

Electronic Banking and Customers' Access to Banking Services in Rural Settlements

By

Etim, Glory Sunday

Department Of Marketing, University Of Calabar, Nigeria

E.mail: Ubong.Basil2@Gmail.Com

Ada, Julius Agba

Department Of Business Management, University Of Calabar, Nigeria

E.mail Adajulius12@Gmail.Com

Eyo, Itam Eyo

Department Of Banking And Finance, University Of Calabar, Nigeria

E.mail Eyoakamba@Yahoo.Com

Samuel Etim Ndem

Department Of Marketing, University Of Calabar, Nigeria

E.mail Samndem398@Gmail.Com

Edim Eka James

Department Of Marketing, University Of Calabar, Nigeria

E.mail Jamesedim@Gmail.Com

Abstract

This Study Examined The Influence Of E-Banking On Customers' Access To Banking Services In Rural Settlements. It Assessed The Influences Of Automated Teller Machine Banking, Mobile Banking And Internet Banking On Rural Customers' Access To Banking Services. The Study Adopted Cross-Sectional Survey Research Design. A Structured Questionnaire Was Used To Obtain Primary Data From Bank Customers In Rural Settlements. The Data Obtained Were Analyzed And Hypotheses Tested Using Descriptive Statistics (Simple Percentages And Frequencies) And Multiple Linear Regression In The Statistical Package For The Social Sciences (Spss 23). Consequently, The Findings Revealed That Automated Teller Machine Banking, Mobile Banking And Internet Banking Had Significant Positive Influences On Customers' Access To Banking Services In Rural Settlements. To This End, The Study Suggested That Commercial Banks Should Increase The Number And Functionality Of Automated Teller Machines Available In Rural Settlements In Order To Substantially Expand Access To Banking Services For Rural Dwellers In Need Of Financial Services; And Adequate Sensitization Campaigns Should Be Organized By Commercial Banks In Rural Settlements To Educate Residents On The Key Benefits Of E-Banking And To Provide Guidance To Them In Operating Mobile Banking Tools In Order To Accelerate Their Access To Banking Services.

Keywords: Electronic Banking, Rural Banking, Atm Banking, Mobile Banking, Internet Banking

Introduction

A Nation's Economic Growth And Development Is Inextricably Linked To The Progressive Performance Of Its Financial Service Sector, Including The Banking Industry (Puatwoe & Piabuo, 2017). This Is Because The Banking Industry Provides The Platform For Regulating The Supply Of Funds From Excess Units Of The Economy To Deficit Units, Where Investments Are Required To Boost Economic Conditions. This Is Why Developing Countries Are Considering Ways To Modernize Their Banking Industries And Expand Access To Banking Services For Their Citizens, Including Those In Remote Rural Communities (Gidigbi, 2017). In That Effort, The Nigerian Government Has Set A Goal To Achieve Up To 95 Percent Of Financial Inclusion In The Country By 2024 (Central Bank Of Nigeria, 2019). This Comes After The Country Was Actually Able To Achieve 64 Percent Financial Inclusion Out Of The 80 Percent Inclusion Target Set In 2020. However, Customers' Access To Banking Services Continues To Be A Major Challenge For Commercial Banks In Nigeria, Especially Among Rural Dwellers Who Make Up Much Of The Unbanked Population In The Country. As Of 2021, Up To 36 Percent Of Nigerians Of Bankable Age (That Is, 38.1 Million People) Were Reported To Lack Access To Banking Services As They Were Excluded From The Country's Financial Operations (Endurance, 2021). According To Tunji (2021), Most Of The Financially-Excluded Individuals In Nigeria Live In Rural Communities, Where The High Rate Of Financial/Digital Illiteracy, Lack Of Convenient Transportation Facilities, And Fear Of Fraud Discourages People From Saving Money In Commercial Banks. Rather, Rural Dwellers Resort To Saving Their Monies In Their Homes And In Cooperative Societies Instead Of Patronize Banks For Safe Custody Of Their Valuables.

Another Reported Reason For The Slow Adoption Of E-Banking Technologies By Rural Dwellers Is The Low Ownership Of Smartphones Due To The High Cost Of Mobile Phones In The Country (Adepetun, 2021). Similarly, In The Face Of An Increase In Cyber-Enabled Fraud Such As Debit Card Hijacking, Account Hacking, Digital Identify Theft And Banks' Personnel Impersonation, Rural Dwellers Are Frightened From Adopting And Using E-Banking Technologies, Even Though They Are Projected By Banks To Be Safer And More Secure. As Part Of Efforts To Reduce The Unbanked Population And Expand Access To Banking Services For Nigerians, Commercial Banks Are Rolling Out Electronic Banking Solutions Intended To Provide Consumers With Banking Services Irrespective Of Their Location Of Residence. In That Effort, Commercial Banks Are Installing Automated Teller Machines (ATMs) In Some Rural Communities, Perceived To Be Secure, While Most Interior Rural Communities Are Shortchanged In Terms Of Availability Of These Machines Due To Prevailing Insecurity In These Communities. Alternatively, Commercial Banks Are Providing Mobile And Internet-Enabled Banking Solutions Which Are Intended To Deliver Banking Services To Customers Remotely Within The Comfort Of Their Residences. The Problem Of This Study Therefore Is That Due To The Absence Of Credible Empirical Evidence, It Is Uncertain Whether Or Not The Provision Of These E-Banking Solutions Have Actually Facilitated Access To Banking Services For Residents Of Rural Settlements. This Study Thus Identified The Need For A Survey-Based Research To Explore The Extent To Which The Application Of E-Banking Technologies Like Automated Teller Machine Banking, Mobile Banking And Internet Banking, Has Facilitated Rural Customers' Access To Banking Services.

Theoretical Framework

This Study Is Theoretically Based On The Technology Acceptance Model Propounded By Davis (1985), Which Proposes That The Acceptance Of New Technologies Is Contingent

On Users' Motivation, Which Invariably Is Influenced By External Stimuli Comprising The Technologies' Characteristics And Capacity. The Basic Assumption Of The Tam, According To Davis (1985) Is That Users' Motivation To Accept And Adopt New Technologies Is Shaped And Influenced By Three Core Variables, Namely: Users' Attitude Towards The Technology, The Technology's Perceived Usefulness And Its Perceived Ease Of Use. Consequently, Tam Espouses The Proposition That The Likelihood Of Acceptance Or Rejection Of New Technologies By Users Is Hugely Dependent On The State Of Their Attitudes Or Predispositions Towards That Technology (Davis, 1985). In The Context Of This Study, Tam Suggests That The Motivation Of Rural Bank Customers To Accept And Adopt E-Banking Technologies (Such As Automated Teller Machine Banking, Mobile Banking And Internet Banking) Is Shaped And Influenced By Three Core Variables, Namely: Users' Attitude, Perceived Usefulness And Perceived Ease Of Use. Consequently, Tam Espouses The Proposition That The Likelihood Of Acceptance Or Rejection Of E-Banking Technologies By Rural Bank Customers Is Hugely Dependent On The State Of Their Attitudes Or Predispositions Towards That Technology. This Entails That If The Attitudes Of Rural Bank Customers Are Positive Towards E-Banking (Such As Automated Teller Machine Banking, Mobile Banking And Internet Banking), And They Perceive It To Be Practically Useful And Easy To Operate, Then They Would Ultimately Adopt The Technology For Banking Purposes. According To The Theory, Rural Bank Customers Must First Of All Possess A Positive Pre-Disposition Towards E-Banking Before Developing The Motivation To Use It. Also, They Have To Perceive That These E-Banking Systems (Such As Automated Teller Machine Banking, Mobile Banking And Internet Banking) Are Potentially Useful To Their Banking Operations. And Most Importantly, The Theory Suggests That E-Banking Must Also Be Perceived As Practically Easy To Use And Operate By Rural Bank Customers Before They Can Adopt It.

Electronic Banking (Or E-Banking)

E-Banking Is The Utilization Of Electronic Devices, Platforms And Channels To Carry Out Financial Transactions Authorized And Facilitated By Commercial Banks (Toor, 2016). It Is A Means Whereby Commercial Banks Deliver Banking Services To Customers Through Electronic Or Digital Channels And Systems. Bradley And Patrick (2017) Maintain That E-Banking Refers To Banking Services Where Depositors Can Manage More Aspects Of Their Accounts Over The Internet, Rather Than Visiting A Branch. They Further Assert That Online Banking Typically Comprises A Secure Connection To A Customer's Bank Information Through The Customer's Home Computer Or Another Device. It Is A Computerized Service That Allows A Bank's Customers To Get Online With The Bank Via Telephone Lines Or Other Electronic Devices To View The Status Of Their Account(S) And Transaction History. It Also Allows Them To Transfer Funds, Pay Bills, Request Check Books, Etc. E-Banking Offers Several Main Benefits To Depositors. It Provides A Real-Time View Of Finances And Eliminates The Need For Numerous Visits To A Bank Teller. It Can Also Take The Place Of Balancing A Cheque Book And Other Tedious Tasks Common To Paper-Based Banking. Depositors Can Monitor Each Transaction In An Accessible User Interface To Understand How Credits, Deposits, Deductions And Payments Affect Their Account's Balance (Brian, 2018). Online Banking Allows Users To Execute Financial Transactions Via The Internet. It Is Also Known As "Internet Banking" Or "Web Banking." An Online Bank Offers Customers Just About Every Service Traditionally Available Through A Local Branch, Including Deposits, Which Is Done Online Or Through The Mail, And Online Bill Payment (Jide & Olawumi, 2016).

Challenges Of E-Banking In Nigeria

Compared To Advanced Global Economies Like China, Japan, The United States And The United Kingdom, The Adoption And Use Of E-Banking Technologies In Nigeria Is Slower Than Expected, Considering Its Over 122.3 Million Population Of Bank Customers As Of 2021 (Sasu, 2022). Even Though Banking Service Is Used By A Wide Population Of Nigerians, A Sizeable Number Of Nigerians Are Opposed To Or Skeptical Of Transitioning To Digital Banking (Or Electronic Banking). This Becomes Particularly Apparent In Rural Nigerian Communities, Where Most Dwellers Scarcely Have Access To Financial Services Due To The Lack Of Concentration Of Banking Institutions In Rural Communities (Tunji, 2021). Consequently, Some Rural Dwellers Resort To Traditional Saving Practices Like Securing Their Monies In Cans, Holes, Boxes, Bottles And Other Local Materials. According To Uba (2021), A Major Factor Frightening Nigerians From Adopting E-Banking Technologies Is The Poor Cybersecurity Architecture Used By Some Financial Institutions. Due To The Lack Of Cyber Experts And Web Security Infrastructure, Customers' Banking Details Are Often Times Vulnerable To Compromise By Virulent Cybercriminals Seeking Victims To Defraud. And As More Financial Institutions Initiate New Measures To Bolster Cybersecurity, Cybercriminals Also Develop New Hacks To Undermine And Compromise Customers' Financial Records.

The Result Of Such A Weak Cybersecurity Architecture Manifests In A Slew Of Cyber-Enabled Financial Frauds Such As Hacking, Phishing, Identity Theft, Credit Card Hijacking, Ransomware, Among Others. In 2020, Eight Deposit Money Banks In Nigeria Lost A Total Of N1.9bn As A Result Of Fraudulent Incidents (Orjiude, 2021). These Banks Included: Zenith Bank Plc, Access Bank Plc, Union Bank Of Nigeria Plc, Guaranty Trust Bank, Wema Bank Plc, Fidelity Bank Plc, Polaris Bank Plc And Sterling Bank Plc. Polaris And Zenith Incurred The Biggest Losses As A Result Of Fraud Within The Review Period, As They Lost N938.4m And N360m Respectively. Another Hindering Factor Is Poor Infrastructure And Telecommunication Facilities. In Nigeria Especially In Rural Towns, And Villages, Residents Are Deprived Of Access To Public Infrastructure And Telecommunication Facilities Like Power Supply, And Internet Connectivity (Oteh, Ibok & Nto 2017). Also, Due To Unemployment And The High Poverty Rate, Not Every Nigeria Can Afford To Buy And Maintain Smart Communication Devices Such As Smartphones Which Are Necessary For E-Banking. The Low Level Of Digital Literacy Is Also A Major Hindrance To The Adoption Of E-Banking Technologies In Nigeria (Onyedinefu, 2022). Across Several Communities, Nigerians Continue To Lack Quality Digital And Financial Education Which Could Have Enlightened Them On The Need For E-Banking And How To Operate These Digital Technologies. This Has Often Resulted In Technology Apathy, A Situation Where Some Nigerians, Especially The Advanced In Age And Rural Dwellers Are Bluntly Disinterested In Any Form Of Digital Technology.

Atm Banking And Rural Customers' Access To Banking Services

Automated Teller Machine Banking Is The Process Whereby Customers Use Specialized Electronic Machines (Known As Automated Teller Machine) To Effect Various Financial Transactions By Inserting Designated Credit/Debit Cards Into The Machines (Khalid & Keghen, 2018). In The View Of Wilsonville (2018), Atm Banking Is The Initiation And Execution Of Financial Transactions Through A Device Known As "Automated Teller Machine (Atm)", An Electronic Telecommunications Device That Enables Customers Of Financial Institutions To Perform Financial Transactions, Such As Cash Withdrawals, Deposits, Transfer Funds, Or Obtaining Account Information, At Any Time Without The Need For Direct Interactions With Bank Staff. Atms Enable Customers Have Access To Money, Check Their Account Balance, Effect Cash Transfers And Pay Utility Bills Conveniently At

Any Point In Time Without Having To Visit One's Particular Bank (Danielle & Simms, 2018). The Introduction Of Atms And Their Deployment Across City Centers Have Facilitated Greater Access To Financial Services For Urban Dwellers Around The World (Mwatsika, 2016). It Makes It Easier And Faster For Bank Customers To Perform A Wide Range Of Banking And Financial Transactions, Including Cash Withdrawals, Cash Transfers And Utility Bills Payment. In Regions And Locations Where It Is Unfeasible To Site A Physical Bank Branch, Atms Have Been Relied On As A Viable Alternative Essential For Serving The Banking Needs Of Unbanked Populations (Fanta & Makina, 2019). According To Ene, Abba And Fatokun (2019), In Major City Centers In Nigeria, Atms Are Ubiquitous And Easily Accessible To Urban Dwellers As They Seek To Perform Daily Financial Transactions With Ease And A Considerable Amount Of Security. Studies By Imran (2020) And Godson And Duagudi (2019) Have Revealed That Atm Banking Could Significantly Enhance Bank Customers' Access To Financial Services.

Mobile Banking And Rural Customers' Access To Banking Services

Mobile Banking Is A Service Provided By A Bank Or Other Financial Institution That Allows Its Customers To Conduct Financial Transactions Remotely Using A Mobile Device Such As A Smartphone Or Tablet. It Uses Application Software, Usually Called An "App", Provided By The Financial Institution For That Purpose (Wentworth, 2018). Mobile Banking Refers To Provision Of Banking And Financial Services With The Help Of Mobile Telecommunication Devices. The Advances In Modern Mobile Communication Technologies Have Put Access To Financial Services In The Pockets Of Bank Customer With A Smartphone. Instead Of Queuing Up In Crowded Banking Halls Just For A Single Transaction, Bank Customers Can Now Perform A Wide Range Of Financial Services On Their Mobile Phones Without The Stress Of Leaving Their Homes. In Nigeria Today, Customers Can Initiate The Process Of Bank Account Opening, Link Their Multiple Bank Accounts, Transfer Cash Across Banks And Make Payments For Goods And Services Through Specialized Mobile Banking Software (Bailey, 2022). Additionally, Nigerian Bank Customers Can Apply For Loan, Manage Financial Investments, Manage Debit/Credit Cards, And Access Customer Care Services Through Mobile Banking. Furthermore, While Appraising The Usefulness Of E-Banking Technologies, Imran (2020), Godson And Duagudi (2019) And Ajanni And Addisu (2021) Maintained That Mobile Banking Technology Has The Capacity To Improve Customers' Access To Banking Services.

Internet Banking And Rural Customers' Access To Banking Services

Internet Banking Is An Electronic Payment System That Enables Customers Of A Bank Or Other Financial Institutions To Conduct A Range Of Financial Transactions Through The Financial Institution's Website, Short Code Or Mobile Application Software (Harold & Kumar, 2018). Internet Banking System Is Typically A Part Of The Core Banking System Operated By Banks And Is In Contrast To Branch Banking Which Was The Traditional Way Customers Accessed Banking Services. It Uses Computer And Electronic Technology In Place Of Cheques And Other Paper Transactions. As Is The Case In Mobile Banking, Internet Banking Gives Customers The Consistent Capacity To Initiate And Execute A Wide Variety Of Banking Services Without The Hassle Of Leaving Their Homes. Rather Than Get Stuck In Overcrowded Banking Halls Just To Carry Out A Single Transaction, Bank Customers Can Now Access More Services From The Comfort Of Their Homes With An Internet-Enabled Electronic Device. In Nigeria, Commercial Banks Allow Potential Customers To Visit Their Official Websites And Initiate The Process Of Bank Account Opening With Just Clicks Of Buttons (Michael, 2022). For Verified Existing Customers, Commercial Banks Allow Them To Carry Out Several Financial Transactions Such As Wireless Funds Transfers, Utility Bills

Payment, Loan Application, Investment Management And Access Available Customer Care Personnel To Resolve Service Issues Through Their Corporate Websites (Adaramola, 2022). Furthermore, While Appraising The Usefulness Of E-Banking Technologies To Customers, Godson And Duagudi (2019) As Well As Ajanni And Addisu (2021) Maintained That Internet Banking Has The Capacity To Significantly Enhance Customers' Access To Financial Services.

Empirical Review And Conceptual Framework

This Unit Delves Into Relevant Extant Literature To Explore Previous Studies By Existing Scholars On The Influence Of E-Banking On Rural Customers' Access To Banking Services. The First Study By Oyeleye, Sanni And Shittu (2015) Explored The Effects Of Customers' Educational Attainment On Their Adoption Of E-Banking In Nigeria. The Study Used A Structured Questionnaire To Obtain Primary Data From 279 Bank Customers In Ibadan, Nigeria. Data Analysis And Hypothesis Testing Was Carried Out Using Structural Equation Model (Sem) On The Amos Software (16.0). The Findings Of The Study Revealed That Customers' Educational Attainment Directly Influenced Customers' Perceived Usefulness And Perceived Ease Of Use, Which Also Indirectly Influenced The Level Of Adoption Of E-Banking By Customers. Even Though This Study Explored About E-Banking Adoption By Nigerian Customers, It Fails To Precisely Demonstrate How The Introduction Of E-Banking Technologies (Such As Atm, Mobile And Internet Banking) Has Influenced Customers' Access To Banking Services Especially In Rural Nigerian Communities.

Another Study By Inegbedion, Inegbedion, Osifo, Eze, Ayeni And Akintimehin (2019) Examined The Exposure To And Usage Of E-Banking Channels By Bank Customers In Nigeria. The Aim Of The Study Was To Determine The Extent To Which Consumers' Exposure To And Usage Of E-Banking Channels Influence Their Awareness And Attitude Towards E-Banking In Nigeria. The Study Used A Structured Questionnaire To Obtain Primary Data From 480 Customers Of Commercial Banks In Edo, Kogi And Kwara States Of Nigeria. Data Analysis And Hypotheses Testing Were Carried Out Using One-Sample T-Test And Regression Analysis. The Findings Of The Study Revealed That Customers' Exposure To And Usage Of Atm, Internet Banking And Mobile Banking Had A Significant Influence On Consumers' Attitude Towards E-Banking In Nigeria. Like The Previous Study Reviewed, This Study, Although Focused On E-Banking In Nigeria, Grossly Fails To Specifically Demonstrate How The Introduction Of E-Banking Technologies (Such As Atm, Mobile And Internet Banking) Has Influenced Customers' Access To Banking Services Especially In Rural Nigerian Communities.

Also, Oteh, Ibok And Nto's (2017) Study Examined The Adoption And Usage Of E-Banking Channels For Enhancing Financial Inclusion In Nigeria. The Study Used A 6-Point Likert Scale Questionnaire To Obtain Primary Data From 120 Bank Customers In Abia State, Nigeria. Data Analysis For The Study Was Carried Out Using Descriptive Statistics (Mean, Standard Deviation, Simple Percentages And Frequencies). The Findings Of The Study Revealed A Huge Disequilibrium Between Available E-Banking Channels (Such As Debit Card, Video Banking, E-Payments, Fund Transfer, And Mobile Transfer) And Use By Customers. The Findings Also Revealed That Poor Infrastructure And Telecommunication Facilities, And Poor Financial Education Were The Major Factors Militating Against The Adoption Of E-Banking Channels For Financial Inclusion In Nigeria. The Limitation Of This Study Is That Its Solely Addressed The Challenges To Achieving Financial Inclusion In Nigeria Through E-Banking. As Such, The Study Does Not Specifically Address How The Introduction Of E-Banking Systems (Such As Atm, Mobile And Internet Banking) Has Affected Customers' Access To Banking Services In Rural Nigerian Communities.

Similarly, A Study By Isibor, Omankhanlen, Okoye, Achugamonu, Adebayo, Afolabi And Ayodeji (2018) Examined The Impact Of Electronic Banking Technology On Customers' Satisfaction And Economic Growth In Nigeria. The Study Used A Research Questionnaire To Obtain Primary Data From 120 Customers Of Commercial Banks In Ogun State, Nigeria. Data Analysis And Hypotheses Testing Were Carried Out Using Descriptive Statistics And Pair Sample T-Test On The Spss Statistical Package. Consequently, The Findings Of The Study Revealed That E-Banking Has Significantly Improved Customers' Satisfaction And Economic Growth In Nigeria. Again, The Limitation Of This Study Is That Its Dependent Variables Are Customer Satisfaction And Economic Growth, And It Does Not Specific The Parameters Of E-Banking. Hence, This Study Is Unable To Adequately Provide Empirical Evidence That Explains The Influence Of E-Banking Tools (Such As Atm, Mobile And Internet Banking) On Customers' Access To Banking Services In Rural Nigerian Communities.

Another Nigerian Study By Nwekpa, Djobissie, Chukwuma And Ezezue (2020) Examined The Influence Of Electronic Banking On Customer Satisfaction In Fidelity Bank Plc In Nigeria. The Study Administered A Structured Questionnaire To 41 Customers Of Fidelity Bank Plc In Lagos To Obtain Primary Data. The Hypotheses Developed For The Study Were Tested Using Pearson's Product Moment Correlation Analysis. Subsequently, The Findings Of The Study Revealed That Electronic Banking (Online Credit Card Payment System, And E-Cash System) Had A Significant Positive Relationship With Customer Satisfaction In Fidelity Bank Plc, Nigeria. The Limitation Of This Study Is That It Focused On Electronic Banking And Customer Satisfaction In A Single Commercial Bank. As Such, The Study Does Not Sufficiently Address How The Introduction Of E-Banking Systems (Such As Atm, Mobile And Internet Banking) Has Affected Customers' Access To Banking Services In Rural Nigerian Communities.

Furthermore, A Study By Imran (2020) Examined The Influence Of Electronic Banking On Customers' Access To Financial Services In Pakistani Rural Regions. A Descriptive Survey Was Carried Out To Obtain Primary Data From 406 Local Residents In Punjab Through A Structured Questionnaire. Descriptive Statistics Were Used For Data Analysis And Interpretation, While Simple Linear Regression Was The Statistical Tool For Hypotheses Testing. Subsequently, The Findings Of The Study Revealed That Atm Banking, Mobile Banking And Online Payment System Had Significant Impacts On Customers' Access To Financial Services In Pakistani Rural Regions. Though Closely Relevant, The Limitation Of This Study Is That Its Scope Is Constrained To Pakistani Rural Regions. As Such, The Study Does Not Sufficiently Address How The Introduction Of E-Banking Systems (Such As Atm, Mobile And Internet Banking) Has Affected Customers' Access To Banking Services In Especially Rural Nigerian Communities.

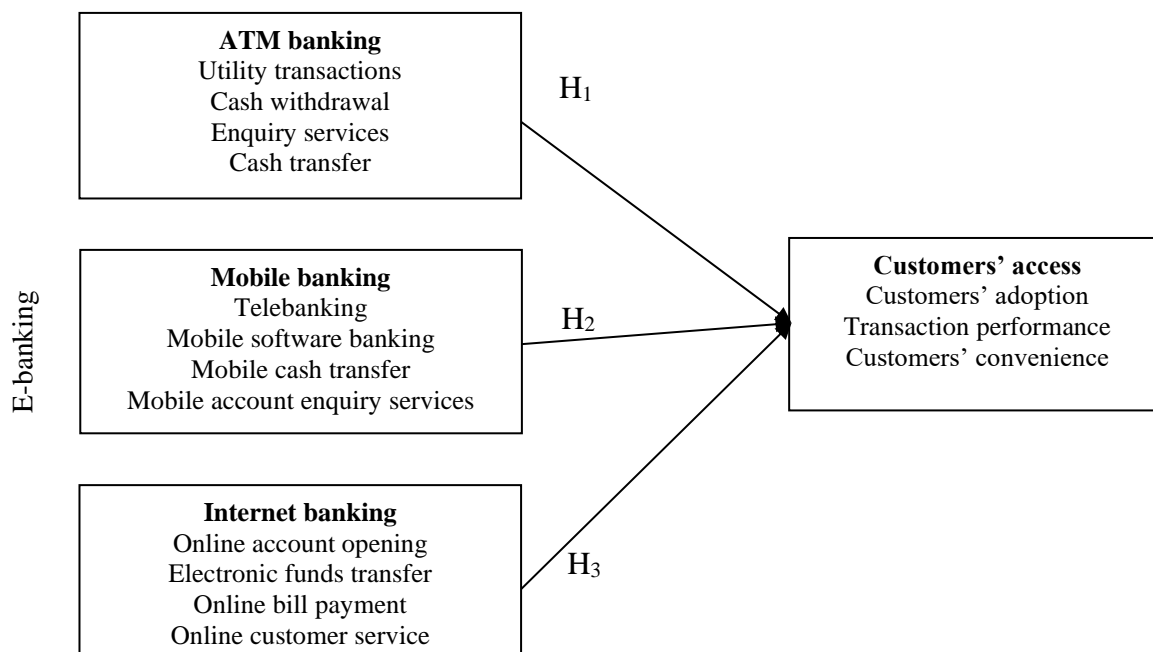
A Similar Study By Godson And Duagudi (2019) Examined The Relationship Between E-Banking Systems And Rural Dwellers' Access To Banking Services In Mombasa County, Kenya. The Study Used A Semi-Structured Research Questionnaire To Elicit Primary Data From 287 Rural Dwellers In Mombasa County Of Kenya. Mean, Standard Deviation, Simple Percentages And Frequencies Were Employed For Data Analysis And Interpretation, While Hypotheses Testing Was Done Using Pearson's Product Moment Correlation. The Findings Of This Study Therefore Revealed That There Is A Significant Positive Relationship Between E-Banking (Pos Banking, Mobile Banking, Internet Banking And Voice-Interactive Banking) And Rural Dwellers' Access To Banking Services In Mombasa County, Kenya. Like The Previous Study, This Study Is Limited In Scope To Rural Dwellers In Kenya. As Such, The Study Does Not Sufficiently Address How The Introduction Of E-Banking Systems (Such As

Atm, Mobile And Internet Banking) Has Affected Customers' Access To Banking Services In Especially Rural Nigerian Communities.

Similarly, Another Study By Ajanni And Addisu (2021) Was Designed To Examine How To Enhance Financial Inclusion In Rural Ethiopia Through E-Banking Technologies. The Study Used A 5-Point Likert Scale Questionnaire To Obtain Primary Data From 394 Bank Customers In Selected Rural Communities In Ethiopia (Namely Adwa, Mekane Selam, And Lalibela). Data Analysis And Hypotheses Testing Were Carried Out Using Pearson's Product Moment Correlation And Multiple Regression Analysis. The Findings Subsequently Revealed That Mobile Banking, Atm Banking, Internet Banking, And Voice-Interactive Banking Significantly Enhanced Financial Access For Customers In Rural Ethiopian Communities. Therefore, The Study Concluded That Financial Inclusion In Ethiopia Could Be Sustainable Realized Through The Full-Scale Introduction Of E-Banking System In The Country's Rural Communities. However, The Limitation Of This Study Is That It Is Limited In Scope To Customers In Ethiopia's Rural Communities. Hence, The Study Does Not Sufficiently Address How The Introduction Of E-Banking Systems (Such As Atm, Mobile And Internet Banking) Has Affected Customers' Access To Banking Services In Especially Rural Nigerian Communities.

Nevertheless, Majority Of The Existing Relevant Research Articles Reviewed Seem To Favour The Notion That Rural Customers' Access To Financial Services Could Be Improved Through E-Banking Systems. Based On The Position Of Previous Researchers (Such As Godson & Duagudi, 2019; Imran, 2020; Ajanni & Addisu, 2021), This Study Asserts That E-Banking Technologies (Such As Atm, Online And Internet Banking) Could Improve Customers' Access To Banking Services In Rural Settlements. This Position Has Been Hypothesized In The Conceptual Model (Shown In Figure 1) As Adapted From Existing Relevant Studies.

Conceptual Model Of The Study



Source:Parameters Of Independent Variables Adapted From Godson And Duagudi (2019); Imran (2020); Ajanni And Addisu (2021). Parameters Of Dependent Variable Adapted From Bamoriya And Singh (2011)

Research Methodology

We Adopted Cross-Sectional Survey Research Design To Enable The Collection Of Primary Data On A One-Time Basis From Selected Bank Customers In Rural Settlements Within A Short Period Of Time. To Obtain Data For The Study, We Targeted An Estimated Population Of 1000 Bank Customers In Selected Rural Settlements In Cross River State, Nigeria, In Line With The Prescriptions Of Odigbo (2018). To Determine The Sample Size, We Applied Taro Yamane Sample Size Determination Method (As Cited In Adam, 2020) As Follows:

$$N = \frac{N}{1+N(e)^2}$$

Where:

N=Sample Size Required

N=Study Population (1000 Rural Bank Customers)

I=Constant

E =Margin Of Error (5 Percent)

Applying The Formula By Simple Substitution,

$$\begin{aligned} N &= \frac{1000}{1+1000(0.05)^2} \\ &= \frac{1000}{1+1000(0.0025)} \\ &= \frac{1000}{1+2.5} \\ &= \frac{1000}{3.5} \\ &= 285.71 \end{aligned}$$

∴ N = 286 Rural Bank Customers Approximately

Using Convenience Sampling Technique, We Targeted Bank Customers In 5 Selected Rural Communities To Participate In The Questionnaire Survey. This Sampling Technique Enabled Us To Select Respondents For Study Who Were Easily Accessible, Readily Available And Willing To Participate In The Study Without Coercion. To Obtain Primary Data For The Study, The Researcher Used A 5-Point Likert Scale Questionnaire Adapted From Existing Studies. The Instrument Comprised Two Sections; Namely: Section A (Which Collected Data On Respondents' Demographic Characteristics Such As Age, Gender, Marital Status, Educational Qualifications And Occupation) And Section B (Which Contained Statements Adapted From Existing Studies To Measure The Variables Of The Study). The Statements Measuring The Independent Variable Dimensions (Atm, Mobile And Internet Banking) Were Adapted From Godson And Duagudi (2019); Imran (2020); Ajanni And Addisu (2021). Whereas, The Statements Measuring The Dependent Variable (Customers' Access) Were Adapted From Bamoriya And Singh (2011). Similarly, Statements 1 – 4 Measured Atm Banking; Statements 5 – 8 Measured Mobile Banking; Statements 9 – 12 Measured Internet Banking; While Statements 13 – 15 Measured Customers' Access. The Opinions Of Respondents Were Measured On The Following 5-Point Likert Scale: Strongly Agree (Sa = 5 Points), Agree (A = 4 Points), Undecided (U = 3 Points), Disagree (D = 2 Points) And Strongly Disagree (Sd = 1 Point). Prior To Field Administration, The Instrument Was Validated Through Content Validity Method, While Reliability Was Confirmed Through Cronbach's Alpha Reliability Method As Shown In Table 1.

Table 1: Research Constructs Operationalization and Reliability Coefficients

Variables	Statement	Cronbach's Alpha Coefficient
Atm Banking (Atmbank 1-4)		0.811
Atmbank 1	Atms In The Community Enable Me Carry Out Utility Transactions	
Atmbank 2	Residents Can Withdraw Cash From Atms In The Community	
Atmbank 3	Atms In The Community Allow Residents To Access Account Enquiry Services	
Atmbank 4	Residents Can Use Atms In The Community To Carry Out Cash Transfer	
Mobile Banking (Mobank 5-8)		0.776
Mobank 5	My Mobile Phone Is Enabled To Carry Out Bank Transactions	
Mobank 6	I Carry Out Banking Transactions Through My Bank's Mobile App	
Mobank 7	I Can Use My Phone To Transfer Money To Friends And Others	
Mobank 8	I Can Access Bank Account Enquiry Services On My Phone	
Internet Banking (Interbank 9-12)		0.805
Interbank 9	I Am Aware Customers Can Open Bank Accounts Online Without Going To The Bank	
Interbank 10	Customers Can Transfer Money Electronically Without Going To The Bank	
Interbank 11	I Pay All My Financial Bills Online	
Interbank 12	I Can Access Customer Service From My Bank Online Using A Smartphone	
Customers' Access (Custaccess 13-15)		0.794
Custaccess 13	I Have Adopted Electronic Banking For Bank Transactions	
Custaccess 14	I Carry Out Several Bank Transactions Electronically Without Going To Bank	
Custaccess 15	Electronic Banking Conveniently Provides Banking Services To Customers	

After Confirming The Validity And Reliability Of The Questionnaire, The Data Obtained Were Analyzed And Interpreted Using Descriptive Statistics. Whereas, Hypotheses Testing Was Carried Out Using Multiple Linear Regression, With The Following Regression Model:

$$Y = A + B_1X_1 + B_2X_2 + B_3X_3 + E \text{ ----- Eq1}$$

$$\text{Custaccess} = A + B_1\text{atmbank} + B_2\text{mobbank} + B_3\text{interbank} + E \quad \text{Eq2}$$

Where:

Custaccess = Dependent Variable (Customers' Access)

A = The Intercept

B₁, B₂, B₃ = Coefficients Of The Independent Variables

Ebank = Independent Variable (E-Banking)

E = Error Margin (5 Percent)

Hence,

B₁X₁ = Coefficients Of Atm Banking

B₂X₂ = Coefficients Of Mobile Banking

B₃X₃ = Coefficients Of Internet Banking

Analysis and Discussion

During The Questionnaire Survey, We Administered A Total Of 286 Questionnaire Copies To Bank Customers In Rural Settlements, Out Of Which 232 Copies, Representing 81.1 Percent Were Retrieved, While 54 Copies, Representing 18.9 Percent Of The Questionnaire Were Deemed Un-Usable For The Analysis Because They Were Improperly Completed By The Respondents.

Table 2: *Descriptive Statistics Of Research Variables*

Item	N	Mean	Standard Deviation	Remark
Atm Banking				
1 Utility Transactions	232	4.525	1.726	Accepted
2 Cash Withdrawal	232	3.514	1.151	Accepted
3 Enquiry Services	232	3.414	1.734	Accepted
4 Cash Transfer	232	4.615	1.863	Accepted
Mobile Banking				
5 Telebanking	232	3.836	1.652	Accepted
6 Mobile Software Banking	232	4.615	1.983	Accepted
7 Mobile Cash Transfer	232	3.635	1.167	Accepted
8 Mobile Account Enquiry Services	232	3.876	1.983	Accepted
Internet Banking				
9 Online Account Opening	232	4.726	1.763	Accepted
10 Electronic Funds Transfer	232	3.793	1.972	Accepted
11 Online Bill Payment	232	4.623	1.514	Accepted
12 Online Customer Service	232	4.963	1.834	Accepted
Customers' Access				
13 Customers' Adoption	232	4.651	1.983	Accepted
14 Transaction Performance	232	3.973	1.763	Accepted
15 Customers' Convenience	232	4.883	1.774	Accepted

Source: *Authors' Analysis Via Spss 2023*

Table 2 Shows That The Parameters Of Atm Banking Were All Accepted At A 5.00-Point Evaluation Maximum, With 3.00 As Minimum Acceptable Point. Mean Values Were 4.525, 3.514, 3.414 And 4.615 Respectively For Utility Transactions, Cash Withdrawal, Enquiry Services And Cash Transfer. The Data Also Shows That The Parameters Of Mobile Banking Were All Accepted At A 5.00-Point Evaluation Maximum, With 3.00 As Minimum Acceptable Point. Mean Values Were 3.836, 4.615, 3.635, And 3.876 Respectively For Telebanking, Mobile

Software Banking, Mobile Cash Transfer And Mobile Account Enquiry Services. On The Same 5.00-Point Evaluation Maximum And Minimum Acceptable Point Of 3.00, All The Parameters Of Internet Banking Were Accepted. Mean Values Were 4.726, 3.793, 4.623 And 4.963 Respectively For Online Account Opening, Electronic Funds Transfer, Online Bill Payment And Online Customer Service. Similarly, On The Same Evaluation Scale, All The Parameters Of Customers' Access Were Accepted. Mean Values For Customers' Adoption, Transaction Performance And Customers' Convenience Were 4.651, 3.973 And 4.883 Respectively.

Hypotheses Testing and Discussion of Findings

Hypothesis One

Ho: Automated Teller Machine Banking Does Not Significantly Facilitate Customers' Access To Banking Services In Rural Settlements.

Hypothesis Two

Ho: Mobile Banking Does Not Significantly Facilitate Customers' Access To Banking Services In Rural Settlements.

Hypothesis Three

Ho: Internet Banking Does Not Significantly Facilitate Customers' Access To Banking Services In Rural Settlements.

Independent Variables

Automated Teller Machine Banking, Mobile Banking and Internet Banking

Dependent Variable

Customers' Access

Test Statistic

Multiple Linear Regression

Decision Criteria

Accept The Alternative Hypothesis If ($P < .05$) And Reject The Null Hypothesis, If Otherwise.

Table 3: Model Summary Of The Effect Of E-Banking On Customers' Access To Banking Services In Rural Settlements

Model	R	R Square	Adjusted R Square	Std. Error Of The Estimate
1	.684 ^a	.521	.511	1.542

Source: Authors' Analysis Via Spss 2023

A. Predictors: (Constant), Automated Teller Machine Banking, Mobile Banking And Internet Banking

Table 4: Anova^a Of The Effect Of E-Banking On Customers' Access To Banking Services In Rural Settlements

Model	Sum Of Squares	Df	Mean Square	F	Sig.
1 Regression	1211.541	3	403.847	126.439	.000 ^b
Residual	725.123	227	3.194		
Total	1936.664	231			

Source: Authors' Analysis Via Spss 2023

- A. Dependent Variable: Customers' Access
 B. Predictors: (Constant), Automated Teller Machine Banking, Mobile Banking And Internet Banking

Table 5: *Coefficients^a Of The Effect Of E-Banking On Customers' Access To Banking Services In Rural Settlements*

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.482	.913		1.764	.000
Atm Banking	1.551	.163	.517	6.343	.000
Mobile Banking	.281	.284	.621	4.532	.000
Internet Banking	.298	.078	.426	2.652	.000

- A. Dependent Variable: Customers' Access

Source: *Authors' Analysis Via Spss 2023*

Tables 3, 4 And 5 Present The Multiple Linear Regression Results Of The Effect Of E-Banking On Customers' Access To Banking Services In Rural Settlements. The Model Summary Presented On Table 3 Shows That The Correlation Between The Independent Variable (E-Banking) And The Dependent Variable (Customers' Access) Is 68.4 Percent (As Can Be Seen In The R Column), Thereby Indicating That There Is A Very Strong Degree Of Correlation Between The Study Variables. The R² (Coefficient Of Determination) Value Of 0.521, Signifies That Up To 52.1 Percent Of The Variation In The Dependent Variable (Customers' Access) Can Be Explained By The Independent Variable (E-Banking). Hence, A Unit Change In The Provision Of E-Banking By Commercial Banks Will Improve Customers' Access To Banking Services In Rural Settlements By Up To 63.3 Percent When Other Factors Are Held Constant. The F-Test (126.439, P < 0.05) Statistic In Table 4 Signifies That The Overall Prediction Of The Dependent Variable By The Independent Variable Is Statistically Significant; Therefore, Implying That E-Banking Has A Significant Effect On Customers' Access To Banking Services In Rural Settlements.

Table 5 (The Coefficients Table) Provides Information On The Capability Of Each E-Banking Platform To Explain Or Predict Customers' Access To Banking Services In Rural Settlements. As Can Be Seen On Table 5, All The E-Banking Platforms Tested (Atm Banking, Mobile Banking And Internet Banking) Were Found To Significantly Predict Or Explain Customers' Access To Banking Services In Rural Settlements. This Is Because Their P-Values [Atm Banking (P-Value = 0.000), Mobile Banking (P-Value = 0.000), And Internet Banking (P-Value = 0.000)] Were Less Than The Error Margin Of 0.05, With Positive T-Test Values. As Such, We Reject All Null Hypotheses, Accept All Alternative Hypotheses And Conclude That Atm Banking, Mobile Banking And Internet Banking Had Significant Positive Influences On Customers' Access To Banking Services In Rural Settlements. Furthermore, The Standardized Beta Coefficient Column In Table 5 Shows That The Highest-Contributing Platform To The Model Is Mobile Banking, With A Beta Coefficient Of 0.621 (62.1 Percent). The Second-Highest Contributing Platform To The Model Is Atm Banking, With A Beta Coefficient Of 0.517 (51.7 Percent), While The Least Contributing Dimension To The Model Is Internet Banking, With A Beta Coefficient Of 0.426 (42.6 Percent).

Discussion and Conclusion

The Test Of Hypothesis One Revealed That Automated Teller Machine Banking Has A Significant Positive Influence On Customers' Access To Banking Services In Rural Settlements. This Finding Is Supported By The Study Of Imran (2020), Which Revealed That Atm Banking Had A Significant Impact On Customers' Access To Financial Services In Pakistani Rural Regions. The Finding Is Also Supported By The Study Of Ajanni And Addisu (2021), Which Revealed That Atm Banking Significantly Enhanced Financial Access For Customers In Rural Ethiopian Communities. The Implication Of This Finding In The Context Of This Study Is That Commercial Banks Could Substantially Expand Access To Banking Services For Rural Community Dwellers Through The Extensive Utilization Of Atm Banking Systems. The Test Of Hypothesis Two Revealed That Mobile Banking Has A Significant Positive Influence On Customers' Access To Banking Services In Rural Settlements. This Finding Is Reinforced By The Study Of Godson And Duagudi (2019), Which Revealed That There Is A Significant Positive Relationship Between Mobile Banking And Rural Dwellers' Access To Banking Services In Mombasa County, Kenya. The Finding Also Corresponds With The Study Of Ajanni And Addisu (2021), Which Revealed That Mobile Banking Significantly Enhanced Financial Access For Customers In Rural Ethiopian Communities. The Implication Of This Finding In The Context Of The Study Is That Commercial Banks Could Substantially Expand Access To Banking Services For Rural Community Dwellers Through The Extensive Utilization Of Mobile Banking Systems.

Finally, The Third Hypothesis Test Revealed That Internet Banking Has A Significant Positive Influence On Customers' Access To Banking Services In Rural Settlements. This Finding Is Supported By The Study Of Godson And Duagudi (2019), Which Revealed That There Is A Significant Positive Relationship Between Internet Banking And Rural Dwellers' Access To Banking Services In Mombasa County, Kenya. This Finding Is Also Buttressed By The Study Of Imran (2020), Which Revealed That Internet Banking Had A Significant Impact On Customers' Access To Financial Services In Pakistani Rural Regions. The Implication Of This Finding In The Context Of This Study Is That Commercial Banks Could Substantially Expand Access To Banking Services For Rural Community Dwellers Through The Extensive Utilization Of Internet Banking Systems And Technologies. On The Heels Of This Finding, The Study Concludes That Access To Banking Services For Bank Customers In Rural Settlements Could Substantially And Consistently Be Expanded By Commercial Banks Through The Broad-Based Implementation Of E-Banking Systems In Remote Rural Areas.

Practical Implications And Future Research

In Light Of The Findings Made In This Study, We Recommend That Commercial Banks Should Increase The Number And Functionality Of Automated Teller Machines Available In Rural Communities In Order To Substantially Expand Access To Banking Services For Rural Dwellers In Need Of Financial Services. We Also Recommend That Adequate Sensitization Campaigns Should Be Organized By Commercial Banks In Rural Communities To Educate Residents On The Key Benefits Of E-Banking And To Provide Guidance To Them In Operating Mobile Banking Tools In Order To Accelerate Their Access To Banking Services. Similarly, We Recommend That Commercial Banks Should Expand The Availability Of Internet Banking Services Such As Online Account Opening, Electronic Funds Transfer, Online Bill Payment And Online Customer Service In Rural Settlements In Order To Enable Residents To Carry Out Several Banking Operations Via The Internet Without The Inconvenience Of Visiting Physical Service Units.

We Have Also Made Suggestions For Further Research Considering The Limitations Of The Present Study. We Recognize That This Research Was Limited In Scope To Nigeria; As Such, Its Empirical Insights May Be Restricted To This Region. We Suggest That Similar Studies Should Be Carried Out By Researchers In Other Developing African Or Non-African Countries In Order To Provide A Strong Basis For The Empirical Generalization. Also, There Is Need For Comprehensive Studies On More E-Banking Platforms (Other Than Atm, Mobile And Internet Banking) In Order To Provide New Insights Into The Roles Of E-Banking In Improving Customers' Access To Banking Services In Rural Settlements Across Countries.

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