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An Assessment of the Impact of E-Banking on Nigeria's Economic Growth, 2008 - 2018

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Abstract

This study assesses the impact of e-banking on Nigeria's economic growth between 2008 and 2018. It examines the impact of Mobile transfer; Point of Sale (POS); and Automated Teller Machine (ATM) on economic growth. Expost-facto research design was adopted wherein data was generated from Central Bank of Nigeria's (CBN) statistical bulletin for various years, 2008 - 2018. Augmented Dickey-Fuller Unit Root test statistic, error-correction mechanism, Heteroscedasticity Breusch-Pagan-Godfrey Test, and Durbin-watson tests were used to analyse the data. The result of analysis reveals that Mobile Transfer and Point of Sales (POS) have both negative and positive impacts on the Real Gross Domestic Product (RGDP) for different years; while the Automated Teller Machine (ATM) exhibited strong positive impact on the Real Gross Domestic Product (RGDP). The implication of these finding for stakeholders and researchers in the banking industry and national economy includes its exposition of prevailing factors hindering the impact of e-banking regime, the need for urgent policy to resolve them and pursue aggressive public awareness campaigns of e-banking.

Keywords: E-banking, mobile transfer, Point of Sale, Automated Teller Machine, economic growth, Real Gross Domestic Product

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Introduction

Prior to 1980s, banks in Nigeria engaged in cash/coin banking and cheque/paper banking, which led to the use and emphasis on branch banking. The difficulties associated with branch structured, cash/coin and cheque/paper banking led to reforms that culminated in electronic banking systems (Oluwatosin, 2017). The innovations and inventions in the field of Information and Communication Technologies (ICTs) facilitated the emergence of electronic banking popularly known as e-banking in the 1980s. The e-banking system was subsequently consolidated by the evolution of the internet as a major channel of information dissemination in the 21st century. As a consequence, the Central Bank of Nigeria introduced a cashless economic policy wherein financial transactions are primarily carried out electronically between customers and banks as a means of driving national economic growth.

E-banking, also known as internet banking, is an electronic payment system that enables people and institutions to conduct a range of financial transactions among themselves and with banks through the financial institution's online website. The only requirements are the development and use of e-transaction software, and customers' registration and use of the software. Customers' access is usually through a secure web site using a username and password, but security is a key consideration in e-banking (Abdou, English, and Adewunmi, 2014; Bojan, Mutu and Paun, 2014). The services rendered by the system include viewing account balances, obtaining statements, checking recent transaction and making payments (Dennis and Frances, 2010). Therefore, e-banking is a product designed for the purposes of online banking that enables you to have easy and safe access to one's bank account 24 hours a day, and 7 days a week (Tan and Teo, 2000). In the process, one call customer care or send email to the bank directly, if any problem arises (Shashank, 2018). Thus, the Technical Committee on E-Banking defined it as "a means whereby banking business is transacted using automated processes and electronic devices such as personal computers, telephones, facsimiles, Internet, card payments and other electronic channels" (CBN, 2003, p. 2).

E-banking is designed with many components that serve different purposes. These components include: a. Mobile Payments, which can be done through credit, debit, and prepaid cards; wireless carriers enable consumers to make financial transactions using their smartphones via a website. It enables customers to save, manage, and transact businesses that are not otherwise available to them in their locations (Karnouskos and Fokus, 2004; Au and Kauffman, 2007; Federal Deposit Insurance Corp, 2013); b. Automated Teller Machine (ATM), which enhances quick and convenient service delivery in matters like cash deposits, withdrawals, funds transfer, payment of utilities credit card bills, cheque book requests, and other financial enquiries outside banking halls (Odusina, 2014; Nur, Gang, Sajal, Joghee, Cui, 2016). It helps to decongest cues inside banking halls; c. Point of Sale (POS), which enables customers to pay their merchant when a product or service is purchased without physical cash (Frazier, 2013); d. Unstructured Supplementary Services Delivery (USSD); and e. Web Payments, which enables a broader set of players to participate easily in the payments ecosystem on the web (Eiji, Durga and Dave, 2019).

These services provided by e-banking have direct and indirect impacts on the dynamics and growth of the economy. Its transaction costs are very low compared to human teller banking. For instance, the cost of providing the routine business of a full service branch in USA is $1.07 per transaction while the same operation costs 54 cents for telephone banking, 27 cents for ATM banking, and 1.5 cent for internet banking (Allen & Hamilton, 2002). Similarly, money transfer via e-banking are significant time saving and reduced costs in accessing and using the various banking products and service, increased comfort and convenience (Pyun, Scruggs, & Nam, 2002). Further, e-banking reduces: customer service staff and its associated expenses as customers use more self-service functions; cheque processing costs due to an increase in electronic payments; costs of paper and mail distribution as bank statements and disclosures are accessed online; and data entry as applications are completed and processed online by customers (Wright & Ralson, 2002).

In addition to the above reductions in expenditure, banks record revenue increases due to e-banking as a result of increased account sales, wider market reach, new fee-based income, and improved customer satisfaction (Singh, 2004). It led to increases in the revenues of large European banks and the Swiss banks, drastic reduction of inflation rate in most of the advanced countries in the last quarter of this century to the very low-say of 2.5%, 21.5% increase in the number of Internet users per capita that generated 10% increase in per capita GDP (Andres, Cuberes, Diouf and Serebrinsky, 2010). Nur, Gang, Sajal, Joghee, & Cui (2016) observed that the introduction of e-banking by Bangladesh positively impacted on banks' Return on Equity with a time lag of two years while a negative impact was found in first year of adoption.

These observed but relative advantages contributed to the adoption or introduction of e-banking in Nigeria (Odumeru, 2013). The Central Bank of Nigeria (CBN) introduced the e-banking policy to minimize and/or eliminate money laundering and terrorist financing activities together with other economic and financial crimes ravaging the country, and most importantly to reduce the amount of physical cash in circulation and encouraging more electronic-based transactions. However, many scholars' investigations on the primary factors or indices that drive Nigeria's economic growth since 1990s such as Uwakaeme (2015) points at productivity index (industrial), stock market capitalization, and FDI to the exclusion of e-banking activities.

On his part, Madubuko (2016) observed that financial sector liberalization policy (not cashless policy) in Nigeria has positively reinforced economic growth in Nigeria. An investigation by Ugwu (2016) on the impact of cashless banking transactions on Nigeria's economic growth observed that only Point of Sales (POS) terminal has a significant relationship with economic growth while automated teller machine, mobile banking and internet banking are insignificant to economic growth within the period under study. A study of 407 banks customers in 33 organizations in Kano State to find out the effect of cashless instruments or e-banking by Mayaki and Mokhtar (2010) revealed the availability of cashless instrument such as ATMs, online banking, telephone banking etc. but with no positive impact on customers bank choice decision and economic growth. Similar research carried out by Odusina (2014) in Ogun State Metropolis of Nigeria using First Bank, Guaranty Trust Bank, and Skye Bank shows the same results.

Respondents to most of these earlier empirical research conducted by scholars complain about many factor or components/services in the e-banking regime such as regular malfunctioning of Automated Teller Machines (ATMs); poor or none availability of network, which is the central channel for e-banking services; online theft and fraud; non-availability of financial service providers; payment for unsolicited services like Short Message Services (SMS); mandatory acquisition of ATM cards and non-acceptability of Nigerian cards for international transaction amongst others. In addition to the prevailing high level of poverty, these have led to poor or low usage of the e-banking services in Nigeria. However, these do not undermine the saves accruing from those who make use of the services. This scenario necessitates this study which is aimed at investigating the impacts of Mobile Transfer, Point of Sale (POS), and the Automated Teller Machine (ATM) on Nigeria's economic growth from 2008 – 2018.

Materials and Methods

An expost-facto research design, which enables us to measure the effect or relationship between dependence variable and explanatory variables using time-series secondary data was adopted. The independent variables consist of the volume of Mobile Transfer, volume of Point of sale (POS), and volume of Automated Teller Machine (ATM); while the dependent variable is Real Gross Domestic Product (RGDP) for the period of 2008-2018. Statistics on these variables were sourced from Central Bank of Nigeria's (CBN) statistical bulletin for various years. The variables are defined in our model specification thus: the model is represented in a functional form as shown below:

RGDP = F (Mobile, POS, ATM) …….. (1)

Where,

Mobile = Mobile transfer (Independent variable)

POS = Point of Sale (Independent variable)

ATM = Automated Teller machine (Independent variable)

RGDP = Real Gross Domestic Product (Dependent variable)

In a linear function, it is represented as follows:

$RGDP = \beta 0 + \beta 1\ Mobile + \beta 2\ POS + \beta 3\ ATM + Ut$ …… (2)

Where: $\beta 0$ = Constant term, $\beta 1$ to $\beta 3$ = Regression coefficient and Ut = Error Term.

The data generated was analysed using the Augmented Dickey-Fuller Unit Root test statistic, error-correction mechanism, Heteroscedasticity Breusch-Pagan-Godfrey Test, and Durbin-watson test.

Theoretical framework

This paper adopts the Bank-Focused Theory popularized by Kapoor (2010) and the Neoclassical Growth Theory as its framework of analysis. The central thesis of the Bank-Focused Theory holds that banks use non-traditional but conventional low-cost delivery channels to offer services to its customers. Such channels include the automated teller machines (ATMs), mobile phone banking, Point of Sale (POS) among others. In using these channels, the bank offers a wide range of services to its customers regardless of location and branch attachments. All that is required is to enter the needed information into the system and the transaction is done. To complement this as it relates to economic growth, the neoclassical growth theory holds that the accumulation of capital within an economy and how people use such capital are important determinant of economic growth. It further propagates the doctrine that the relationship between the capital and labour in an economy determines its output.

These theories favour this study since the emphasis of the paper is on the introduction of electronic platforms as means of delivering services in the banking sector, which ultimately reduces many costs leading to savings or increased capital. It is therefore expected that both the application of the electronic devices and the increased capital shall lead to economic growth. This paper investigates the relationship.

Data Analysis, Results, and Discussion

The ADF test was used here to test whether the variables are non-stationary (unit root). If the results indicate that all series are stationary in the first difference or all series are generated by 1(1) and 1(1) process, condition of stationarity is established or confirmed (Gujarati, 2004). The unit root was carried out to avoid non-sense regression and violation of ordinary least square assumption.

Table 1. Results of Stationarity (unit root) test.

Variables	ADF- Statistics	Critical Value	Order of integration
RGDP	-7.311377	1% level = -4.420595 5% level = -3.259808 10% level = -2.771129	Stationary first difference
Mobile	-3.476089	1% level = -4.420595 5% level = -3.259808 10% level = -2.771129	Stationary first difference
POS	-8.179974	1% level = -4.420595 5% level = -3.259808 10% level = -2.771129	Stationary first difference
ATM	-5.093436	1% level = -4.420595 5% level = -3.259808 10% level = -2.771129	Stationary first difference

The results of the stationarity (unit root) test indicate that the volume of Mobile Transfer (Mobile), volume of Point of Sale (POS), Automated Teller Machine (ATM) and Real Gross Domestic Product (RGDP) were stationary at first difference. Therefore, it is referable to use Error Correction regression Model to estimate the parameters.

Table 2 Nigerian E-Payment Sector Statistics 2008-2018
Market share in the e-payment market in 2008-2018

	Volume (Mn)										
e-payment segment	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ATM	60.1	109.6	186.2	347.6	230.3	360.82	463.27	0.4	607	80.55	650.06
Web (Internet)	1.6	2.7	7.2	3.6	13.8	4.02	6.18	9.11	14.09	28.99	33.43
POS	1.2	0.9	1.1	2.1	25.9	20.82	30.11	33.72	63.7	146.27	196.83
Mobile	3.2	1.8	1.2	1.9	7.2	27	37.81	41.64	47.05	47.8	39.72
Total	66.1	115	95.7	355.2	412.7	412.6	537.37	84.87	731.84	303.61	920.04
Market share in the e-payment market in 2008-2018_											
	Value (N'Bn)										
e-payment segment	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ATM	399.7	548.6	954	1,561.80	1.82	3.29	4.12	3.65	4.9	6.44	4.76
Web (Internet)	25.1	84.2	99.5	58	15.024	40.17	87.3	111.12	132.36	184.6	183.07
POS	16.1	11	12.7	31	48.461	312.07	533.18	0.45	759	1.41	1.61
Mobile	0.7	1.3	6.7	20.5	1.594	296.93	43.57	414.69	756	1.1	1.22
Total	441.6	645.1	1,072.90	1,671.40	66.819	652.46	668.17	529.91	1652.26	193.55	190.66

Source: CBN statistical bulletin, 2018

Table 3: Empirical Results of the Multi-regression Error correction model

Dependent Variable: D(RGDP,1)				
Method: Least Squares				
Date: 02/12/19 Time: 11:51				
Sample (adjusted): 2009 2018				
Included observations: 10 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.87593	2.990554	8.318167	0.0000
D(MOBILE,1)	0.401467	0.073033	5.497062	0.0009
D(POS,1)	0.300176	0.080289	3.738693	0.0093
D(ATM,1)	0.508765	0.094432	5.387633	0.0003
ECM-1	-0.649671	0.107789	-6.027247	0.0001
R-squared	0.849001	Mean dependent var		2301.141
Adjusted R-squared	0.781797	S.D. dependent var		1938.713
S.E. of regression	2399.464	Akaike info criterion		18.71073

Sum squared resid	28787127	Schwarz criterion	18.86202
Log likelihood	88.55365	Hannan-Quinn criter.	18.54476
F-statistic	15.08863	Durbin-Watson stat	1.959900
Prob(F-statistic)	0.00000		

Source: E-view Results

Error correction mechanism was carried out to examine parameters estimates. The volume of Mobile transfer (Mobile), volume of Point of sale (POS) and Automated Teller Machine (ATM) were regressed against Real Gross Domestic Product (RGDP). The result of the regression analysis was summarized and it shows the model for the effect of e-banking on economic growth. The empirical result shows that the coefficient of volume of Mobile transfer (Mobile) has 40% positive significant effect on Real Gross Domestic Product (RGDP) because observed values of t – statistics was greater than its P-values. The volume of Point of Sale (POS) has 30% positive significant effect on Real Gross Domestic Product (RGDP) because observed values of t – statistics was greater than its P-values. The volume of Automated Teller Machine (ATM) has 50% positive significant effect on Real Gross Domestic Product (RGDP) because observed values of t – statistics was greater than its P-values. The results of the F – statistical test show that the overall regression of the variables was statistically significance. This is because observed values of the F – statistics (15.08863) was greater than its P-value. The statistic showed that the model has 64% of the error is corrected every year from short-run to long-run. Again, our empirical result shows that the adjusted R-squared (R^2) is 0.78177. Explanatory powers of the variables were very high.

Econometric /Second Order Test

Table 4: Result of Durbin-watson Autocorrelation Test

Model	Observed value of Durbin – Watson (Dw)	Critical value of Durbin – Watson Du(3 – du)	Test Result
Model 1	1.959900	1.75	AA

AA = Autocorrelation Absent

The Durbin-watson test was used to identify whether the model suffer from auto-correlation problem. The auto-correlation problem violates the ordinary least square assumption that says there is correlation among error terms of different observation. Durbin- Watson statistics (d*) was carried to test randomness of the residuals and the assumption of ordinary least square was not violated. The result of Durbin–Watson test (1.959900) carried out at 5% level of significance shows that the model is free from Autocorrelation problem was greater than upper critical value of Durbin-watson (1.75). This denotes that prediction base of the Ordinary Least Square estimates were efficient and unbiased.

Table 5: Result of Heteroscedasticity Breusch-Pagan- Godfrey Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.787532	Prob. F(4,5)	0.0005
Obs*R-squared	0.654428	Prob. Chi-Square(4)	0.0008
Scaled explained SS	0.154115	Prob. Chi-Square(4)	0.0002

Source: E-view Results

This second order test checks whether the model of the study suffers Heteroscedasticity problem. Heteroscedasticity is violation of ordinary least square (OLS) assumption that error terms have unequal variance which results to biasedness and inconsistency in OLS estimators and the model can no longer be best linear unbiased estimator (BLUE). The null hypothesis; there is heteroscedasticity. The White test showed that there was no heteroscedasticity because Probability value of F-statistic was less than 0.05 significant level.

Table 6: Null Hypothesis: D(RGDP) has a unit root

Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=1)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-7.311377	0.0044
Test critical values:	1% level		-4.420595	
	5% level		-3.259808	
	10% level		-2.771129	
*MacKinnon (1996) one-sided p-values.				
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 9				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(RGDP,2)				
Method: Least Squares				
Date: 02/12/19 Time: 11:44				
Sample (adjusted): 2010 2018				
Included observations: 9 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RGDP(-1))	-0.523225	0.398989	-1.311377	0.2311
C	869.1284	1234.528	0.704017	0.5042
R-squared	0.997221	Mean dependent var		-514.3211
Adjusted R-squared	0.982538	S.D. dependent var		2008.222
S.E. of regression	1923.560	Akaike info criterion		18.15487
Sum squared resid	25900582	Schwarz criterion		18.19870
Log likelihood	-79.69693	Hannan-Quinn criter.		18.06029
F-statistic	11.19709	Durbin-Watson stat		2.010865
Prob(F-statistic)	0.001105			

Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic	0.787532	Prob. F(4,5)		0.0005
Obs*R-squared	0.654428	Prob. Chi-Square(4)		0.0008
Scaled explained SS	0.154115	Prob. Chi-Square(4)		0.0002
Test Equation:				
Dependent Variable: RESID^2				
Method: Least Squares				
Date: 02/12/19 Time: 12:29				
Sample: 2009 2018				
Included observations: 10				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2673479.	2082604.	1.283719	0.2555
D(MOBILE,1)	-1.469866	6.827857	-0.215275	0.8381
D(POS,1)	-0.032389	0.650732	-0.049774	0.9622
D(ATM,1)	0.149762	0.522935	0.286387	0.7861
ECM-1	285.5148	692.9342	0.412037	0.6974
R-squared	0.065443	Mean dependent var		2878713.
Adjusted R-squared	-0.682203	S.D. dependent var		4164990.
S.E. of regression	5401983.	Akaike info criterion		34.14928
Sum squared resid	1.46E+14	Schwarz criterion		34.30058
Log likelihood	-165.7464	Hannan-Quinn criter.		33.98332
F-statistic	0.087532	Durbin-Watson stat		2.625836
Prob(F-statistic)	0.982474			

From the result of the analysis presented in table 6, Mobile transfer has a positive effect on Real Gross Domestic product (RGDP). This is shown by a regression coefficient of -1.469866 statistical significant at 5%. This shows that the Mobile transfer by the customers of deposit money banks have not significantly increased the Real Gross Domestic product (RGDP).

From the result of the analysis presented in table 6, Point of Sales (POS) has positive effect on Real Gross Domestic product (RGDP). This is shown by a regression coefficient of -0.032389statistical significant at 5%. This shows that the Point of sales by the customers of deposit money banks have not significantly increased the Real Gross Domestic product (RGDP).

From the result of the analysis presented in Table 6, Automated Teller Machine (ATM) has a positive effect on Real Gross Domestic Product (RGDP). This is shown by a regression coefficient of 0.149762 statistical significant at 5%. This shows that the Automated teller machine (ATM) by the customers of deposit money banks helps to increase the Real Gross Domestic Product (RGDP). National Bureau (NBS) noted that Automated Teller Machine (ATM) from selected banks across the country recorded transactions valued at N39.15 trillion in the fourth quarter of 2018. The bureau added that NIBSS instant payments (NIP) transactions dominated the volume of transactions recorded in the quarter.

Table 7: Dependent Variable: D(RGDP,1)

Method: Least Squares				
Date: 02/12/19 Time: 11:51				
Sample (adjusted): 2009 2018				
Included observations: 10 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.87593	2.990554	8.318167	0.0000
D(MOBILE,1)	0.401467	0.073033	5.497062	0.0009
D(POS,1)	0.300176	0.080289	3.738693	0.0093
D(ATM,1)	0.508765	0.094432	5.387633	0.0003
ECM-1	-0.649671	0.107789	-6.027247	0.0001
R-squared	0.849001	Mean dependent var		2301.141
Adjusted R-squared	0.781797	S.D. dependent var		1938.713
S.E. of regression	2399.464	Akaike info criterion		18.71073
Sum squared resid	28787127	Schwarz criterion		18.86202
Log likelihood	88.55365	Hannan-Quinn criter.		18.54476
F-statistic	15.08863	Durbin-Watson stat		1.959900
Prob(F-statistic)	0.00000			

Discussions of Findings

From the result of the analysis presented in Table 7, Mobile transfer has a positive effect on Real Gross Domestic product (RGDP). This is shown by a regression coefficient of 0.401467 statistical significant at 5%. This shows that the Mobile transfer by the customers of deposit money banks helps to increase the Real Gross Domestic product (RGDP).

From the result of the analysis presented in Table 7, Point of Sales (POS) has a positive effect on Real Gross Domestic product (RGDP). This is shown by a regression coefficient of 0.300176 statistical significant at 5%. This shows that the Point of sales by the customers of deposit money banks helps to increase the Real Gross Domestic product (RGDP).

From the result of the analysis presented in Table 7, Automated teller machine (ATM) has a positive effect on Real Gross Domestic product (RGDP). This is shown by a regression coefficient of 0.508765 statistical significant at 5%. This shows that the Automated teller machine (ATM) by the customers of deposit money banks helps to increase the Real Gross Domestic product (RGDP).

Implications of Findings

1. Mobile transfer is negatively signed in table 6 model indicating that it negatively influences the RGDP, it implies that customers are afraid in making mobile transfer due to mistakes, fraud, and inadequate education in money transfer and table 7 indicates that it positively influences the RGDP positively, it indicates also that it facilitates easy transactions, while queues in the banks have been reduced due mobile transfer.

2. Point of Sales (POS) is negatively signed in table 6 model indicating that it negatively influences the RGDP. It implies that as POS is not always available at any point in time, customers rarely use it, and due to lack of proper education, customers are not acquainted with the system, while table 7 model shows that POS has a positively influence which equally indicates that those who made themselves available to make use POS find it rewarding and effective for their transactions.

3. Automated Teller Machine (ATM) is positively signed in both table 6 and 7 models indicating that it positively influences Real Gross Domestic Product (RGDP). With the highest number of customers using it. It generates a lot of income to Nigeria money deposits banks, reduces queues in the banking hall, and minimizes armed robbery. There is provision of ATM machine everywhere in the streets including popular restaurants, Market places, and strategic positions.

Conclusions

E-banking system provides services that enable customers to access their accounts, move their money between different accounts, and/or make payments via e-channels in different forms that tend to stimulate economic growth. In Nigeria, analysis of data generated from the Central bank of Nigeria covering 2008 to 2018 shows that Mobile Transfer and the Point Of Sales (POS), which are components of the system have negatively and positively impacted on the Real Gross Domestic Product (RGDP), while Automated Teller Machine has no significant effect within the period studied. This finding partially collaborates earlier finding by Ugwu (2016), which observed that cashless or e-banking transactions has no significant positive impact on Nigeria's economic growth. Similarly, the findings made by Nur, Gang, Sajal, Joghee and Cui (2016) on the impact of e-banking in a developing economy revealed a negative impact in the first year of adoption. This might be as a result of some factors like lack of infrastructure development, lack of aggressive public awareness campaigns, poor network services etc.

It is therefore imperative that e-banking positively affects and improves the Real Gross Domestic Product (RGDP) of Nigeria economy via the contributions inherent in the advantages of Mobile Transfer and the Point of Sales (POS). It has facilitated banking activities outside the banking hall and from the convenience of customers, led to shared banking networks, debit and credit card systems, electronic money and stored value applications, and electronic bill presentment and payment systems, which cumulatively generated a lot of income to the banks and in-turn yield revenue to government in form of tax.

Therefore, government and the various bank management teams should endeavour to radically improve e-banking infrastructures and promote aggressive public awareness campaigns for the use of e-banking components. Most importantly, they should partner with internet/network providers to ensure the availability of regular good network coverage across the country. They should also ensure regular power supply in case of power failure. Further research is required to determine the primary intervening variable(s) that led to the insignificant impact of Automated Teller Machine on economic growth.

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