EFFECT OF MOBILE BANKING ON CUSTOMERS’ TRANSACTION COST IN SELECTED BANKS, MAIDUGURI METROPOLIS, BORNO STATE, NIGERIA

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Abstract
The study assessed the effect of mobile banking on customers’ transaction cost in selected banks in Maiduguri Metropolis, Borno State, Nigeria. The study is survey in nature, the target population of the study is the customers of four selected commercial banks, data was obtained from the respondents through a structured questionnaire measured on a five point likert scale. The study employed inferential statistical analysis to analyse the data obtained where simple regression analysis was used with the aid of statistical package for social sciences (SPSS) version 20. The findings of the study revealed that there is positive significant effect of mobile banking on transaction cost to customers on transaction cost and computers on queue in the help desk. based on the findings the study recommends that commercial banks should ensure that they always put in enough efforts to support mobile banking in order to reduce the transaction cost of end users, Government and the financial institutions should provide infrastructural facilities like power and electricity to provide support for mobile banking.

Keywords: Mobile Banking, Customers, Transaction cost, Commercial Banks

Introduction
Financial institutions are catalyst that drives the economy of every nation in the world. Before the new era of banking in Nigeria, the industry was characterized by inefficient bureaucracy and a truly frustrating service delivery system that had lead to a great set back over the last three decades. Lack of effective service delivery channels had lead customers of commercial banks to migrate from one bank to the other for ease of their daily banking transaction activities, most of the draw backs were as a result of long queues, lack of access to bank accounts, inability to deliver fund to the right account and burden of carrying physical cash to and fro bank. However, the recent implementation of information and communication technology in the banking industry has enabled promptness and quick response to customers through electronic payment media, so that they can handle their daily financial transactions without having to visit their local bank branches 24 hours without any interruption. For example, the purchase of air tickets from any airline of a customer’s choice and transfers of fund to any account can be easily done under the roof of our homes in order to save cost and time. All of these are possible with the advent of information and communication technology via the means of electronic media such as the mobile banking and responsiveness of computers on queue in the help desk.
Banking is a customer-oriented service industry, effectiveness and efficiency are critical particularly with respect to providing services to customers for the industry to be successful. Customer satisfaction as defined by Kotler and Keller (2006) is the extent to which a customer’s expectation is met or marched by a perceived performance. Nagabhushanami (2013) defines an effective and efficient service as that which satisfies the need of a given customer consistently over time. Service quality is a key component in creating and sustaining worthy relationships with customers and keeping abreast with their ever increasing needs (Njoka, 2013). In the study Njoka (2013) notes that banking service providers are using information technology to reduce costs and more importantly create value-based services for their customer satisfaction. Some of the information and communication technology that enabled service delivery channels in use in the banking industry include automated teller machine, computers in the help desk and now mobile banking which has taken the industry by storm. The blending of current technology and sound service design in today’s commercial banks is a big dream which when realized would greatly improve service delivery and customer satisfaction.

Although, similar work have been conducted elsewhere, there is paucity of research on this topic conducted for North east and especially Maiduguri metropolis due to the peculiarity of the environment which is being affected by the insurgency, which makes it more difficult for customers of banks to get prompt and quick response to conduct their financial transactions as well as the non-availability of network. It is against this backdrop that this study seeks to assess the effect of mobile banking on customers’ transaction cost in selected banks in Maiduguri Metropolis, Borno State, Nigeria.

**Effect of Mobile Banking on Transaction Cost**

Bhattacherjee (1998) defined “mobile” to mean fully portable, real-time access to the same information, resources, and tools that, until recently, were available only from the desktop. The rapid advancement in technologies and ease of use, coupled with the falling prices of devices, present the mobile phone as an appropriate and adaptable tool to bridge the digital divide. Though, Cell phones have not yet achieved these levels of quality, but they do offer "anywhere" convenience, a disruptive innovation advantage. This can be evidenced in the banking sector since the introduction and evolution of the mobile phones; the ways and means of business information transfer have changed leading to more effective in service rendered to customer by the banking sectors. However, mobile banking services are often differentiated as „push” or „pull”. Pull is when a customer explicitly requests a service or information from the bank. While push, occurs when a bank sends an alert to a customer when their accounts goes below a threshold level. Pull services are often of higher security measures.

Drexelius and Herzig (2001) defines mobile banking as the ability to conduct bank transactions via a mobile device, or more broadly to conduct financial transactions via a mobile terminal. This definition is more elaborated as it includes not only basic services such as bank account statements and funds transfer but also electronic payment option as well as information-based financial services such as alerts on account limit or account balance, access to stock brokering. Mobile banking (also known as M-banking, Mbanking, or SMS banking), is a term used for performing balance cheques, account transactions’ payment, credit applications and other banking transactions through a mobile device such as mobile phones or Personal Digital Assistant (PDA).
The earliest mobile banking services were offered over SMS. With the introduction of the first primitive smart phones with wireless application protocol (WAP) support enabling the user of the mobile web in 1999, the first European banks started to offer mobile banking on this platform to their customers.

In another vein, Petrova (2013), defines mobile banking as the “ability to bank virtually anytime anywhere”. This definition needs to be expanded to include the two different types of customer account access, a web based interface and simple text messaging interface. According to WFI (2011), before 2004, the internet was the only way of using mobile banking in Japan, which enabled customers to browse the merchants’ website through a web browser. However, customers still had to use their credit/debit for payments.

According to Okoegwale (2008), mobile banking in Nigeria started from the transaction based activities whereby bank customers are notified via SMS when transactions are conducted on their account or via ATM. This is one way event and only for informational purposes only. Guaranty Trust Bank was one of the earliest banks to provide this service to its customers. Nigerian banks are now deploying full-fledge banking via the mobile phones with array of services which were only possible in the banking halls before. Zenith bank, UBA, Guaranty trust bank, Diamond bank, Fidelity bank and Access banks are the fore runners of this innovation in Nigeria. Furthermore, Okoegwale, (2008) asserted that mobile banking refers to the provision of banking and financial services with the help of mobile telecommunication devices. The scope of services offered may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information. Also known as M-Banking in Nigeria or in some instances SMS Banking etc. It is a term used for performing balance checks, account transactions, payments and transaction services via mobile devices. Some mobile banking applications in Nigeria use preprogrammed configuration settings.

Despite the neglecting attitude that some very leading banks are showing about mobile banking in Nigeria, the mobile device remains the only and most available feasible means to provide mass market alternative to branch banking in Nigeria. In a population of over 140 million, the internet has only a penetration rate of 6 percent but mobile technology is close to 50 percent penetration with prospects for further growth. Mobile devices are the most promising way to reach the masses and to create a tie-in among current customers, due to their ability to provide services anytime, anywhere, high rate of penetration and potential to grow. Deployment of 3G will enable banks to offer more robust mobile banking technologies.

**Challenges and Prospect of Mobile Banking**

According to Wikipedia (2010), the key challenges in developing sophisticated mobile banking applications are;

**a) Handset operability:** Tokoegwale (2008) asserted that the large number of different mobile phone devices posed a big challenge for banks to offer mobile banking services on any type of device. Some of these devices support Java Me and other support SIM application Toolkit, a WAP browser, or SMS only. This is because of the manner in which mobile phones applications evolved over time and the device manufacturers focused on particular standard and this led to a proliferation of applications.
b) Mobile banking security: Mobile application developers wireless network service providers and the bankers’ IT department should jointly address the complicated challenges of security of financial transactions, being executed from some remote location and transmission of financial information over the air. The above aspects need to be addressed to offer secure infrastructure for financial transaction over wireless network: If the bank is offering a smart-card based security, the physical security of the device is more important. There should be authentication of the device with service provider before initiating a transaction. This would ensure that unauthorized devices are not connected to perform financial transactions.

c) Scalability and Reliability: Banks need to ensure that the systems are up and running in a true 24x7 fashion, so as to enable the banks to scale-up the mobile banking infrastructure to handle exponential growth of the customer base. With mobile banking, the customer may be sitting in any part of the world anytime, anywhere banking.

d) Application Distribution: Banks are expected to connect website for regular upgrade of their mobile banking application but instead customers are seen regularly visiting banks or connect to website for regular upgrade of their mobile banking application due to the nature of connectivity between bank and its customers.

Researchers at all spheres of the world had contributed in varied degrees to the existence of mobile banking and its originality into servicing customers effectively. Those scholars have evaluated some of the services mobile banking can offer. Such services include; Account information, payments and transfers, investments. According to Fiserv (2013), adoption of mobile banking by financial institutions has far reaching effects in many aspects. Mobile banking services adoption has the potential of greatly improving the level of service delivery in any financial institution. This happens as a result of the short time it takes a customer to complete a transaction using a mobile phone than walking to the bank to have the payment affected. This improvement in service delivery due to adoption of mobile banking has the potential of capturing approximately 20% online customers who prefer better service delivery through mobile banking. An increase in the number of customers is also likely to lead to higher revenue and increased profit for the bank. However, there are concerns from customers that although service delivery greatly improves with adoption of mobile banking. Security of mobile banking still remains a challenge that needs to be addressed in order to enhance service delivery.

According to Adewoye (2013), mobile banking on service delivery in the Nigerian commercial banks reveals that mobile banking improves bank service delivery in many ways such as transactional convenience, saving of time, quick transaction alert and save of service cost which has recuperate customers relationship and satisfaction. He recommends that the management of Deposit Money Banks should create awareness to inform the public about the benefits derived on the mobile banking service. Collaboration among banks should perfectly maintain, skilled manpower and computer wizard should be employed by every bank in order to prevent fraudulent personnel and hackers from manipulating the banks data and stealing money from the bank account. Etim (2014) also suggested on the use of mobile phones and mobile money services on whether participants in the study perceived mobile phones as easy to use for various tasks including mobile banking and mobile money transfers and whether mobile money services were adopted.
Methodology
The study was carried out in selected Commercial Banks in Maiduguri Metropolis, which comprises of Jere, Konduga, Mafa and Maiduguri the capital of Borno state, Nigeria. Maiduguri is a commercial center and was formerly the capital of the North Eastern sub-region. The study is survey in nature, the customers of four selected commercial banks form the population of the study. data were obtained from the respondents through administering of a structured questionnaire measured on a five point likert scale. The study used inferential statistical analysis. Simple regression tool for data analysis with the aid of statistical package for social sciences (SPSS) version 20 was used.

Results and Discussions

Regression

<table>
<thead>
<tr>
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<th>ATM allow speed up completion of transaction</th>
<th>ATM make it possible for customer to make transaction with ease</th>
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<tbody>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td>.923</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td></td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>356</td>
</tr>
</tbody>
</table>

The results of the correlation shows that there is significant correlation between transaction, with a correlation coefficient of 0.923 at 5% level of significance

\[
\begin{array}{ccc}
\text{Model} & \text{R} & \text{R Square} & \text{Adjusted R Square} & \text{R Std. Error of Square} & \text{R Std. Error of the Estimate} \\
1 & 0.923^a & 0.851 & 0.851 & 0.566 \\
\end{array}
\]

Source: SPSS version 20.0 Computation result, (2017)

a. Independent Variable: automated teller machine
b. Dependent Variable: transaction time
R=0.923 measures the correlation between the observed and the predicted values. Meaning there is high correlation between the observed values and those that will be predicted by the model. R-squared=0.851 measures the amount of variations in the dependent (Transaction time) variable explained by the independent variables (ATM). Adjusted R square is the modified version of R square after correcting for the number of independent variables and sample size. The standard error of the estimate (0.566) is a measure of the accuracy of predictions made with the regression model; the smaller the standard error of estimate the better is the model, this suggests a better model.

<table>
<thead>
<tr>
<th>ANOVAa</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
<td>Regression</td>
<td>649.250</td>
<td>1</td>
<td>649.250</td>
<td>2028.935</td>
<td>.000b</td>
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<tr>
<td>Residual</td>
<td>113.278</td>
<td>354</td>
<td>.320</td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
<td>762.528</td>
<td>355</td>
<td></td>
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</table>

Source: SPSS version 20.0 Computation result, (2020)

The ANOVA test for linear relationship between the dependent and independent variables, from the results it is obvious that there is strong linear relationship between the dependent and independent variables. With sig. value of less than 5% (i.e 0.000<0.05), R=0.923 measures the correlation between the observed and the predicted values. Meaning there is high correlation between the observed values and those that will be predicted by the model. R-squared=0.851 measures the amount of variations in the dependent (Transaction time) variable explained by the independent variables (ATM). Adjusted R square is the modified version of R square after correcting for the number of independent variables and sample size. The standard error of the estimate (0.566) is a measure of the accuracy of predictions made with the regression model; the smaller the standard error of estimate the better is the model, this suggests a better model.

<table>
<thead>
<tr>
<th>Coefficientsa</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
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</thead>
<tbody>
<tr>
<td>Model</td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>.301</td>
<td>.066</td>
</tr>
<tr>
<td>ATM make it possible for customer to make transaction with ease</td>
<td>0.67</td>
<td>.026</td>
</tr>
</tbody>
</table>

The table above presents the estimates of the regression coefficients, their standard errors, the standardized coefficients and the values of the t statistics to test the regression coefficients with the corresponding two-sided p-values. Column one contains the independent variables; the B column (i.e column two) contains the estimate for each of the independent variables, which variable contribute negatively and significant to transaction time. Meaning the flexibility and variety offered by ATM contribute significantly in reducing transaction time. Transaction time = 0.97-0.30 ATM make it possible for customer to make transaction with ease. From the model
established above, ATM possibility will reduce transaction time by 0.67. Since from the table, the model established above, ATM possibility will reduce transaction time by -0.67, we reject the null hypothesis (automated teller machine has no significant effect on transaction time) and accept the alternate hypothesis (automated teller machine has significant effect on transaction time). And conclude that automated teller machine has contributed significantly on transaction time of customers of commercial banks in Maiduguri metropolis.

Conclusion
Mobile Banking has improved service delivery, speed up in transaction time, reduced queue, save time, reduced transaction cost thereby allowing customers to gain access 24/7 and carry out their various financial transaction activities and Clients of banks can now access their banks at their convenience without visiting the Banks. Therefore, Mobile banking has positive effect on transaction cost to customers of Commercial banks Maiduguri Metropolis, banks in Maiduguri Metropolis.

Recommendations
i. Stakeholders should invest more in obtaining quality mobile Banking facilities so as to ensure improved performance of their electronic payment system that would render easy, fast and convenient service delivery to customers of banks.
ii. Government and the financial institutions should provide infrastructural facilities like power and electricity to provide support for electronic payment equipments such as ATM and other electronic payment system so as to provide smooth and efficient internet services to customers of commercial banks.
iii. Provision of adequate infrastructures and equipments should be made available to end users as merchants seem to be having problems deploying them to efficient service delivery.
iv. The regulatory authority (CBN) needs to be proactive in addressing the
v. security, technology and infrastructural challenges associated with electronic transactions and ensure 24 hours uninterrupted network system in order to enable clients of commercial banks have improved quality of service.

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