Effect of Cashless Banking on Unemployment Rate in Nigeria

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

This study examined the effect of cashless banking on the unemployment rate in Nigeria, with a focus on the aggregate data of all the banks operating in the country as at 2012-2016, as documented in the CBN annual report. An ex-post facto research design was adopted for the study; and secondary source of data collection was employed. Cashless banking system as the independent variable of this study was measured with TATM, TPOS, TMPS and TIB, whereas the dependent variable was the Nigeria's unemployment rate (UR). Data gathered were presented in tables and analysed using multiple regression technique (ordinary least square regression) of model estimation. In order to determine the overall significance of the model, students' T-significance test was observed in the model (t-transformation of regression coefficient) and was used to test the hypothesis formulated. Results show that there is a negative and insignificant effect of cashless banking system on unemployment rate in Nigeria (β= -0.790, R^2 = 0.624, t-2.233, p = 0.112). This means that cashless banking system in Nigeria does not contribute to the increased rate of Nigeria's unemployment as perceived by many people. Instead, more jobs are created for people expertise in operating the machines (ATM, POS, Internet and Mobile Phone) used in the cashless banking system. Based on the findings, it was recommended that Government and CBN should create awareness on the benefits derivable from shifting to cashless (cash-light) banking system in Nigeria, more especially on the fact that machines are not used to replace the workforce in a cashless banking system.

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1. INTRODUCTION

The increasing advancement in information and communication technology witnessed in the 21st century world has transformed the landscape of banking business in Nigeria. Modern banks now realize that only those that overhaul their payment services delivery and operations are likely to survive and prosper in the new millennium. Consequently, Nigerian banks now transit from cash based to cashless banking system. Cashless banking does not refer to an outright absence of cash transactions in the banking sector, but one in which the amount of cash-based transactions are kept to the barest minimum.

Cashless policy was introduced/ implemented in Nigeria in the year 2012 by the Central Bank of Nigeria. The CBN cashless policy effective from June 1, 2012 stipulates a daily cumulative limit of ₦500,000 and ₦3 million on cash withdrawals and lodgements by individual and corporate bodies respectively free of processing fees (or cash handling charge or service charge). Individuals and corporate organization that make withdrawals above the daily limits will be charged the processing fee of 3% and 5% (currently reviewed in February, 2017 as follows: above N500,000 - ₦1m: 2%, above ₦1m – ₦5 m: 3%, above ₦5 m: 7.5% and above ₦3m - ₦10 m: 5%, above ₦10 m – ₦40m: 7.5%, above ₦40 m: 10% -Fatokun, [1]) respectively for amount above the cumulative limits. Lodgement above the limit attracts 2% and 3% (reviewed in February, 2017 as follows: above ₦500,000 - ₦1 m: 1.5%, above ₦1m – ₦5 m: 2%, above ₦5m: 3% and above ₦3m - ₦10 m: 2%, above ₦10m – ₦40 m: 3%, above ₦40 m: 5% [1], processing fee for individuals and corporate bodies respectively CBN, [2]. This limit applies to all account so far as it involves cash, irrespective of the channel used (example- over the counter, ATM, 3rd party cheques encashed over the counter etc) in which cash is withdrawn. Furthermore, 3rd party cheques above ₦150,000 shall not be eligible for encashment over the counter from 2012. Value for such cheques shall be received through the clearing house. All Nigerian banks were expected to cease cash in transit lodgement services rendered to merchant customers from January1, 2013 [2] as cited in Ezeudu & Anyanwu [3]. It was also stated in [3] that the introduction/implementation of cashless policy began in Lagos state in 2012 and extended to Abia, Anambra, Kano, Ogun, Rivers states and federal capital territory on the 1st July 2013, and expected to reach all other parts of the country on July 1st 2014. The expected implementation of this policy in 30 remaining states (all other parts of the country as identified by [3]) will actually be implemented in the year 2017 with the newly (2017) reviewed charges [1]. Consequently, notes and currency are now converted into data and stored in an electronic purse or card which can be transmitted via electronic channels like ATMs, mobile phones, POS terminal, internet etc.

In recent years in Nigeria, there has been the persistent public outcry as regards the ever increasing spate of unemployment rate since the inception of cashless banking in Nigeria. A lot of people believe that some of the works to be done by employees are handled by machines in a cashless banking system. For instance, Ezeudu and Anyanwu [3] have it that the introduction of cashless banking policy would automatically reduce the number of personnel needed to carry out different financial transactions in the banks. Also, Yomi [4] when stating the strategies adopted by the government to boost employment in Nigeria, pointed out that local banks were threatened with a possible withdrawal of their licenses for sacking workers.

Based on the foregoing, the primary objective of the study is aimed at investigating the operations of cashless banking in Nigeria so as to determine its effect on Nigeria's unemployment rate. The specific objective of the study is to determine the effect of cashless banking policy on employment in Nigeria.

For the purpose of achieving this objective, a hypothesis which states that cashless banking system in Nigeria has significant effect on Nigeria's unemployment rate (UR) was formulated and tested.

The remainder of this paper is organized in the following manner; section 2 presents the review of the literature under investigation. The methodology follows in Section 3. Section 4 provides the results of the empirical finding. Finally, conclusion and recommendations are presented in section 5.

2. REVIEW OF RELATED LITERATURE

In this section, different literature as related to the study is reviewed in the order of conceptual framework, theoretical framework and empirical review.

2.1 Conceptual Framework

2.1.1 <u>Cashless banking</u>

From the traditional view point, banking business means the business of receiving deposits on current accounts, savings and other similar accounts and the payments and the collections of cheques drawn or paid in by customers. The definition presupposes the physical presence of the customer or his agent, client or creditor in the bank premises. Events later re-sharpen this initial arrangement to the extent that banking businesses can now be effected through digital devices (Ilaboya, 2005 as cited in Ekwueme, Egbunike & Okoye, [5]).This places electronics as prefix to banking (e-banking). Using electronic banking as a platform, the cashless policy was introduced in Nigeria, to reduce the volume of physical cash circulating in the economy in order to reduce the high cost of cash associated with cash-based banking. Hence the emergency of cashless banking.

According to Odior and Banuso [6], cashless banking is that banking system aimed at reducing, but not eliminating, the volume of physical cash circulating in the economy whilst encouraging more electronic based transaction. Akhalumeh and Ohiokha [7] posit that cashless banking system is a system in which transactions are not done predominantly in exchange for actual cash. Obinna as cited in Osazebaru, and Sakpaide [8] added that this system increases convenience, create more service options, reduce cost of cash related crimes and provide cheaper access to credit. Ejiofor and Rosak [9] view cashless system as one with the ability to store money in an electronic purse on a card which is then used to purchase product at vending machine or at any point of sales terminal located within the business premises. Supporting this view, Ovia as cited in Ezuwore-Obodoekwe, Eyisi, Enengini and Chukwubuzo [10] posits that currency and notes are converted into data which are transmitted through telephone lines and satellites transporters in a cashless banking system. Furthermore, cashless banking could be referred to as a banking system that is commonly practiced in a cashless economy. Cashless economy does not refer to an outright absence of cash transactions in the economic setting but one in which the amount of cash-based transactions are kept to the barest minimum. Daniel, Swarz and Farmar, 2004, cited in Aiyedogbon, Obumneke and Gugong, [11] viewed cashless economy as an economic system in which transactions are not done predominantly in exchange for actual cash. In a cashless society, the unit of account (example, Naira) is seen as a national affair that is provided by the state.

2.1.2 <u>An overview of cashless policy in Nigeria</u>

Generally, cashless policy is a policy that minimizes the use of cash by providing alternative channels for executing financial transactions [10]. In view of being one of the best and biggest economies in 2020, reduced the cost of cash related transactions and promote electronic banking system, the CBN introduced the cashless policy in Nigeria in the year 2012.

The CBN cashless policy effective from June 1, 2012 stipulates a daily cumulative limit of ₦500,000 and ₦3 million on cash withdrawals and lodgements by individual and corporate bodies respectively free of processing fees (or cash handling charge or service charge). At the conception of the policy in 2011, these were pegged at N150,000 and N1 million but were later reviewed. This limit applies to all accounts so far as it involves cash, irrespective of the channel used, (example, over the counter, ATM, 3rd party cheques, enchased over the counter etc) in which cash is withdrawn. The pilot was run in Lagos state in January 2012, while the policy took effect in rivers, Anambra, Abia, kano, Ogun, and Federal capital territory (FCT) on the 1st July, 2013 and expected to reach all other part of the country on July 1st, [3]. The service charge for daily withdrawals above the limit into an account took effect from Mach 30th 2012 and shall be borne by the account holder. The service charge for daily withdrawal, above the limit, is fixed at 3% and 5% and deposit fixed at 2% and 3% for individual and corporate bodies respectively. The processing fees are subject to review every six months.

In 2017, Dipo Fatokun, Director of Banking and Payment System Department gave a report on the current CBN reviews charges on deposit and withdrawal as decided in the 493rd meeting of the

Bankers Committee held on the 8th February 2017. The report states that the cashless policy is being extended to the 30 remaining states of the federation. The new charges will take effect from: 1st Aril 2017, in the existing cash-less states (Lagos, Ogun, Kano, Abia, Anambra, Rivers and the FCT)); 1st May 2017 in Bauchi, Bayelsa, Delta, Enugu, Gombe, Imo, Kaduna, Ondo, Osun and Plateau; 1st August 2017 in Edo, Kastina, Jigawa, Niger, Oyo, Adamawa, Akwa-Ibon, Ebonyi, Taraba and Nasarawa; and 1st October 2017 in Borno, Benue, Ekiti, Cross-River, Kebbi, Kogi, Kwara, Yobe, Sokoto and Zamfara. The new service charge rates for individuals and corporate organization that make withdrawals above the daily limits is as follows: N500,000 - N1 m: 2%, above N1 m – N5m: 3%, above N5m: 7.5% and N3 m - N10 m: 5%, above N10m – N40m: 7.5%, above N40 m: 10%, respectively [1]. Deposit above the limit attracts service charge of: N500,000 - N1 m: 1.5%, above N1m – N5m: 2%, above N5m: 3% and N3m - N10m: 2%, above N10m – N40m: 3%, above N40m: 5% for individuals and corporate bodies respectively Fatokun, [1]. Furthermore, 3rd party cheques above ₦150,000 shall not be eligible for encashment over the counter. Value for such cheques shall be received through the clearing house. The policy applies to all accounts with exception of accounts operated by Ministries, Departments and Agencies of the Federal and State and local governments, solely meant for the purpose of revenue collections (Fatokun, 2017[1] added lodgement only). Exemptions are also extended to Embassies, Diplomatic Missions and Multi-lateral and Aid-donor Agencies as well as Micro Finance Banks and Primary Mortgage Institutions [2]. It was also stated that the limit also applies to cash brought through cash- In-Transit (CIT) companies, as they are licensed to provide cash-pick up services. Any bank that continues to offer cash in transit lodgement services to Merchants shall be sanctioned [2].

The key reasons for introducing the policy according to [2] include:

1. To drive development and modernization of our payment system in line with Nigeria's vision 2020 goal of being amongst the top 20 economies by the year 2020. An efficient and modern payment system is positively correlated with economic development and is a key enabler for economic growth.

2. To reduce the cost of banking services (including cost of credit) and drive financial inclusion by providing more efficient transaction options and greater reach.

3. To improve the effectiveness of monetary policy in managing inflation and driving economic growth.

In addition, the cashless policy aims to curb some of the negative consequences associated with the high usage of physical cash in the economy, including:

High Cost of Cash: There is a high cost of cash along the value chain - from the CBN & the banks, to corporations and traders; everyone bears the high costs associated with volume cash handling.

High Risk of Using Cash: Cash encourages robberies and other cash-related crimes. It also can lead to financial loss in the case of fire and flooding incidents.

High Subsidy: CBN analysis showed that only 10percent of daily banking transactions are above 150k, but the 10percent account for majority of the high value transactions. This suggests that the entire banking population subsidizes the costs that the tiny minority 10 percent incur in terms of high cash usage.

Informal Economy: High cash usage results in a lot of money outside the formal economy, thus limiting the effectiveness of monetary policy in managing inflation and encouraging economic growth.

Inefficiency and Corruption: High cash usage enables corruption, leakages and money laundering, amongst other cash-related fraudulent activities.

2.1.3 Major instruments of cashless banking in Nigeria

Smart card or electronic pulse (use of point of sale terminal), internet banking, automated teller machine (ATM) and mobile phone banking are the major instruments of cashless banking in Nigeria.

- **Smart Card (use of point of sale terminal):** According to Ekwueme et al. [5], it is a card issued to a customer (a person who has a current account with the bank) by a member bank of SMART CARD

Nigeria Limited to aid them in their transactions. Ideally, each card holder (customer, to whom a card or electronic pulse is issued) should be an existing customer with a member bank of the consortium responsible for such e-money product. The card issued to the customer is usually PIN protected (Personal Identification Number), and each card holders has access/pass code or password different from any other person's. Such a pass code must be kept secret and must be changed any time it becomes known to someone else.

The bank is exempted from any form of liability whatsoever for complying with any or all instrument(s) given by means of the customer's pass code or access code if by any means any of such code becomes known to a third party. At intervals, the card should be taken to any branch or designated branch as the case may be to UPLOAD (similar to crediting the account). When this is done, it reduces the cash value of the current account with the bank and increases the cash value of the card. Uploading is done using the Bank Teller Terminal (BTT).

The merchants are designated centres where cardholders can transact business using electronic pulse or card. They include such places as restaurants, hotels, airlines, supermarkets and lately some pharmaceuticals. Such merchants are normally equipped with point of sales (POS) terminal, a device mounted by each merchant for the use by cardholders. To settle their transaction, cardholders insert their cards into the POS to store the transaction, issue receipt and disclose the balance on the card. As a matter of policy, merchants normally targeted for the scheme are outlets with a business turnover of not less than one million naira annually. Merchants, unlike card holders, need not have an account with the bank. But as a matter of necessity, they are required to open an account with the bank.

Member banks of the consortium intermediate between cardholders, merchants, and issuers of the e-money value. The banks help to reconcile the card balances with the current account of the cardholder domiciled in the bank. Banks normally charge interest for the role though this varies from bank to bank. Like merchants, the bank also has point of sales terminal to satisfy customers who need cash for other non-business related transactions (Iyabi, 1997 as cited in [5]). Other card transactions include the use of debit card, credit card, master card, visa card etc, these cards have similar function with the smart card discussed above.

- **Mobile Phone Banking or Mobile Payment System:** Mobile phones are increasingly being used for financial services in Nigeria. Banks are enabling the customers to conduct some banking services such as account inquiry and funds transfer through the mobile telephone. Alert Z of Zenith bank is an example of e-banking services via mobile phone (SMS). This notifies the customer of any transaction on his/her account.

- **Automated Teller Machine:** This is an electronic device which allows banks customers to make cash withdrawals and check their account balances at any time without the need for a human teller. Many ATMs also allow people to deposit cash or cheques, transfer money between their bank accounts or even buy postage stamps. To withdraw cash, make deposits, or transfer funds between accounts, you generally insert an ATM card and enter your personal identification number (PIN). Some ATMs impose a surcharge, or usage fee, on consumer who are not member of their institution or on transactions at remote locations. ATMs must disclose the existence of a surcharge on the terminal screen or on a sign next to the screen. Check the rules of your institution to find out when or whether a surcharge is imposed.

If one incurred a loss or stolen ATM card, he/she should notify the issuer by certified letter, return receipt requested, so you can prove that the institution received your letter. Keep a copy of the letter you send for your records. If you fail to notify the institution of the error within 60 days, you may have little recourse. Under Federal Law, the institution has no obligation to conduct an investigation if you have missed the 60-days deadline. After notification about an error in your statement, the institution has 10 business days to investigate. The financial institution must tell you the results of its investigation within three business days after completing it and must correct the error within one business day after determining that the error had occurred. If the institution needs more time, it may take up to 45 days to complete the investigation but only if the money in dispute is returned to your account and

you are notified promptly of the credit. At the end of the investigation, if no error has been found, the institution may take the money back if it sends you a written explanation. Recently in Nigeria, the CBN issued a warning that banks will be liable for ATM frauds committed with cards issued without card owners requesting for it. Also, the apex bank advised all banks to commence the issuance of ATM verve cards (which is more secured) in place of ATM magnetic strip cards.

- **The Internet Banking:** Internet is a global network of computers. It is a collection of computers networks, computers and millions of users, who share a compatible means for interacting with one another to exchange information (Awe, 1998 as cited in [5]). The word "internet" is the abbreviation for international network for communication. It has the following services.

a. Electronic mail (E-mail): Awe as cited in [5] described the E-mail as the letter to anyone, anywhere in the world but doing it electronically.

b. E-mail to fax: According to Olurunta as cited in [5], this is a supplementary service to the e-mail services. It is designed to enable a subscriber send messages to those who have no e-mail facility but fax facilities.

c. World wide web: This is the services in which anyone with information or goods to sell, advertise or give away could place the information in a place called a 'website'. Those in need for such information will then use special software called "browser" to link up with the websites and read or download any information they want.

d. Chart: This is a system that permits time type conversations among internet users.

e. Telnet: According to Awe as cited in [5], this is a basic internet services which allows one to physically access remote computers as if they were local to him. To use Telnet, you must have the internet address of the network computer and a valid user name and a password that logs you into the remote computer as if it were local machines.

f. File Transfer Protocol (FTP): It is the standard protocol for carrying files from computer to computer on the internet. Similar to Telnet, FTP allows you access to remote machines. The internet enables cashless banking through connections to bank for a wide variety of service.

Apart from the instruments discussed above, cashless banking in Nigeria also involves the use of cheque (in making payments), Nigerian Interbank Settlement Scheme (NIBSS) Fund Transfer (NEFT and NIP) and Real Time Gross Settlements (RTGS). CBN cashless policy stated that 3rd party cheques above ₦150,000 shall not be eligible for encashment over the counter. Value for such cheques shall be received through the clearing house. This implies that 3rd party cheque is also allowed in cashless banking era but any one above the limit will not be cashed over the counter. NIBSS Funds Transfers is an online platform where banks exchange values thereby enabling the performance of interbank transfers such as NEFT (National Electronic Fund Transfer) and NIBSS instant transferring funds between banks for single or multiple beneficiaries for individual amounts not exceeding N10 million Okoye & Ezejiofor, [12]. NIBSS instant payments (NIP) are immediate but NEFT transfers, once effected have to wait for the next available clearing session of CBN after which the amount is received in the beneficiary's account the same day or next working day. Real Time Gross Settlements (RTGS) is used to transfer sums above N10million in favor of a single beneficiary. It is used for big ticket transactions which must have been effected before noon for most banks if the funds are to reach the recipient bank the same day. At this point, it must be stated that cashless banking system does not mean entire absence of cash payment in the banking system, but the one in which cash payment is kept at the barest minimum.

2.1.4 Benefits of cashless banking system in Nigeria

Cashless banking provides a variety of benefits to various stakeholders. This according to Oyetade and Ofoelue as cited in [12] includes increased convenience, more service options, reduced risk of cash-related crimes, cheaper access to (out-of-branch) banking services and access to credit in respect of consumers; faster access to capital, reduced revenue leakage, and reduced cash handling costs for Corporations; increased tax collections, greater financial inclusion, increased economic development for Government, and efficiency through electronic

payment processing, reduced cost of operations and increased banking penetration for Banks. To the economy, Eromosele and Obinna as cited in [12] added that through the system, users can also pay utility bills, school fees, hotel bookings, and house rents, among other transactions, using a mobile phone device. [2] in the same vein maintained that cashless policy is a key enabler for economic growth.

Furthermore, Akhalumeh and Ohiokha [7] posit that cashless banking will make every segment of banking population to pay for its usage of cash. The situation in the cash-based system where the majority small cash users pay for the minority high cash users will be eliminated in the cashless banking system. There will be no more subsidies on cash transaction costs. This is in line with a survey conducted by the CBN in 2009 which revealed that 90% of bank customers' daily withdrawals amounts below over N150, 000, whereas only 10%of the bank customers who withdraw over N150, 000 are responsible for the rise in cost of cash management incurred by all the customers. Implicitly, the entire bank population suffers financially the costs that the minority (10%) incurs. A cashless economy will reduce this subsidy and make the minority of the bank population account for the cost of cash movement they incur rather than the entire banking population.

Beside the benefits stated above, cashless banking has aided the improvement of hygiene in almost all sectors of the economy. It has eliminated bacterial spread through handling of notes and coins from one individual to another.

2.1.5 Challenges of cashless banking in Nigeria

Below are some of the challenges of cashless banking;

- **Security:** Most ATM locations are not secured; also computer hackers also use the porous security system to steal data by breaking the codes or password. In support of this view, Ezuwore-Obodoekwe, Eyisi, Emengini and Alio [10] posit that most ATM locations are not secured and this paved way for the criminals to carry out their criminal acts. In the process of discussing security as one of the problems of cashless banking in Nigeria, Ezeudu et al. [3] suggested that CBN in collaboration with National Assembly should enact proper legislation that can make the cashless policy more effective by handling the security issue. They further argued that the enforcement of such legislation should be carried out by CBN and all other executive arms empowered by the government such as EFCC, ICPC and Nigerian police.

- **Literacy level:** literacy rate in Nigeria is very low more especially in some part of the country like the North where most business men prefer to keep their money in their private vault rather than the bank; hence there is low acceptance of the use for cashless banking instruments by such public.

- **Erratic power supplies and communication link:** In Nigeria, epileptic power supply is always witnessed and this affects cashless banking infrastructure like ATM. Also, network failure of communication links also affects the policy.

- **The policy is challenged by infrastructure deficit:** The cashless payment channels that are currently available are not adequate to cope with the demand of the policy if it is to be implemented religiously. This means that the policy will require further investment of funds by operators and regulators.

- **The high charges and fees on some of the electronic channels** are capable of generating resistance by the banking public. For example, the recent re-introduction of charges for ATM withdrawals didn't go down well with the users.

2.1.6 Cashless banking and operational efficiency of Nigerian banks

Operational efficiency of cashless banking in Nigeria can be assessed by critically evaluating the banking operations between two periods. These are pre and post- cashless banking period in Nigeria.

- **Pre-cashless banking period (1892 – 2011):** This is the period where banking transaction is dominated by cash transactions. The era commences with the establishment of first bank in Nigeria in the year 1892 (then African Banking Corporation). There was no banking legislation until 1952 when three foreign banks (Bank of British West Africa, Barclays Bank, and British and French Bank) and two indigenous banks (National Bank of Nigeria

and African Continental Bank) were established, with a total number of 40 branches Iganiga, 1998; and Osabuohien, 2008 as cited by Ekwueme et al. [5]. The Nigerian banking industry has witnessed a lot of regulator0079 and institute advances since 1952. As of 1988, the Nigerian banking system consisted of the CBN, 42 commercial banks and 24 Merchant Banks (Iganiga 1998 and Adam, 2005 as cited in [8]). Between the period 1892-1995, banking transactions in Nigeria were mostly paper-based transaction. This is the time of ledger cards and other manual filling system. Manual processing of documents was in use. As a result of these, slow pace of banking operations was experienced in the Nigerian banks during this time (1892-1995). Ovia, cited in [5], have it that banks' customers were inevitably made to spend several hours in the congested banking halls in carrying out their transactions. In support of this view, Ekwueme et al. [5] posit that pre-electronic banking periods were days when banking halls are characterized by long queues mainly as a result of delays in the traditional banking operations thereby leading to low operational efficiency in the banking sector.

In 1996, Nigerian banks witnessed the introduction of e-payment (e-banking) products (Dogarawa, 2005 and Sanusi, 2002 as cited in [5]). During this period, banking operations were usually performed through electronic means. Irechukwu [5] lists some banking services that have been revolutionized through the use of ICT as including account opening, customer account mandate, and transaction processing and recording. This phenomenon has the capacity of bringing about speedy operations and enhanced productivity in banks [8]; Ovia, 2005 as cited in [5]. Electronic banking became prominent after the Central Bank of Nigeria banking reformation exercise in June 2004, which was geared towards reducing the number of banks in the country and making the survival banks much stronger, reliability and operate with better service delivery.

There is no doubt that there are a lot of advantages that came with the introduction of electronic banking system in Nigeria but bulk withdrawals that were witnessed during the period usually attract high cash related costs. A typical example of this is shown in Table 1 below which shows the direct cost of cash to financial system in Nigeria in 2009.

Conclusively, the era of pre-cashless banking system could be said to be the combination of cash-based banking system and electronic banking system, but dominated by cash-based banking system. A cash-based economy is one with large percentage of cash residing outside the banking sector. It is characterized by the psychology to physical hold and touch cash. The statistical evidence provided by [2] revealed that, cash related transactions accounted for 99% of customers' activities in Nigerian banks as at December, 2011. These heavily cash-based transactions do not occur without heavily cash related costs. Hence the need for a cashless banking system.

- **Post cashless banking period (2012-present):** The CBN cashless policy was introduced in Nigeria in the year 2012. The policy is geared towards engendering an efficient payment system anchored on electronic-based transaction. According to [6], cashless banking is that banking system that is aimed at reducing, but not eliminating, the volume of physical cash circulating in the economy whilst encouraging more electronic based transaction. Post cashless banking period is the periods in which the use of non cash payment methods (e.g electronic payment) dominates the use of cash in payments. This does not imply entire absence of cash-based transactions but a system that kept the cashless transactions to the barest minimal. This has resulted to reduction in the risks associated with the

Table1. Direct cost of cash to financial system in Nigeria in 2009

Type of cost	Amount (N billion)	Percentage
Cash in transit	27.3	24
Cash processing cost	89.1	67
Vault management cost	18.1	9
Total cost of cash (CBN & other banks)	114.5	100

Source: extracted from CBN, [2]; Towards a cashless Nigeria: tools and strategies

use of physical cash that does rise from burglaries and thefts as well as financial losses in fire outbreaks. Also, high operational costs (costs emanates from cash management and movement, currency sorting and printing) incurred by banks and other financial institutions had considerably reduced by cashless banking system. In line with the view stated above, [13] posit that cashless economy policy will help to fight against corruption/money laundry, reduced the risk of carrying cash and also enhance the growth of financial stability in the country. Tee and Ong [14] maintained that there is significant effect of adopting cashless payment on the economy of five EU countries, namely Austria, Belgium, France, Germany and Portugal. Martin, Nnamani, Marire and Mgbodile [15] viewed that cashless banking in Nigeria will help in modernization of Nigerian payment system, reduction in cost of banking services as well as reduction in high security and safety risks.

2.1.7 The Nigeria's Unemployment Rate (UR) in cashless banking period

Unemployment occurs when a person who is actively searching for employment is unable to find work. In other words, it can be seen as a situation where someone of working age is not able to get a job but would like to be in full time employment. The Nigerian National Bureau of Statistics defined unemployment as the proportion of those in the labour force (not in the entire economic active population, nor the entire Nigerian population) who were actively looking for work but could not find work for at least 20 hours during the reference period to the total currently active (labour force) population. The labour force population covers all persons aged 15 to 64 years who are willing and able to work regardless of whether they have a job or not (National Bureau of Statistics Nigeria, 2017 as cited in CBN, [16]). Unemployment is usually described as a percentage or rate. Unemployment rate is a measure of the prevalence of unemployment and it is calculated as a percentage by dividing the number of unemployed individuals by all individuals currently in the labour force.

The two major types of unemployment include

(i)   Frictional unemployment and
(ii) Structural unemployment.

Frictional unemployment: the unemployment that occurs in the meantime, as workers move between jobs. It involves people moving between jobs in the dynamic economy.

Structural unemployment: structurally unemployed are individuals who have no jobs because they lack skills valued by labour market, either because demand has shifted away from the skills they do have or because they never learned any skills. This type of unemployment mostly relates to this study. Many people are laid off because computer now do their jobs.

The rate of unemployment in Nigeria has been on the increase (except for Q4, 2014 that witnessed slight decrease – 6.4 percent) since 2012 when Cashless policy was implemented in Nigeria. In this year (Q4' 2012), Nigeria's unemployment rate was pegged at 10.6 percent and has increased to 14.2 percent in Q4, 2016 (NBS as cited in CBN annual report 2011 [16] and 2015 [17]) and 18.80 percent in the third quarter of 2017 (NBS as cited in Trading economics, 2017 in [17]), marking the highest jobless rate since the introduction cashless banking in Nigeria. In support of this view, [4] stated that Nigeria's unemployment rate has climbed for nine straight quarters including Q4 2014; Q1,Q2,Q3,Q4 2015; and Q1,Q2,Q3,Q4 2016. Although literatures have it that unemployment rate has been increasing since the implementation of cashless policy in 2012, but there is need to empirically determine the effect of cashless banking on unemployment rate in Nigeria; hence the need for this study.

2.2 Theoretical Framework

The theoretical framework that guided this study was based on three theoretical conceptions which includes Acceptance Technology Model (TAM), Keneysians Theory and Resource Based View (RBV).

Acceptance Technology Model (TAM): TAM was proposed by Fred Davis in 1985 in his doctoral thesis at the MIT Sloan School of Management Ajayi, [18]. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. The factors are; perceived usefulness (PU) and perceived ease-of-use (PEOU). Applying this theory in this study, TAM is an information systems' theory that models how users come to accept and use new technology (ATM, POS,

Mobile phone banking and internet) in carrying out banking transactions that will encourage Nigerian employment rate.

Keneysian's Theory: Keynesian's analysis stipulates that monetary policy plays a crucial role in affecting economic activity. It contends that a change in supply of money can permanently change such variables as the rate of interest, the aggregate demand and the level of employment, output and income. This theory also believes in the existence of unemployment equilibrium. This implies that an increase in the money supply can bring about a permanent increase in the level of output Jhingan [19]. The Keynesian theory thus implies that cashless policy can permanently affect Nigerian unemployment rate.

2.3 Resource Based View (RBV)

Resources are anything that can be viewed as strength or weakness of a firm. The resource-based view of the firm maintained that firm's resources are the main drive behind competitiveness and firm's performance. These resources include both tangible and intangible resources. In this regard, a firm's resources can be divided into capital employed and human capital. Tangible resources for the purpose of this work refers to net stock of capital available in the form of machines including ATM, POS terminals, computers, mobile telephone etc. Bharadwaj (2000) as cited by Melville, Kraemer and Gurbaxani [20] called them information technology. Whereas intangible resources are the human resources of a firm. In the same view, Penrose (1959) as cited in Melville, Kraemer and Gurbaxani [20] in her theory of firm's growth states that the speed of accumulation and assimilation of resources is key to firm's growth, as are opportunities arising from underutilization of its resources, firms continually search for new ways to increase productivity and efficiency. New knowledge yields new ways of using existing resources or new ways of combining sets of resources. The firm is thus basically a set of resource.

Therefore, RBV in relation to this study posits that banking resources comprising both capital resources (electronic devices) and human resources (human teller) are the main drive behind banks performance and growth in the level of employment both in the banks and in the country generally.

2.4 Empirical Review

In examining the cost implication of cashless banking instruments, Gresvik and Owen (2002) as cited by Odior and Banuso [6] studied how much it costs Norwagian banks to process various payment instruments. It was discovered that payment cards used for cash withdrawals at ATMs cost considerably more since the transactions involve cash replenishment, maintenance and security costs. In addition, the cost of using cheques for cash withdrawals was found to be three times more expensive than cash withdrawals at ATMs.

A cross country analysis was also carried out by Humphrey, Pully and Vesala [21] on the holding of cash and use of five noncash payment instruments (check, paper giro, electronic giro, plus credit and card payment) in 14 developed countries, including the US over 1987-1993, focusing on the determinants of a country's payment structure and substitution among noncash paper-based and electronic payments. The paper-based transactions are composed of checks and paper-based giro payments whereas the electronic payments transactions are made up of electronic giro, debit card (POS) and credit card payments. Five –equation model in log linear form was employed for the study using Ordinary Least Squares. The findings of the study disclosed that there were 119 billion noncash transactions in 1993; that the average person initiated 165 noncash transactions per year. Of these, 35 percent were electronic. It was shown that a 10 percent reduction in cash holdings is associated with a 6.8 percent rise in noncash transactions. Hence, cash and noncash use are negatively related, implying that substitution between them is due more to differences in use across countries than it is to changes in use over seven-year time period. Also, the study categorized the factors identified as best explaining the observed payment pattern into two – (1) those that reflect payment option availability or the consequences of past payment patterns on the part of users; and (2) those that measure relevant institutional, cultural or historical differences across countries. Specifically, Own prices (prices of related instruments) are shown to have exerted little influence on the use of payment methods. While the influence of cultural and institutional factors were found to be very strong. Also, higher per capita incomes were found to generate more non-cash transactions. Moreover, greater availability of new payment instruments encourages their use, the erosion of consumers'

sense of security (proxy by the incidence of violent crime) increases the use of all noncash payments, higher banking concentration is associated with a greater reliance on electronic payments and the persistence of behaviour patterns among users slows the change in payment use.

In developing economy like Nigeria, while analyzing the e-payment system in Nigerian financial system, Ezeudu and Anyanwu [3] examined the various aspects of cashless banking channels, the problems facing cashless banking as well as its advantages and disadvantages to Nigerians. A survey instrument was used for data collection, and a non-parametric tool of chi-square was employed in data analysis. The study discovered that cashless banking has a positive effect on Nigerian economy. Also, Ezeudu and Anyanwu [3] discovered that the introduction of cashless banking policy would automatically reduce the number of personnel needed to carry out the different financial transactions in the bank.

Furthermore, Omotunde, Sunday and John-Dewole [22] studied the impact of cashless economy in Nigeria. They employed the use of survey instrument for data collection and discovered that the introduction of cashless economy in Nigeria can be seen as a step in the right direction. The study further expressed that, the impact of cashless economy in Nigeria is expected to be felt in modernization of Nigerian payment system, reduction in the cost of banking services as well as reduction in high security and safety risks, including its stability in curbing banking related corruptions and fostering transparency.

3. METHODOLOGY

3.1 Research Design

The ex-post facto research design is used for this study. According to Egbunike and Abiahu [23], ex-post facto research involves a systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulated. The data used in this study were based on existing data that cannot be manipulated. Hence the use of this type of research design is justified in that it will provide insight into understanding the effect of cashless Banking on unemployment rate in Nigeria.

3.2 Sources of Data

Secondary sources of data collection were employed in this study. Data on the independent variable, cashless banking system measured by the total annual value of ATM, POS, internet banking and mobile – phone banking transaction (major e- payment instruments) during the period of cashless banking in Nigeria (2012 – 2016), were sourced from the data extracted from CBN Annual Reports [16,24,4,25] and [26]); whereas data on the dependent variable - Unemployment rates (UR) in Nigeria for the period 2012 – 2016 (cashless banking period for which data are available)were sourced from National Bureau of statistics, Nigeria [27].

3.3 Population of the Study

The population for this study is made up of the aggregate data of all the banks operating in Nigeria as at 2012-2016 for which data are available, as documented in the CBN annual report.

3.4 Sample Size Determination and Sampling Techniques

The study purposively worked with the entire population (which is the aggregate data of all the banks operating in the country as at 2012-2016 for which data are available, as contained in the CBN annual report) as the sample size, since they are all relevant for the study.

3.5 Specification of Model

The study developed a multivariate regression model using the two (2) categories of research variables over the period 2012-2016. These are the independent variables (the total annual value of automated Teller Machine transactions in Nigeria (TATM), the total annual value of point of sale transactions in Nigeria (TPOS), the total annual value of mobile payment system in Nigeria, (TMPS) and the total annual value of internet banking (Web) transactions in Nigeria (TIB), which are used as measures of cashless banking system in Nigeria) and the dependent variables (unemployment rate in Nigeria).

The multivariate regression model in this study is stated as:

$$UR = f (TATM, TPOS, TMPS \text{ and } TIB) \quad (1)$$

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Specifying equation 1 in the econometric terms, the model become

$$UR_t = B_o + B_1 TATM_t + B_2 TPOS_t + B_3 TMPS_t + B_4 TIB_t + E_t \qquad (2)$$

Where:

$TATM_t$: indicates the aggregate value of ATM (Automated Teller Machines) transactions in Nigeria for each of the periods under study,

$TPOS_t$: this is an indicator of the aggregate value for the POS (point of sale) transactions in Nigeria for each of the periods under study,

$TMPS_t$: indicates the aggregate value of electronic payments made through a mobile device (a mobile phone) in Nigeria for each of the period under study,

TIB_t: an indicator of the aggregate value of banking transactions via internet for each of the year under study.

B_o = constant (intercept)
B_1- B_4 = the coefficients of regression, that indicate how a unit change in the independent variables (TATM, TPOS, TMPS and TIB) affect the dependent variable (UR)
E = Error term, which is incorporated in the equation to cater for other factors that may influence UR.
t = Period to be covered by the study (t = 1,---,4)

3.6 Data Analysis Techniques

Data gathered were presented in tables and analysed using multiple regression techniques (ordinary least square regression) of model estimation (with the aid of SPSS version 21.0). In order to determine the overall significance of the model (regression coefficient), Students' T-significant test was observed in the model (t-transformation of regression coefficient). This was used in testing the hypothesis formed for this study; the decision rule for acceptance or rejection of the null hypothesis is to reject Ho (null hypothesis) in favour of alternate hypothesis if the t-calculated exceeds t-table value, otherwise, do not reject the Ho.

4. RESULT AND DISCUSSIONS

4.1 Data Analysis and Interpretation of Results

The summary of the multiple regression analysis carried out using SPSS version 21.0 was presented in the tables below:

The result of the regression analysis summarized in Table 2 shows that the model for the effect of cashless banking system (TATM, TIB, TPOS and TMPS) on unemployment rate in Nigeria is:

$$UR = 23.147 - 0.004 TATM + 0.108 TPOS - 0.047 TMPS - 0.276 TIB + Et$$

This shows that, 23.147 is the rate of unemployment when all the cashless banking variables are zero. This means that the total UR in Nigeria will be about 23.147 in any year which cashless banking is not practiced in Nigeria. Also, all the individual independent variables with the exception of total value of point of sale (TPOS) have negative coefficients indicating negative impact of TATM, TMPS and TIB on unemployment rate in post cashless banking period since the individual coefficient test traces out the particular impact of each explanatory variable on UR. The TPOS that have a positive coefficient indicated it's positive impact on unemployment rate. Furthermore, the coefficient of the independent variables as a group is negative showing the negative impact of the combined cashless banking variables on UR in Nigeria. The coefficient of determination (R^2) of 0.624 shows that the independent variables as a group explained 62.4% of the variations in the unemployment rate; while the remaining 37.6 can be explained by other variables other than the cashless banking system variables of TATM, TPOS, TMPS and TIB used in this model. The f–value and corresponding significance value of 4.985 and 0.112 respectively showed that there is an insignificant effect of independent variables taken together on UR, since it's significant value is greater than 0.05. This shows that the variation explained in the unemployment rate by the independent variables joined together as stated above is not significant.

4.2 Test of Hypothesis

Ho: Cashless banking system in Nigeria has no significant effect on Nigerian Unemployment rate.

In testing this hypothesis, the data derived on the total value of cashless banking variables used for this study (TATM, TPOS TMPS and TIB) and the unemployment rate in Nigeria during the post cashless banking period (see Appendix A) are used to run a regression test that incorporated a t-statistics test using SPSS

Table 2. Summary of regression result on the effect of cashless banking system on Nigerian unemployment rate in cashless banking period (2012-2016)

Independent variables	Coefficients beta	Independent variable as a group		
		Beta	t-value	p- value
Constant	23.147			
		-0.790	-2.233	0.112
TATM	-0.004			
TPOS	0.108			
TMPS	-0.047			
TIB	-0.276			

R= 0.790, R- squared = 0.624, F-value = 4.985, sig.= 0.112
Dependent variable: UR. Significant at $p \leq 0.05$
Source: Researcher's computation, 2017 (see details in Appendix B).

version 21.0 as shown in table 2 above (see details in Appendix B). Meanwhile, the tabulated t-value for the study from the t- statistical table at 5% level of significance and 3 as degree of freedom (df = n-2 and n= 5) is 2.353. This value is greater than the t- computed of (-2.233) (see the summarized regression table 2 above). Therefore we accept the null hypothesis that states that cashless banking system in Nigeria has no significant effect on Nigerian unemployment rate. Hence, we can confidently and statistically conclude that there is no positive and significant effect of cashless banking system on unemployment rate in Nigeria. In fact, any observed effect is not a true effect but a mere chance which could result from sampling error.

5. DISCUSSION OF RESULTS

The findings from this study are discussed under the objective stated in this study as shown below: The objective of this study is to ascertain the effects of cashless banking on Nigerian unemployment rate. Specifically, the results in table 2 (fully shown in appendix B) revealed that all the individual independent variables (TATM, TIB and TMPS) with the exception of total value of POS (TPOS) have a negative impact on UR in Nigeria. This means that one percentage change in TATM, TIB and TMPS result to 0.004, 0.276 and 0.047 percentage decrease in UR in Nigeria respectively. While one percentage change in TPOS results to 0.108 percentage increase in Nigerian UR. Considering the independent variables as a group, the study shows that there is a negative effect of cashless banking system on unemployment rate; and this effect was found to be insignificant with t-computed of -2.233 < t-table value of 2.353(also p>0.112). Therefore, the study concludes that there is a negative and insignificant effect of cashless banking system on unemployment rate in Nigeria (β= -0.790, R^2

=0.624, t= -2.233, p= 0.112). This means that the cashless banking system in Nigeria does not contribute to the increase in the unemployment rate of the country.

This objective had not gain wider study both in and outside Nigeria. The few study, for instance [3] provided a result which is in disparity with this study. The findings of [3] disclosed that the introduction of cashless banking policy would automatically reduce the number of personnel needed to carry out different financial transactions in the banks. The result of this study is in disagreement with the result of [3] above because cashless banking system to this study does not only employ the use of electronic devices but also use human beings (human tellers) in carrying out financial transactions. Even the machines (electronic devices) used (ATM, POS, Mobile Phone and Internet Banking) are operated by human beings and could require the employment of expertise that can handle them efficiently and effectively.

6. CONCLUSION AND RECOMMENDATIONS

The time at which banking business required only the physical presence of the customers or their agents in the bank premises has gone to the era where banking activities can also be carried out from home, business premises or even on the road with the aid of electronic devices. The implication is not that Nigerian banking system has gone to the era where there is an outright absence of cash transactions in the banking sectors but the one in which the amount of cash-based transductions are kept to the barest minimum. Therefore cashless banking could be seen as the combination of cash-based banking system and electronic banking system but predominated with electronic based

transactions. Hence, cashless banking in Nigeria could better be called cash-light banking system. The increased rate of unemployment since the introduction of cashless banking in Nigeria is not as a result of the cashless banking since the result of this investigation shows that, it has reduced the rate of unemployment in Nigeria which was against the perception of many people that cashless banking has resulted in the replacement of work force by machines. Consequence upon this, the researcher recommended the following:

1 Government and CBN should create awareness on the benefits derivable from shifting to cashless (cash-light) banking system in Nigeria, more especially on the fact that machines are not used to replace the workforce in a cashless banking system. This will go a long way in correcting the impression of many people that cashless banking increases the unemployment rate in the country.

2   In addition to the point stated above, there should be constant training and retraining of banks staff through seminars and conferences to keep them abreast with the modern trend in banking industry (cashless banking), since demand has shifted away from the skills they do have (cash based banking system).

COMPETING INTERESTS

Author has declared that no competing interests exist.

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APPENDIX A

Data on cashless banking variables (TATM, TPOS, PMPS and TIB) and Unemployment rate in cashless banking period (2012-2016) in Nigeria.

Period	Value of cashless banking variables in Nigeria (₦' billion)					Unemployment Rate (UR)
	TATM	**TPOS**	**TMPS**	**TIB**	**Total**	**(%)**
2012	1,984.7	48.0	31.5	31.5	2,095.7	10.6
2013	2,828.9	161.0	142.8	47.3	3,180.1	10.0
2014	3,679.9	312.1	339.2	74.3	4,391.4	6.4
2015	3,970.2	448.5	442.4	91.6	4,952.7	10.4
2016	3,921.0	570.0	589.0	101.1		14.2

Source: CBN annual report 2011, 2013, 2014, 2015 and NBS, 2017

APPENDIX B

REGRESSION RESULT OF CASHLESS BANKING SYSTEM AND UNEMPLOYMENT RATE IN CASHLESS BANKING PERIOD IN NIGERIA (2012 -2016)

Descriptive statistics			
	Mean	Std. deviation	N
Unemployment rate for 2012 to 2016	10.320	2.7662	5
Total ATM	3276.940	855.6319	5
Total internet Banking	69.160	29.3525	5
Total Annual Value of Point of Sale	307.920	210.7190	5
Total Annual Value of Mobile Payment System	308.980	224.5753	5

Correlations						
		UR	TATM	TIB	TPOS	TMPS
Pearson Correlation	UR	1.000	.080	.314	.423	.384
	TATM	.080	1.000	.962	.929	.934
	TIB	.314	.962	1.000	.992	.993
	TPOS	.423	.929	.992	1.000	.997
	TMPS	.384	.934	.993	.997	1.000
Sig. (1-tailed)	UR	.	.449	.303	.239	.262
	TATM	.449	.	.004	.011	.010
	TIB	.303	.004	.	.000	.000
	TPOS	.239	.011	.000	.	.000
	TMPS	.262	.010	.000	.000	.
N	UR	5	5	5	5	5
	TATM	5	5	5	5	5
	TIB	5	5	5	5	5
	TPOS	5	5	5	5	5
	TMPS	5	5	5	5	5

Coefficients						
Model		Unstandardized coefficients		Standardized coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	23.147	.000		.	.
	TATM	-.004	.000	-1.177	.	.
	TIB	-.276	.000	-2.930	.	.
	TPOS	.108	.000	8.224	.	.
	TMPS	-.047	.000	-3.811	.	.

a. Dependent Variable: UR for 2012 to 2016

Coefficients						
Model		Unstandardized coefficients		Standardized coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.559	1.695		8.002	.004
	total Independent variables for 2012 to 2016	-.001	.000	-.790	-2.233	.112

a. Dependent Variable: UR for 2012 to 2016

17

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.790[a]	.624	.499	1.9579

a. Predictors: (Constant), total Independent variables for 2012 to 2016
b. Dependent Variable: UR for 2012 to 2016

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	19.108	1	19.108	4.985	.112[b]
	Residual	11.500	3	3.833		
	Total	30.608	4			

a. Dependent Variable: UR for 2012 to 2016
b. Predictors: (Constant), total Independent variables for 2012 to 2016