034	1.414	8.153	1	.004	.018	.001	.282
ML(1)	3.112	.790	2.758	1	.007	.269	.057	1.267
Constant	5.326	.716	43.581	1	.000	112.884		

Source: Author's Computation

From the result above, it was observed that the estimated odds ratio 4.325 indicates that e-banking is 4.325 times more likely to influence ATM Skimming in Kaduna state. The result shows that e-banking has a probability level of 0.004 which is less than 0.05 (5% level of significance), this implies that e-banking have a significant impact on ATM Skimming in Kaduna state.

Similarly, the estimated odds ratio 6.034 indicates that e-banking is 6.034 times more likely to influence online fraud in Kaduna state. The result shows that e-banking has a probability level of 0.004 which is less than 0.05 (5% level of significance), this implies that e-banking have a significant impact on online fraud in Kaduna state.

Lastly, the estimated odds ratio 3.112 indicates that e-banking is 3.112 times more likely to influence money laundering in Kaduna state. The result shows that electricity supply on operational cost has a probability level of 0.007 which is higher than 0.05 (5% level of significance), this implies that e-banking have an insignificant impact on money laundering in Kaduna.

5. Conclusion and Recommendations

Using Logistic regression and descriptive analysis the study examine nexus between e-banking and the upsurge of crime in Kaduna state Nigeria, the study reveals that E-banking have influences crime rate in in the state. The study concludes that electronic banking have an effect on crime as this had reduced the level of crime in terms of frequency and prevalence.

The study therefore recommends that urgent measures by the CBN through the banks should be taken so as to use information and telecommunication to curtail the new pattern of crime caused by E-banking in Nigeria. The banks should employ the services of a cyber-security expert to help manage the e-banking products to avoid or minimize

e-banking crimes. The government, through the CBN, should provide adequate security measures for Nigeria's various e-banking products.

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