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The Efficacy of Electronic Payments System in Facilitating Transactions in Nigeria: A Pareto Chart and Fish Bone Analysis

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Abstract

The Nigerian financial section has witnessed a lot of reforms in its quest to stimulate development. This paper is to investigate the workings of the electronic payment system in facilitating transactions in Nigeria. This paper using empirical evidence and analysing it with the use of the pare to chart analysis reverts that, there are payment challenges in areas like ATM cash dispensing error, online transfer fraud and issues of network availability with the Eps. The paper therefore recommends that education should be giving to users, financials managers should provide infrasture for effective implementation of the programme for efficient service delivery.

Key word: Efficiency, Transaction, payment system.

Introduction

The dominance of money is seriously been challenged by the emergence of the electronic payments (e-payments) system in the modern world today. It is a truism that no country can function optimally without an efficient financial system which can be triggered by electronic payment system. According to Amedu (2005) 'the payments system is an important anchor for economic and social development in any economy. An efficient payments system enhances the operation of a market economy and assists in the maintenance of monetary and financial stability by providing ease of trade, convenience and general economic wellbeing through the transmission of money between parties'. Thus, the importance of an effective payments system in an economy cannot be overemphasized.

The Nigerian payment system has been predominantly cash-based for both positive and negative reasons: positive because of its instant convertibility to other forms of value without intermediation of any financial institution and negative because of its anonymity and untraceability in unethical transactions. There are indications that cash usage is still very high in Nigeria irrespective of the efforts of Central Bank of Nigeria towards the adoption of electronic payment system. It is caused by the challenges of inadequate power supply, shortage of critical technological infrastructures, lack of socio-cultural support and absence of regulatory framework that are required to operate seamless and effective electronic payment system in the country (Echekoba & Ezu, 2011).

In Nigeria, a large volume of its currency circulates outside the banking system. CBN Statistical Bulletin (2006) reveal that 78.3%, 72.9%, 71.6%, and 84.2% of Nigeria's currency reserve circulated outside the banking system in

2002, 2003, 2004, and 2005 respectively. This trend has continued till the present times as information available on the central bank website (www.cenbank.org) put currency in circulation outside bank at 81% as at December 31st, 2013. The introduction of payment system is aimed at encouraging deeper participation of the Nigerian populace in formal financial system transaction – thereby avoiding the use of cash for physical transactions. It is therefore hoped that an efficient payments system could attract a bulk of these funds into the financial system thus aid precision in monetary policy targeting and transmission.Ayo & Ukpere (2010) affirmed that out of all the information technology innovations that awash the banking industry, the automated teller machine (ATM) is the most widely used e-Payment instrument in Nigeria. Others are Point of Sale (PoS), mobile payment transactions and web based transactions. It is responsible for about 89% (in volume) of all e-Payment instruments. There are far-reaching implications of these for a country with a population of more than 170 million people (NPC, 2013); the majority of whom are not aware of the new payment direction (Esezobor, 2014). These raises a lot of issues about the influence of ICT on e-Banking and the banking habit of Nigerians.

The CBN has in recent times engaged in various currency reforms with the aim of evolving a robust financial system that operates an efficient payments system with full control of the nation's currency flow and consequently attain a cost effective currency management system in the country. However, the issues of cash based economy, large proportion of informal sector, weak payment system and general non popularity of the monetary policy tools that are been deployed (Okwori & Abu, 2015) have constrained the adoption of the e-payments system. It is observable presently that the society at large prefers transactions that involve physical contact of people, cash and cheques to that which is done over a telecommunication network such as the Internet. In addition, security, trust and convenience are among the major contending factors affecting the adoption of e-payment systems in Nigeria.

This study therefore investigates the efficacy of electronic payments system in facilitating transactions in Nigeria. Specifically, the study sets out to: first, identify the challenges of payment systems operations in Nigeria; second, to analyse the factors that contributes to the ineffectiveness of payments system operations in Nigeria; and third, its consequent implications to the Nigerian economy. The rest of the paper is structured as follows. Section two presents the literature review on; conceptual clarifications, the theoretical underpinning and empirical studies. Section three presents the methodology of the research while section four analyses results of the data. Section five concludes the paper and attempts some policy recommendations.

Review of Related Literature

Definition and Components of Payments System

It is generally knowledge that money facilitates transaction in the economy. The mechanism for conducting such transactions is known as payments system. Anyanwu (1999), Nnanna and Ajayi (2005) define payments system as the institution, instruments, operating procedures, information and communications systems employed to initiate and transmit payment

information from payer to payee, involving the transfer of money and other near money claims. Ovia (2005) stated that a payment system refers to a set of instructions and procedures used for the transfer of value and settlement of obligations arising from the exchange of goods and services within a defined market. Adediran (1999) simply put payments system as a direct channel through which liquidity and credit are transferred from one participant in the financial system to another. Amedu (2005) defined payments system as a mechanism that facilitates intermediation through transfer and processing of the value of money from the payer (buyer) to the payee (seller) in the process of exchange of goods and services.

The basic elements deduced from these definitions are; institutions, instruments, procedures, as well as key descriptions like instruction, mechanism and channels. And the combined instruction of these elements and descriptions are channeled towards intermediation or simply put, facilitating transactions. *This research therefore simply defines payments system as the settlement mode used in facilitating exchange within the economy targeted at achieving low cost, convenience and low risk in transaction process.*

Akpakpan (1999) identified the components of this payments system as sub divided into two: Instruments and Institutions.

The instrument of the payment system include:-

(a) Cash or currency; made up of banknotes and coins.

(b) Paper based instruments like; cheques, bank draft, credit cards, pre-paid cards, money order and vouchers.

© Electronic instruments like the Automated teller machines (ATMs), point of sale (POS) machines etc.

Adediran (1999) sums it up that; depending on the level of sophistication of a country's financial system, there are many payments instruments and mechanisms that countries employ in their payments system. They range from the commonly used currency notes and coins, postal and money orders, cheques and smart cards to electronic devices like Automated teller machines and electronic funds transfer (ETF) mechanisms.

The institutions of the payments system are the banks and other financial institutions. They include the central bank, the commercial banks, the merchant banks, and such other institutions as finance companies. Today, it will not be out of place to list telecommunications and information technology (IT) providers among these institutions.

Efficiency of the Payments System and the Economy

An effective payments system is a vital part of the financial infrastructure of any economy. Its impact can be adjudged positive on economic growth and global competiveness through ensuring that enabling commercial transaction are completed faster, safer and cheaper. Ovia (2005) puts it simply that, the ultimate goal of any payments system is to ensure that the exchange of monetary value is achieved using payments instruments that offer the least risk, inconvenience and cost. An efficient payment system must be defined by a few attributes. These are listed as: reliability, promptness, accessibility, security and cost effectiveness. The ease

and speed of economic transactions depend seriously on these attributes of the payment system.

For any economy to achieve efficiency in payments system delivery there is need to strike a balance among the various instruments of the system being utilized. Amedu (2005) identified the various forms of these instruments as: cash, cheques, traveler's cheques, money orders, debit and credit cards, online transfers, automated clearing house transfers, point of sales and automated teller machines (ATM). The payments system enables the financial sector to serve the needs of the real sector, therefore, its development and sophistication is a necessary precondition for business development both domestically and internationally.

Technological Innovations in Banking for Enhanced Payments System.

Banking technology is essentially built around computer and telecommunications and while some services are driven by computer systems, others are built, using the same components as in general purpose computers systems technology, to evolve new, cost-effective and viable operational services. These innovations have created a new banking culture that granted customers the needed flexibility in service delivery. It has enabled the evolving cashless society to be safe-guarded on magnetic card technology. It is important therefore to review some of these technologies and the accompanying instruments that have greatly enhanced payments system delivery the world over.

(I) Bank Technology Based innovations

(a) On-line, Real-Time Processing Technology.

Banking operations have evolved through the teller age of recording transactions in note books, to the introduction of computer operations. However, the early introduction of computer was limited to batch processing systems. Here, all data of the day's business are gathered for later processing at night. Batch processing involved only periodic processing of information usually once a month or at the end of day rather than at transaction intervals as each event occurred.

The integration of telecommunication and computer technology gave multi outlet and multi-branch organizations the first opportunity of direct connection of the remote data-capture equipment to the central processing culture termed online. With this, banking operation was advanced such that each customer's transaction was processed as the transaction took place providing new balances to influence the next transaction. The problems associated with batch processing were therefore solved by this on-line, real time innovation.

(b) Computer networks Technology.

This first started as an intranet environment to allow the inter-connection of geographically dispersed computer systems of a corporate enterprise. This is what is termed, Wide Area Networks (WAN). However, technological advancements have spanned a new generation of data networks that permit interconnection of not so spatially dispersed computer system of different organizations or enterprises thus given birth to what is referred to as Metropolitan Area Network (MAN) and Local Area Network (LAN). Also, these is the new network driven funds transfer and clearing system like the society for world-wide inter-bank financial

telecommunications (SWIFT) system; Western Union; Vigo; Ria Express and money gram.

All these have provided an effective platform for a variety of customer service delivery and banking functions. They have enabled the evolution of flexible customer services in which customers are no longer restricted to branches where their accounts are domiciled. The burden of buck cash haulage for transactions and the risks involved have been reduced drastically and in effect cashless payments enhanced.

(c) Microprocessor Technology.

The low cost and versatility of microprocessors made magnetic ink character recognition (MICR) more viable. This microprocessor technology improved the security and scope of services available from the Automated Teller Machine (ATM). It was also the advanced calculation ability of microprocessors that made smart card technology a new possible replacement for the ordinary credit and debit cards.

(ii) Technology-Driven Financial products and service.

(a) Credit Cards.

This can be described as the most extensively used product globally and it guarantees the holders some financial credit up to an agreed limit for some number of days at an agreed interest rate. The master card and Visa card are two examples of credit cards.

In Nigeria, examples of credit cards are: UNI CARD, UBA CARD, FIRST CARD etc. These are issued more in cheque cards. They are used more at the branches of the issuing banks and are not acceptable to third parties which negate the spirit of anywhere banking.

(b) Debit Cards.

They are used in conjunction with computer data network to directly debit a customer's account. To this end, no limits are pegged on the transaction; rather, the limits are usually dictated by the balance in the customer's account as at the time of the transaction. Often times, most people take credit and debit cards to be the same, it is also important to note that most times, single cards are designed to perform dual roles of both debit and credit cards. However, debit cards do not offer the customer or user any special credits, thus the difference.

Debit cards in operation therefore represent a direct authority by the customer to his bankers to automatically withdraw cash from his accounts in favour of other parties. It maybe the issuing bank when used at ATMs, or supermarkets when used at point of sale (POS) terminals.

(c) Smart Cards.

These are designed to be more intelligent than the ordinary magnetic credit and debit card. They are chip-based and operate independently of data networks or computer system it has a built-in microprocessor and some limited memory, capable of storing about several thousand characters. It is used basically for settling bill.

The Emerging Trends in Payments and Settlements System in Nigeria

According to Nnanna and Ajayi (2005), the Nigerian payments and settlements system combines some elements of the sophisticated architecture that features in advanced economies and some elements of primitive economy. The payments system in Nigeria today consists of four basic components, namely:

interbank payments; inter-branch transfers, operated through the CBN network; retail payments, consisting of cash, cheques, cards and automated teller machines (ATM) and point of sales (POS) networks; and securities clearing and settlement. To put it simply, the payments system in the country today is aimed at operating on; an icon on a PC screen, an icon the web browser, a button on the GSM handset (Ovia, 2005).

Despite the digitalization of the Nigerian payments environment, the country seems to have retained its primitive mechanism. Business to business transactions are still predominantly consummated with the use of cash and to a limited extent banker's cheques or certified cheques. This cash system has its problems among which are; the cost of the practice of frequent trips to banks to withdraw money, the time lost in withdrawing money from banks, and the stress that often results from long periods of waiting at the banks. Also, carrying cash about for the purpose of making payments is risky. There is the risk of being attacked by robbers, and there have been cases of people who have lost their lives in such attacks (Akpakpan, 1999). The emerging trend in the Nigerian payments and settlement system is targeted at reducing these risk, ensuring management and cost effectiveness of transactions, as well as improve convenience and ease of transactions

Table 1: E-Payments and their Features in the Nigerian Banking Landscape

BANK/PRODUCT	KEY FEATURES	MEDIUM OF TRANSACTION
First Bank/ Firstmonie	a. Send money b. Receive money c. Pay bills d. Buy airtime	Mobile Phone: SMS module (currently available on Etisalat, GLO, MTN and Airtel services
UBA/U-Mobile	a. Airtime top up (self/3rd party) b. Balance inquiry c. Mini statement d. Funds transfer (within UBA & interbank) e. Bills payment (utilities, cable tv, etc)	Mobile Phone: GPRS/SMS module (internet connectivity required)
DIAMOND BANK/Diamond Mobile	a. Airtime Purchase (Virtual Top up) – exclusive to Mobile Apps b. Mobile Money transfer (Non Account Holders) c. Bills Payment (DSTV, PHCN, Swift, MyTv, Startimesetc) – exclusive to Mobile Apps	Mobile Phone: SMS module
STERLING BANK/Sterling Mobile	a. Balance inquiry b. Mini statement – on mobile phone or to email c. Cheque confirmation d. Block verve card e. Funds transfer: interbank transfer (other banks) &intrabank transfer (within Sterling bank) f. Airtime vending – coming soon g. Bill payment (Dstv, HiTVetc) – coming soon	Mobile Phone

UNITY BANK/ Unity Mobile	a. Airtime top up b. Check balance c. Statement d. Funds transfer e. Bills payment f. Other banking services g. Security	Mobile Phone – JAVA enabled phones
ACCESS BANK/Access Mobile	a. Funds transfer (Inter-Bank & Intra-Bank) b. Bills Payment (DSTV, HiTV, etc) c. Phone Airtime Top up d. Balance enquiry e. Mini statement	Mobile Phone – JAVA enabled phones & Blackberry. Networks it works on – MTN, GLO, AIRTEL, & ETISALAT
SKYE BANK/Skye Mobile	a. Inquiry services b. Funds transfer services c. Bill payment services (to a limit of ₦30,000.00) d. Mobile phones recharge vending	a. Mobile Phone or b. 3G enabled portable devices *Restricted to ETISALAT network
GTB/GT Mobile Money	a. Cash deposits into your mobile money account b. Cash withdrawals from GTBank ATMs or any Mobile money agent	a. Smart Phones – Blackberry, iPhone, And roid or JAVA enabled phones b. Mobile Money SIM Tool Kit (Only ETISALAT SIMs)
GTB/GT Mobile Money	a. Cash deposits into your mobile money account b. Cash withdrawals from GTBank ATMs or any Mobile money agent c. Funds Transfers to any recipient (both mobile money subscribers and non-subscribers) d. Purchase of Airtime e. Balance Enquiries f. Payment of Utility bills	a. Smart Phones – Blackberry, iPhone, Android or JAVA enabled phones b. Mobile Money SIM Tool Kit (Only ETISALAT SIMs)
KEYSTONE BANK/Keystone Mobile	a. Balance enquiry b. Mini statements request c. Full Statement request d. PIN Change e. Recharge f. Bills Payments (DSTV, PHCN and ZAIN) g. Funds Transfer (Own accounts and Intra-bank transfers) h. Funds Transfer to other banks	Mobile Phone – GPRS/SMS module

Source: Author's compilation from the various bank's websites.

Table 1 above clearly highlights the growing trend of the complementing electronic payments medium in the Nigerian payments environment. The trend in Nigeria shows compliance with Gates (2000) as cited in Ovia (2005) that;

> *"The successful companies (countries) of the next decades will be the ones that use digital tools to re-invent the way they work. These companies or countries will make decisions quickly, act efficiently and directly touch their customers in positive ways. Going digital will put you on the leading edge of a shock wave of change that will shatter the old ways of doing business".*

The outlook of this digital revolution

looks every way good. However, developing countries like Nigeria have inherent cultural practices, infrastructural inadequacies, as well as, administrative bottlenecks that hinder wholesome adoption of these modern transactions mode. This is attributable to the slow pace of these developments in the economy.

Theoretical Framework

The 16th century classical economists, such as Jeon Boldin, sought to know the cause of increases in French prices. He concluded that increase in gold and silver which served as currencies were responsible for the rise in the demand for French made goods and hence, French prices, thus linking movement in prices to movements in money stock.

According to Omanukwe (2010), in the 1690s, John Locke advanced the quantity theory by examining the effects of money on trade, the role of interest rate and demand for money in the economy. This gave birth to the role of money as a medium of exchange to facilitate trade transactions. Economist at that time inferred that the quantum of money needed for such transactions would depend on the velocity of money in circulation and the relationship between the demand and supply of money such that where there was excess demand over supply, interest rates rose and vice versa.

The quantity theory of money is hinged on the Irvin fisher equation of exchange which state that the quantum of money multiplied by the velocity of money is equal to the price level multiplied by the amount of goods sold.

That is;

$MV = PQ$

Where M = Quantity of money

V = Velocity of circulation of money

P = Price level

Q = Real output

There are three major assumptions surrounding this theory; the assumption of constant velocity of money. Here the classical presupposes that the velocity of money is some worth independent of changes in stock of money or price level. They identified factors, such as population density mode (and frequency) of payment availability of credit sources and nearness of stores to individuals. The second assumption is that the factors affecting real output are exogenous to the quantity theory itself. Thirdly, it is assumed that causality runs from money to prices.

The Irvin fisher equation of exchange underwent further manipulations and explanations to become what today is known as the classical quantity theory of money. Its main point is a simpler transmission mechanism that went straight from excess demand for or supply of money to the aggregate expenditure function.

The equations of the quantity theories are summed up as:

I. Demand for money Md = kPY
ii. Supply of money Ms = M
iii. Equilibrium condition Md = Ms
iv. Therefore kPY = M
Or P = kY1M

So, where k and y are constant, P varies proportionately with M.

Critiques of the quantity theory have continued to question the reality of its assumptions, especially the constant velocity of money. The debate which started since the 16th century has continued to rage till the present day. This paper also attempts to lend its voice to the arguments by

questioning the constancy of velocity of money especially in this modern time of electronic payments system. In other words, it is important to state that the identified factor of mode of payments in its modern day diversity portends a significant variability possibility for the velocity of money. There are also cultural and attitudinal factors in practice noticeably in countries like Nigeria which portends possible distortion in the rounds that a currency can make. All these are subjects of contemporary investigations.

Empirical Review

Analytical works in recent times have been targeted at measures aimed at strengthening the monetary policy transmission mechanism in Nigeria as well as specific monetary policy targeting measures appropriate for the Nigeria economy. Similar studies conducted in Nigeria are reviewed below.

Asaolu, Ayoola, and Akinkoye, (2011) in "Electronic Payment System in Nigeria: Implementation, Constraints and Solutions" The study investigates the Federal Government of Nigeria electronic payment system implementation and the constraints confronting it with a view to providing solutions to the constraints so identified. The study is motivated by the apparent low level of satisfaction with the level of e-payment system in Nigeria. In carrying out the study, government agencies, contractors and the banks formed the population with a total of 200 respondents sampled through convenient sampling method and the analysis is based principally on the primary data collected from the respondents. The study identified constraints that are bedeviling the system and also suggested recommendations for effective implementation of the system.

Echekoba and Ezu (2011) examined user acceptability and problems of electronic retail payment systems in Nigeria and found that cash usage is still very high in Nigeria despite efforts of CBN towards the adoption of electronic payment system. These studies variously identified challenges such as inadequate power supply, shortage of critical technological infrastructures, lack of socio-cultural support and absence of regulatory framework that are required to operate seamless and effective electronic payment system.

Similarly, Nwankwo (2013) studied the problems and prospect of electronic payment in cashless economy of Nigeria and found that electronic payment system has great implication on cashless economy of Nigerian but it will lead to significant decrease in deposit mobilization and credit extension by Nigerian deposit money banks.

Oyelami and Yinusa (2013) in "Alternative Payment Systems Implications for Currency Demand and Monetary Policy in Developing Economy": A case study of Nigeria, using a Variance Autoregression Method (VAR) found out that apart from ATM and Internet payment, all other payment channels responds negatively to innovation in interest rate, throughout periods of the study including currency. It is important to this study as the study includes variables of interest in order to observe their behaviour.

Sardoni (2002) on "the I. T. Revolution and the Monetary System: Electric Money and its Effects" used a maximization theory to find that in the immediate or near future, money will not spread significantly in advanced monetary

economies if e-money maintains its current characteristics. Concluding that accepting the e-money definition implies that conventional money continues to play a relevant role in the economy. It recommended a radical change of the existing monetary system to become significantly different from what it currently is.

Oyewole, Gambo, Abba and Onu (2013) on "electronic payments system is economic growth: review of transition to cashless economy in Nigeria". They applied the OLS estimation technique they result indicates a significant positive relationship between e-payment system and economic growth with RGDP, GDPCI and trade per capita. Also, only the ATM had positive contribution to economic growth while other like e-payment platforms impacted negatively. Hence, the current cashless policy should be tailored towards effective e-payment system. Other factors which bear much relevance or successful transition to cashless economy should be prioritized.

Asaolu, Ayoola, and Akinkoye (2011) writing on "Electronic Payments System in Nigeria; Implementation, Constraints and Solutions" used primary data on the platform of SPSS version 15 to find that e-payment system is better than the old system of cash and cheque which was not cash effective, but the present system has not achieved its stated objectives. They recommended dual control for the authorization of transactions, seamless integration, enlightenment campaign and the strengthening of constitutional and regulatory framework.

Muhammad and Haroon (2009) studied the "development of electronic money and its impact on the CBN role and monetary policy" using judgmental approach they found that e-money as a network good could become an important form of currency in the future. Such a development would influence the effectiveness and implementation of monetary policy. They suggest changes in the operational target of the CBN and a closer coordination of monetary policy and fiscal policy.

Methodology

The method of data analysis adopted for this study is the Pareto chart. This technique is used to analyse the problems of payments system in Nigeria. Pareto analysis is a technique for tallying the number and type of defects that happen within a product or service. It is called the 80-20 rule which means that 80 percent of the activity is caused by 20 percent of the factors. Data on reported cases of payments operations across commercial banks, which were reported to the CBN in 2012, are used here to investigate the prominent factors militating against the efficient operation of the payments apparatuses. The procedure for developing a Pareto Chart is outlined as follows:

(I) Tally the type of defects.
(ii) Rank the defects in terms of frequency of occurrence from largest to smallest.
(iii) Produce a vertical chart with the height of the bars corresponding to the frequency of each defect.

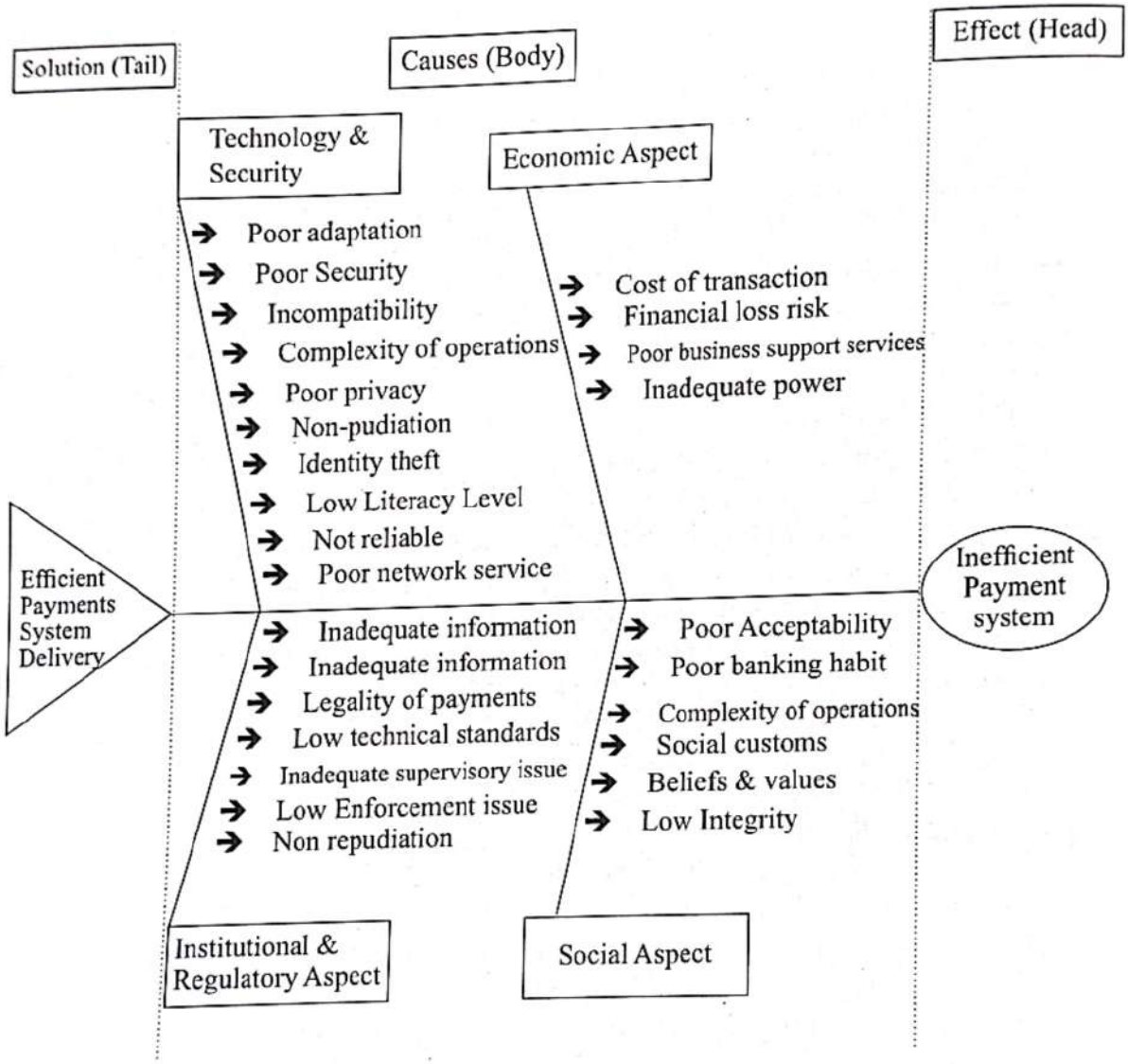
Result and Discussion

Challenges of Payments System Operation in Nigeria

This research has organized the challenges payments system operation in a systematic form using the Fish Bone Chart. The fish bone is a systematic organization of

vital facts about a phenomenon. The first section of the diagram is the head which identify existing problem. In this paper, the problem identified is the problem of inefficient payment system in Nigeria.

Figure 1: Fish Bone Showing the Problems of the Nigeria Payments System



Payment system is a process and in underline the requirements of the efficiency of it, the study observed the process to determine the causes and consequences inherent in the system. The effect is shown on the right hand side (RHS) of the fish bone diagram (the head of the fish), while the major cause are listed on the left hand side (LHS) of the diagram (the body of the fish), under each of these are sub-causes that can be identified. That is, the factors that may be providing this particular effect of an inefficient payment system. The fish bone diagram as a cause and effect diagram

shows that; technology and security, economy, social aspects, and institutional and regulatory frameworks are the major aspects to consider in the inefficiency of payments system operation in Nigeria. The figure shows that institutional and regulatory framework, technology and security are the major aspects that contribute to the ineffective payment system in Nigeria. This can be seen from the sub-sets of inadequate information made available to the public, inadequate supervisory and enforcement legal standards, low technical standards including legality of payments and non-repudiation issues.

In terms of technology and security, low level of literacy leads to poor adoption of the technique, and this further compounded by the complexity of operations that provides poor privacy and insecurity leading to identity theft, non-repudiation and generally providing an environment of poor networking service that is not reliable. And the aspect of concern is the socio-economic aspects, as shown by the fish bone diagram, poor support services makes the cost of transactions high thereby increasing financial loss risk, especially in given the prevailing environment of poor banking habits stemming from social beliefs and customs, acceptability and implementation of this payment system is still low.

In conclusion, the fish bone diagram has shown that the social and economic aspects of the Nigerian economy is a major cause of the inefficiency of the payment system, and the institutional and regulatory framework must target its policies towards it, to achieve any meaningful adoption and use of the payment system, to make it effective to also ensure that technological and security issues, are tackled effectively to provide a more efficient trusted system that would be acceptable to these economic units.

Analysis of Factors that Contributes to the Ineffectiveness of Payments System Operation in Nigeria

The data collected in this research work shows the trend of complaint records kept by the CBN with respect to submission by various commercial banks in 2012. The fish bone diagram above have captured from empirical literature and presented these problems in four major categories, which are; economic problems, technology and security challenges, institutional and regulatory challenges as well as social problems of the operation of payments system in Nigeria. The detail of this identified categorization is seen on the diagram and it provides a strong basis for background for the Pareto Chart analysis and the discussion of stylized facts that is to follow in this section.

This analysis identifies the critical issues to concentrate policy attention in the midst of overwhelming numerous problems. Appendix 4, presents a table of complaints from bank customers on debit card transactions in 2012. The Pareto Worksheet as shown in table 4.19 below presents the frequency of occurrence of different types of problems, cutting across banks, and their respective percentages (%) of occurrence. Using this information, the cumulative % frequency was formed. The cut off was obtained by taking a 20% of the total number of complaints recorded: Thus; $^{20}/_{100} \times 58 = 11.6$

The result on this table is presented in the figure below:

Table 2: Data Showing Pareto Worksheet

Response	Frequency	Percentage (%)	Cumulative (%)	Cut off (%)
ATM Cash Dispense Error	25	43	43	11.6
Unauthorised ATM Cash Withdrawal	24	41	84	11.6
Online Transfers	5	8	92	11.6
Request for Footages of a Customer's Transaction	1	2	94	11.6
Online Transaction Error	1	2	96	11.6
Fraudulent Manipulation of Accounts	1	2	98	11.6
Wrong Posting of Cheques	1	2	100	11.6

Source: *Author's Computation Using Pareto Worksheet*

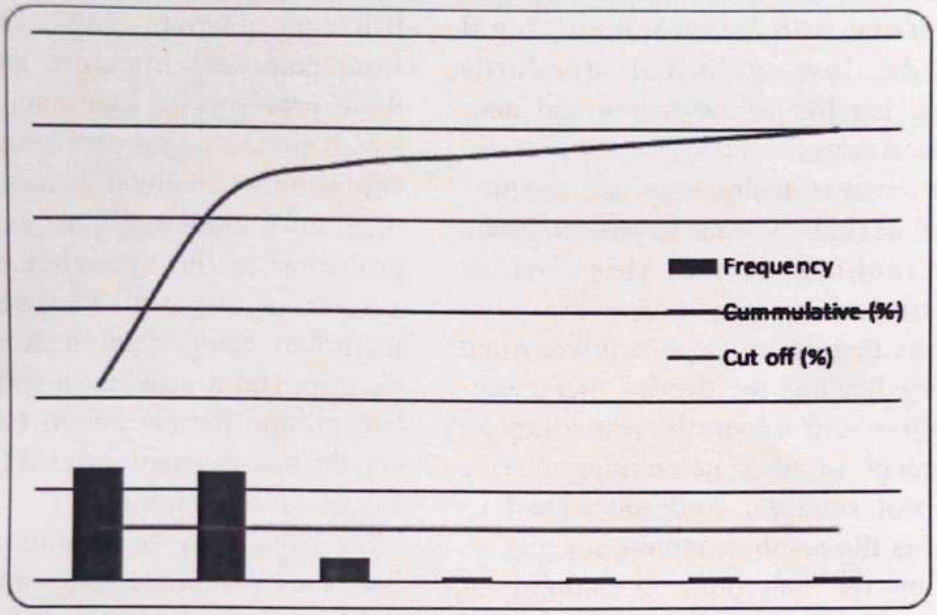


Figure 2: *Pareto Chart on Problems of Payment System Operation in Nigeria*
Source: *Author's Computation from Ms Excel*

From the above figure, the problems identified to have frequency above the cut off line are considered to be the 20% factors which dominate the challenges of effective payments system operation in Nigeria. These problems are therefore; ATM Cash dispense error, unauthorized ATM cash withdrawals, and Online Transfer Frauds. The bulk of other challenges like; Online Transaction Error, Fraudulent Manipulation of Accounts and Wrong Posting of Cheques lie below the 20% mark. Policy attention (corrective measures) should therefore be focused on solving the dominant 3 problems.

Further to this analysis are other facts especially as regards the speed of response to these complaints by the relevant authorities. A total of 58 complaints were recorded by the CBN in 2012 of which 12 remained unresolved at the end of the year. Of particular relevance to this research however is the speed of action on correction of these errors. Only 10 of these issues were resolved within a month period. The remaining 36 took an average of over 8

months to resolve. 8 of the entries show that it took over 2 years to resolve. The longest case spanned 3 years, 3 months, and 20 days with an amount of N165,900 involved. This report shows that as at the time of recording this data, authorities have not been proactive in tackling cases of errors in payments system operations. This remains a major problem in convincing the populace to embrace the payments innovation.

Summary of Findings and Recommendation

Based on information available at the Central Bank of Nigeria (CBN), the Pareto Chart (80-20 analysis) was used to establish the dominant factors militating against the smooth operation of payment system activities in the country. The dominant militating factors found were; ATM cash dispense error – which is categorized under infrastructure and technological problems, unauthorized ATM cash withdrawal – which falls under social and security categories, as well as online transfer frauds – which is also a security issue. All these have further encouraged the transacting public not to have full confidence in the payments mechanisms as such prefer to continue to transact in cash (outside the banking frame) – especially from the difficulties experienced in resolving complains made to the Central Bank. These findings in line with the empirical literature postulations form the basis for the conclusion and policy recommendations of this research.

One can conclude therefore, that the challenges of payments system operations as highlighted in the Fish Bone diagram has continued to threaten the efforts of the Central Bank of Nigeria (CBN) aimed at deepening financial inclusion as evidenced in the Pareto Chart Analysis. Also, institutional measures to protect the customers of these systems are weak. The study therefore recommends that;

1. There is a need to increase and improve the level of awareness and knowledge of the use of e-payment instruments in Nigeria. Basic literacy level should be developed even at the informal sector on the use of these technology based apparatuses so as to maintain the level of efficiency required for development of the payments system.
2. It is pertinent on government to therefore improve the infrastructural framework to mitigate payment errors. It should also provide the enabling security and judiciary support that will speed up the resolution of these errors when they occur.
3. It is also recommended that payments error resolution units should be disaggregated into zones and area offices to help speedy resolution especially with regards to ATM dispense error, unauthorized ATM cash and online transfers.

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