Financial Innovation and Human Capital Development in Nigeria

Nwokoro, Ifeanyi .E Ph,D; Prof. JJE Ikeora & *Ogini, Promise, Ph,D

Department of Banking and Finance,
Faculty of Management Sciences
Chukwuemeka Odumegwu Ojukwu University, Anambra, Nigeria
***promiseoginik@gmail.com**

ABSTRACT
Innovation in the financial sector is the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions, and markets. The variables of automated teller machine, point of sale, mobile banking and internet banking were regressed on human capital development in Nigeria. Data for the study were obtained from Central Bank on Nigeria Statistical Bulletin, and Annual Report. The study employed econometric techniques, such as Augmented Dickey Fuller Tests for Unit Roots and the Autoregressive Distributive Lag (ARDL) to analyze the data. The result of the study showed that automated teller machine, mobile banking, internet banking and point of sale has (69% long run and 77% short run) significant positive effects on human capital development in Nigeria. The study therefore concludes that financial innovation instruments have short run and long run significant effects on human capital development in Nigeria. The study recommends increased public education and awareness on the benefits of automated teller machine to enhance financial innovation in Nigeria. The banks must improve service quality and customer responsiveness in cases of lost or stolen cards, frauds, and other customer complaints in relation to point of sale. There is additional need for ensuring ease of use, and customer interactive features in mobile and on-line shopping systems in Nigeria. Management of banks should from time to time train customers with regard to internet banking, its benefits, risk exposure, physical and internet security to avoid financial loss in the hands of hackers. This will enhance their technical computer which will rob off positively on their operations with a positive spill-over effect on the entire economy.
Keywords: Financial Innovation, Human Capital Development, Nigeria

INTRODUCTION
Financial innovation is the unanticipated improvement in the array of financial products and instruments that are stimulated by unexpected changes in customer needs and preferences, tax policy, technology and regulatory impulses (Tyavambiza, & Nyangara, 2015).
The debate on financial innovation and its effect on economic growth and development can be traced to the work of Schumpeter (1934). The author was the first to give us an idea of the connection between innovation and performance of an economy and the functioning of its credit and capital markets. A good understanding of the relationship between finance, innovation, and growth begins with understanding the character of innovation. (Mlachila, Park & Yabara, 2013).
The development in the financial sector have not only led to the increase in the number of financial institutions, but also the development in the level of sophistication with new payment systems and asset

alternatives to holding money. This has resulted mainly from technological advancement and increase in competition as the number of institutions increased. Developments in payment systems have started to create close substitutes for hard currency, thus affecting a core part of banking.

Research studies on financial innovation in developing countries have so far focused mainly on welfare issues, particularly on its impact on financial inclusion (Adu-Asare Idun & Aboagye, 2014). Financial innovation has transformed and restructured banking services globally, and its impact on economies is becoming increasingly noteworthy. The available literature confirms that financial innovation drives economic growth (Sekhar, 2013). From a historical perspective, Laeven, Levine and Michalopoulos (2015) point out that financial innovation has been a driving force behind financial deepening and economic development over the past centuries. In turn, Štreimikien, (2014) contends that "leapfrog" (financial) innovation is a driving force for broad economic growth. Despite mixed evidence on causality, there is also a broad consensus that a well functioning banking system promotes economic growth (Owusu & Odhiambo, 2014).

Economic growth is defined as 'a rise in the total output (goods or services) produced by a country (Laeven, Levine & Michalopoulos, 2015). It is an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. Economic growth occurs whenever people take resources and rearrange them in ways that are more valuable. Economic growth refers only to the quantity of goods and services produced; but say nothing about the way in which they are produced (Mackinnon, 1973).

The quest for profit forces companies, households and economic agents to look for new and improved products, services, processes and forms or structures of companies that decrease their production costs, satisfy in a great range, their customers' demand and bring higher profits. Sometimes this quest is made through official Research and Development (R&D) programmes or sectors of a company. Today, more than ever before, innovation, enterprise and intellectual assets drive economic growth and development and increase standards of living. Innovation is instrumental in creating new jobs, providing higher incomes, offering investment opportunities, solving social problems, curing diseases, safeguarding the environment, protecting our security and transparency in organizations and governments (Štreimikien, 2014).

Markets and organizations produce various new products and services in order to satisfy the investor's demand. Financial innovation is an ongoing process where new financial products, services and procedures are created and standardized products are differentiated in order to response at the continuously changing economic environment. This running process has various periods of uncertainty. thus, the purpose of the introduction of a financial innovation to market participants is the minimization of costs and the reduction of risk exposure among other functions such as moving funds across time and space (e.g., savings accounts),the pooling of funds (e.g., mutual funds), managing risk (e.g., insurance and many derivatives products), extracting information to support decision-making (e.g., markets which provide price information, such as extracting default probabilities from bonds or credit default swaps), addressing moral hazard and asymmetric information problems (e.g., contracting by venture capital firms); and facilitating the sale or purchase of goods and services through a payment system (e.g., cash, debit cards, credit cards) (Laeven, Levine, & Michalopoulos, 2015).

Statement of the Problem

Financial markets are becoming increasingly integrated and globalized, which has resulted in the demand for new types of financial products and investments. Various empirical studies exist on the introduction of new products in the financial markets and its effects on human capital development in Nigeria is one of the developing economies that have introduced an array of financial innovation, yet the country's growth and development has been slow. The situation is like a deviation from the Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) model which argues that financial innovation enhances financial development and drives growth and development in any economy, developed and developing. Some empirical findings have shown that generally, financial innovation promotes human capital

development in Nigeria [(Tyavambiza, & Nyangara, 2015; Levine, & Michalopoulos, 2015; Adu-Asare, & Aboagye, 2014; Arnaboldi & Rossignoli, 2013; Beck, Chen, Lin, & Song, 2014)]; However, Owusu and Odhiambo (2014) argue that mobile banking and internet banking have negative effects on human capital development. This suggests that there is no consensus on empirical findings with regards to studies on the effect of financial innovation on human capital development in Nigeria. This has contributed to a knowledge gap in literature. This study will attempt to close this gap

Review of Related Literature
Conceptual Framework
Financial Innovation

Innovation in the financial sector is the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions, and markets (Makur, 2014). It may be viewed as the design, development, and implementation of innovative financial instruments and processes, and the formulation of creative solutions to problems in finance. According to Korir (2014), financial innovations is one of the most important competitive weapons and generally seen as a firm's core value capability. It is considered as an effective way to improve firm's productivity due to the resource constraint issue facing a firm.

Ignazio (2007) groups financial innovations into; new products for example adjustable rate mortgages and exchange-traded index funds; new services for example on-line securities trading and Internet banking; new "production" processes for example electronic record keeping for securities and credit scoring and new organizational forms for example a new type of electronic exchange for trading securities and Internet-only banks.

According to Makur (2014), commercial banks in Kenya have continuously been innovating new products, services and governance in order to improve their financial performance. The financial sector has over time developed successfully with innovation products and services available in financial market. Some of these products are debit cards, credit cards, ATM cards, M-pesa and others which facilitate the use of electronic means of payment and sometimes substitute for the use of physical cash. Similarly these products gain a wider recognition in financial market leading to reduction of holding amount of money.

That latest service innovation will lead to furthering of financial inclusion and innovative service offerings for all Kenyans by presenting their financial services offering on to a single platform which will make banking services more accessible, flexible convenient and more affordable.

Financial innovation is the improvement in the array of financial products and instruments that are stimulated by unexpected change in customer needs and preferences, tax policy, technology and regulatory impulses (Venkatesh, & Davis, 2000). Innovation in the financial sector is the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions, and markets (Waweru, 2012). It may be viewed as the design, development, and implementation of innovative financial instruments and processes, and the formulation of creative solutions to problems in finance. According to Makur (2014), financial innovations is one of the most important competitive weapons and generally seen as a firm's core value capability. It is considered as an effective way to improve firm's productivity due to the resource constraint issue facing a firm.

The developments in the financial sector have not only led to the increase in the number of financial institutions, but also the development in level of sophistication with new payment systems and asset alternatives to holding money. This has resulted mainly from technological advancement and increase in competition as the number of institutions increase. Developments in payment systems have started to create close substitutes for hard currency, thus affecting a core part of banking. The quest for profit forces companies, households and economic agents to look for new and improved products, services, processes and forms or structures of companies that will decrease their production costs, will satisfy, in a great range, their customers' demand and will bring higher profits. Sometimes this quest is made through official Research & Development (R&D) programs or sectors of a company. Other times, it is a hazardous

result of control processes or of the trial and mistake method. Today, more than ever before, innovation, enterprise and intellectual assets drive economic growth and increase standards of living. Hence Innovation is instrumental in creating new jobs, providing higher incomes, offering investment opportunities, solving social problems, curing disease, safeguarding the environment, protecting our security and transparency in organization and governments.

Automated Teller Machine

ATM is a computer controlled device that dispenses and provides other services to customers who identify them with a personal identification number (PIN). The physical carriage of cash as well as frequent visit to the banks is being reduced. The principal advantage of ATM is that it dispenses cash at anytime of the day even as it needs not to be located within the banking premises but in stores, shopping malls, fuel stations etc, unlike the traditional method where customers have to queue for a very long period of time to withdraw cash or transfer funds. The ATM is the most popular e-transaction solution in Nigeria. ATM is popular because of its convenience.

However, despite its popularity, the ATM has done very little in reducing the amount of cash in the economy. This is because most Nigerians use ATM only for cash withdrawal. Although ATM machines can perform other functions like fund/cash transfer, mobile phone credit recharge and bills payment, cash withdrawals and balance inquiry remain the most popular applications sort after by users in Nigeria. This is largely due to ignorance and the absence of merchants. Because ATM machines are mainly used for cash withdrawals, they do not go far enough in turning Nigeria into a cashless economy. ATM only makes more cash available in the economy because of the ease at which depositors can withdraw cash. To turn Nigeria into a cashless economy Nigerians need more than just ATM cards, Nigerians need credit/debit cards.

Point of Sale

Point of Sale (POS) terminals are deployed to merchant locations where users swipe their electronic cards through them in order to make payment for purchases or services instead of using raw cash. As the POS terminals are online real-time, the customers bank account is debited immediately for value of purchases made or services enjoyed. (Alao& Sorinola, 2015).

There are indeed alternatives to handling or transacting in cash for transfers and for payments of goods and services purchased. These include: ATMs, which can be mobile banking that can be done through the use of mobile phones for balance inquiry, funds transfers and bills payment ; internet banking, which can be used for instant balance enquiries, funds transfer, bills payment and other transactions. Most banks require you to have a token device for internet banking services in order to give some security for customers banking applications. Yet other alternative includes Point of Sales (POS) terminals which allow merchants access to card payments for sale of products and services. They also allow merchants to make commission from sales of third party products and services e.g. recharge cards, bill payments, lottery tickets etc., and finally there is electronic funds transfer through which one can transfer money electronically from his account to other accounts. Some banks also offer an instant electronic funds transfer service. However, most of these e-payments channels require you to have an ATM/Debit card (Osazevbaru, Sakpaide, & Ibubune 2014).

Mobile Banking

This involves the use of mobile phone for settlement of financial transactions. This is more or less fund transfer process between customers with immediate availability of funds for the beneficiary. It uses card infrastructure for movement of payment instructions as well as secure SMS messaging for confirmation of receipts to the beneficiary. It is very popular and exciting to the customers given low infrastructure requirements and a rapidly increasing mobile phone penetration in the country. Services covered by this product include account enquiry; funds transfer; recharge phones; changing passwords, bill payments. Even though the product is exciting most customers are yet to fully buy into it in Nigeria, hence, both the apex bank and other banks still have a lot to do in terms of increasing awareness of the product to the saving populace in the country (Siyanbola, 2013).

Mobile banking (m-banking) refers to provision and availment of banking and financial services through the help of mobile telecommunication devices. The scope of services offered may include facilities to conduct bank and stock market transactions, administer accounts and to access customized information (Kennedy & Jacky, 2013).

Human Development Index

The concept of Human Development Index (HDI) looks beyond GDP to a broader definition of well-being. It provides a composite measure of three dimensions of human development: living a long and healthy life (measured by life expectancy), being educated (measured by adult literacy and enrolment at the primary, secondary and tertiary level) and having a decent standard of living (measured by purchasing power parity, PPP, income). Prior to the HDI as a measure of Economic Development, the Physical Quality of Life Index (PQLI) had been used. The PQLI is an attempt to measure the quality of life or well-being of a country. The value is the average of three statistics: basic literacy rate, infant mortality, and life expectancy at age one, all equally weighted on a 0 to 100 scale. It was developed for the Overseas Development Council in the mid-1970s by Morris David Morris, as one of a number of measures created due to dissatisfaction with the use of GNP as an indicator of development (Wikipedia.org). Though the index is regarded as an improvement but it shares the general problems of measuring quality of life in a quantitative way as those proposed by the linear growth theories that employs income parameters such as Gross Domestic Product (GDP), Per Capita Income (PCI), Savings, Investments etc. It has also been criticized because there is considerable overlap between infant mortality and life expectancy. However, the HDI index is not in any sense a comprehensive measure of human development. It does not, for example, include important indicators such as gender or income inequality and more difficult to measure indicators like respect for human rights and political freedoms. What it does provide is a broadened prism for viewing human progress and the complex relationship between income and well-being. HDI (Human Development Index) is a composite measure of development based on an assessment of education, life expectancy and income per capita indicators.

The report noted that in 2015, Nigeria was Africa's largest economy with GDP at $490billion in Market Exchange Rate (MER) terms with the potential of being among the top ten global economies by 2050 according to PwC's estimates. In addition, prior to the now protracted decline in global oil prices, Nigeria was growing at a CAGR of 5.3% post rebasing. Yet, this growth did not translate into social development as high poverty and inequality levels persist. The report argues therefore that national polices should be guided not only by improvement in GDP but also a broader measure of development for which the firm has adopted the HDI.

Theoretical Framework

The study will be anchored on the Technology Acceptance Model (TAM) and Diffusion of Innovation Theory by Fred Davis (1985). TAM is an information systems theory that models how users come to accept financial innovation and use a technology that will enhance economic growth. TAM is one of the models that have been developed to provide a better understanding of the usage and adoption of information technology which is the base of financial innovation that improve economic development in Nigeria. It is presently a prominent theory used in modeling technology acceptance and adoption in information systems research. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. The factors are; perceived usefulness (PU) and perceived ease-of-use (PEOU). According to TAM, when the actual use of a technology system is influenced directly or indirectly by the user's behavioral intentions, attitude, perceived usefulness of the system, and perceived ease of the system. The theory seeks to explain how, why, and at what rate new ideas and technology spread through cultures. Innovation Diffusion Theory (IDT) consists of six major components: innovation characteristics, individual user characteristics, adopter distribution over time, diffusion networks, innovativeness and adopter categories, and the

individual adoption process which are the bases of cashless policy that promote the performance of money deposit banks in Nigeria.

Empirical Review

Nzyuko and Jagongo, (2018) investigated financial innovations adopted by commercial banks in Kenya. The study is centered on the use of technology such as Automatic Teller Machines (ATMs), mobile phone banking internet banking and agency banking and its impact on financial performance of commercial banks in Kenya .The study used time series data from central bank of Kenya (CBK) and Kenya Bankers' Association (KBA) annual bank supervisory reports (2010-2016). Through multiple regressions and correlation analysis the study found that there is a strong positive relationship between financial inclusion strategies and financial performance. Based on these results, the study recommends that financial inclusion innovations should be emphasized in the financial sector through regulatory and advisory bodies since it leads to improved financial efficiency.

Ajide (2016) used bank competition to moderate the effect of financial innovation on sustainable development in eight West African countries covering the period between 2000 - 2013. Two variables of competition and two variables of financial innovation, with other control variables were regressed on a growth indicator. The dependent variable was adjusted net savings while the independent variables included bank competition, bank return, financial innovations, and banking sector development. The results from panel data estimations indicated that increase in banking efficiency driven by competition and financial innovation improved economic growth and development. It was also discovered that the effect of financial innovation on growth and development depends on the variable adopted, as one of the variables showed a negative relationship while the other had a positive relationship with development though the two were insignificant. However, the two proxies of competition were significant. The researcher concluded that a reduction in demand for money caused by financial innovations could deter economic growth and development.

Ibenta, and Anyanwu (2017) evaluated the relationship between financial innovation and bank efficiency as well as the impact of financial innovation on efficiency ratio of deposit money banks in Nigeria from 2006 to 2014. Secondary data covering the period of the study were sourced from the Central Bank of Nigeria Statistical Bulletin. The unit root test was performed to ensure that the variables were free from stationarity defect linked with almost all time series data due to the nature they were generated. A multiple regression model was used and estimated to evaluate the relationship among the variables concerned. The finding reveals that the value of transactions on Automated Teller Machine (ATM) and Point of Sale (POS) are negatively related with efficiency ratio while web/internet and mobile banking are positively related but only that of web/internet was significantly related. The granger impact assessment depicts that financial innovation products reflected by value of transaction on ATMs, web/internet, POS and mobile banking has no significant impact on efficiency ratio of deposit money banks in Nigeria. The study found evidence that banks efficiency ratio exerted statistically significant impact on value of transactions on ATMs.

Chukwunulu, (2019) investigated the effect of financial innovations on economic growth in Nigeria. Data on the e-payment system were used as financial innovation variables spanning 2008 to 2017. The Generalised Methods of Moments (GMM) employed for data analysed revealed that transactions through ATM, Mobile Banking, Internet Banking and Point of Sale terminals have significant positive effect on economic growth. Further results from the adjusted coefficient of determination (Adj R2) showed that about 79% of changes in economic growth can be explained by financial innovations. The study therefore concludes that financial innovation has high predictive power on economic growth of Nigeria and has impacted positively in determining Nigeria's economic growth.

Ogunsakin and Alabi, (2020) examined the effect of financial innovation on different components of real output of some selected sectors of Nigerian economy between 1990 to 2018 using panel vector Error Correction as estimation technique. Data for the study were sourced from Central Bank of Nigeria

statistical Bulletin and Bureau of Statistics. Results obtained from our various estimations showed that there is long-run co-movement between sectoral real output and financial innovation variables. Result from VAR revealed that sectoral output responded heterogeneously to shocks emanating from financial innovation. Take for instance, the responses of manufacturing and Agricultural sectors to shocks from financial innovation variables were positive and significance while responses of service and construction sectors were positive but insignificant. Results obtained from variance decomposition showed that the most essential financial innovation variables which have much influenced on sectoral output in Nigeria during the study period are Automated teller machine ATM) and point of sale transaction (POS).

Jegede, (2014) investigated the effects of automated teller machine on economic development in Nigerian. Questionnaire was used to collect the data from a convenience sample of 125 employees of five selected banks in Lagos State with inters witch network. Thereafter, data collected through the questionnaire were analyzed statistically by using the Software Package for Social Science (SPSS Version 20.0 for Student Version) and chi-square technique. The results indicate that less than the benefits, the deployment of ATMs terminals have averagely improved economic development in Nigeria. Similarly, ATM service quality is less correlated to security and privacy of users and providers. The study concluded that banks should strive to increase their security layers to subvert the tricks of web scammers, limit the amount which customers may be allowed to withdraw at a time and provide electronic alerts to customers 'phone for all transactions carried out on their bank accounts through ATMs and the provisions of extra security layer that can prevent third party to make use someone else's ATM card for unauthorized withdrawals electronically.

METHODOLOGY
Research Design
Secondary data were sourced from the Central Bank of Nigeria Statistical Bulletin, therefore the study adopted an *ex-post facto* research design.
Model Specification
The model was be adopted from the works of Emeka *et al.* (2016) who examined financial innovation and economic development: Evidence from Nigeria
The model is stated thus:
HDI= f (ATM, POS)
Where:
HDI= Human development index
ATM= Automated teller machine
POS= Point of sale
The model is modified by introducing mobile banking and internet banking as new variables, thus:
HDI = f (ATM, POS, MB, ITB)
The Econometric Equation Form of the Model is:
$HDI = \beta_0 + \beta_1 ATM + \beta_2 POS + \beta_3 MB + \beta_4 ITB + \mu$--- -   ---- 1

Where
HDI= Human development index
ATM= Automated teller machine
POS= Point of sale
MB= Mobile Banking
ITB= Internet Banking
β_0 and μ are the constant and error term respectively while β_1, β_2, β_3, and β_4 are the coefficient of financial innovation on economic development in Nigeria

Method of Analysis
The data are analyzed with econometric techniques as; Descriptive Statistics, Augmented Dickey Fuller Tests for unit roots, The Autoregressive Distributive Lag (ARDL) approach.

DATA PRESENTATION AND ANALYSIS
Unit Root
Table 1: Summary of the Unit Root Result

Variables	At Level 1(0)	At First Difference 1(1)	At Second Difference	Order of Integration	Probability
ATM	-3.839292			1(0)	0.0112
MB	-4.595801			1(0)	0.0016
ITB	-5.814004			1(0)	0.0022
EDI	-4.340303			1(0)	0.0048
POS	-5.718454			1(0)	0.0127
HDI		-5.193801		1(1)	0.0002

Source: Eviews 9.0
From the analyses of stationarity of the variables, it was seen that the variables have mixed stationarity of level and first differences. The Autoregressive Distributive Lag (ARDL) approach which is capable of handling both stationary at level I(0) and first difference I(1). Thus, the most suitable tool of analyses is the ARDL test that accommodates both the short and long run trends in testing the relationship between the dependent and independent variables.

Examine the Effect of Financial Innovation on Human Capital Development in Nigeria
ARDL (Bounds) Test for Cointegration
Table 2. Result of the ARDL (Bounds) Test for Financial Innovation and Human Capital Development in Nigeria
ARDL Bounds Test
Date: 04/25/21   Time: 17:23
Sample: 2010 2019
Included observations: 44
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	6.48674	5

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Eviews 9.0

The bound test is shown in Table 2. The result compared the F-statistics with the critical bound values. The F-statistics is 6.48674. The results showed that the F-statistic is higher than the lower bounds at 2.62

and upper bounds at 3.79 of the critical values at   0.05 level of significance. This means that there is a cointegration or long run relationship between financial innovation variables and human capital development in Nigeria

Nature of ARDL Long Run Relationship and Speed of Correction to Equilibrium

Table 3: Model of the Long Run Relationship Between Financial Innovation Variables and Human Capital Development in Nigeria

ARDL Cointegrating And Long Run Form
Dependent Variable: HDI
Selected Model: ARDL
Date: 04/25/21   Time: 17:23
Sample: 2010 2019
Included observations: 44

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HDI(-1))	8.587973	0.208800	4.815958	0.0380
D(HDI(-2))	0.237865	0.116746	2.037455	0.0213
D(HDI(-3))	-0.160533	0.155162	-1.034616	0.3593
D(ATM)	0.000002	0.000001	1.316227	0.2041
D(ATM(-1))	-0.000002	0.000002	-0.862785	0.4369
D(ATM(-2))	0.000007	0.000004	2.039678	0.1110
D(MB)	-0.000002	0.000001	-2.188334	0.0939
D(MB(-1))	0.000001	0.000000	2.354086	0.0782
D(MB(-2))	0.000001	0.000000	2.931361	0.0428
D(ITB)	0.000672	0.000408	1.648477	0.1746
D(ITB(-1))	0.001696	0.000463	3.663105	0.0215
D(ITB(-2))	-0.000610	0.000291	-2.094034	0.1044
D(POS)	0.000013	0.000004	2.986905	0.0405
D(POS(-1))	0.000003	0.000005	0.704552	0.5199
D(POS(-2))	-0.000002	0.000003	-0.771175	0.4836
CointEq(-1)	-6.904626	3.208291	-2.454298	0.0014

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ATM	-1.360017	0.000046	1.275025	0.4657
MB	3.671075	0.000149	2.502412	0.0418
ITB	-0.007437	0.020454	-0.363584	0.7346
POS	6.252043	0.000095	3.448792	0.0018
C	4.841141	9.032941	s2.535943	0.0104

Source: Eviews 9.0

Having found presence of long run relationship between financial innovation variables and human capital development in Nigeria from result of the Bound Test, further analyses presented in Table 3 explains the nature of the long run relationship. The results showed that the error correction term [CointEq(-1)] is rightly signed. The coefficient of the error term is -6.904626 with probability value of 0.0014. Since the p.value is less than 0.05, it connotes that the error term is statistically significant. This indicates that the changes in human capital development trend will eventually return on a growing normal trend over time. The coefficient indicates about 69% of the deviations in human capital development in Nigeria due to financial innovation variables can be corrected within a year. This implies that increasing the rate of

financial innovation can be used as a significant policy adjustment to stabilize human capital development in Nigeria within the period under review

Short Run Relationship

Table 4: Short Run Model of the Relationship Between Financial Innovation and Human Capital Development in Nigeria

Dependent Variable: D(HDI)
Method: Least Squares
Date: 04/25/21   Time: 17:23
Sample: 2010 2019
Included observations: 44

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HDI(-1))	3.587973	0.208800	2.815958	0.0480
D(HDI(-2))	0.237865	0.116746	2.037455	0.0013
D(HDI(-3))	-0.160533	0.155162	2.034616	0.0593
D(ATM)	1.926306	1.264506	3.316227	0.0021
D(ATM(-1))	5.287406	3.982406	-1.478911	0.2546
D(ATM(-2))	-7.312206	3.591206	-0.039678	0.9110
D(MB	2.125106	9.675307	2.188334	0.0539
D(MB(-1))	1.979306	5.496107	3.594777	0.0229
D(MB(-2))	9.983-07	3.412407	2.931361	0.0428
D(ITB)	0.030672	0.000408	4.648477	0.0746
D(ITB(-1))	0.701086	0.000281	3.863149	0.0181
D(ITB(-2))	-0.000610	0.000291	-2.094034	0.1044
D(POS)	1.272605	4.273-06	2.986905	0.0405
D(POS(-1))	9.802607	3.384206	4.290203	0.0016
D(POS(-2))	-2.253606	2.921206	-0.771175	0.4836
C	-0.458100	0.166954	-2.743860	0.0517
ATM(-1)	-1.658406	3.745306	-0.440333	0.6824
MB(-1)	-7.073706	1.611506	-4.395027	0.0117
ITB (-1)	0.000704	0.000607	1.159215	0.3109
POS (-1)	4.032506	2.403606	1.680173	0.1682
HDI(-1)	0.094626	0.208291	0.454298	0.6732

R-squared	0.799090	Mean dependent var		-0.001071
Adjusted R-squared	0.773055	S.D. dependent var		0.026295
S.E. of regression	0.007136	Akaike info criterion		-7.279042
Sum squared resid	0.000204	Schwarz criterion		-6.137152
Log likelihood	125.9066	Hannan-Quinn criter.		-6.929955
F-statistic	12.76635	Durbin-Watson stat		1.819650
Prob(F-statistic)	0.007927			

Source: Eviews 9.0

Human Capital Development Index (HDI): The results showed that the coefficient of human capital development index in the first year is positive at 3.587973 and after one year is positive at 0.237865 with t-Statistic of 2.815958 and 2.037455 with probability value of 0.0480 and 0.0013 which means that human capital development is an endogenous variable in the short run

Automated Teller Machine (ATM): The coefficient of automated teller machine in the first year is positive at 1.926306 and after one year is positive at 5.287406 with t-Statistic of -2.316227and 3.478911 and probability value of 0.0021 and 0.0546 showing that automated teller machine has positive and significant effect on human capital development in the short run

Mobile Banking (MB): The coefficient of mobile banking in the first year is positive at 2.125106 and after one year, is positive at 1.979306 with t-Statistic of 2.188334 and 3.594777 with probability value of 0.0539 and 0.0229 this indicate that mobile banking has significant effect on human capital development in the short run

Internet Banking (IB): The coefficient of internet banking in the first year is positive at 0.030672 and after one year, is positive at 0.701086 with t-Statistic of 4.648477 and 3.863149 and probability value of 0.0746 and 0.0181 showing that of internet banking has positive and significant effect on human capital development in the short run

Point of sale (POS): The coefficient of point of sale in the first year is positive at 1.27505 and after one year is positive at 9.80407 with t-Statistic of 2.986905 and 4.290203 with probability value of 0.0405 and 0.0016 indicating that point of sale has positive and significant effect on human capital development in the short run

CONCLUSION
The study revealed that automated teller machine, mobile banking, internet banking and point of sale has (69% long run and 77% short run) significant positive effects on human capital development in Nigeria**.** The study therefore concludes that financial innovation instruments have short run significant effects on economic development but have no long run significant effect on human capital development in Nigeria**.**

RECOMMENDATIONS
The recommendations of the study are as follows:
1. There is significant need for increased public education and awareness on the benefits of automated teller machine to enhance financial innovation in Nigeria
2. The banks must improve service quality and customer responsiveness in cases of lost or stolen cards, frauds, and other customer complaints in relation to point of sale
3. There is additional need for ensuring ease of use, and customer interactive features in mobile and on-line shopping systems in Nigeria
4. Management of banks should from time to time train customers with regard to internet banking, its benefits, risk exposure, physical and internet security to avoid financial loss in the hands of hackers. This will enhance their technical computer which will rob off positively on their operations with a positive spill-over effect on the entire economy
5. The study equally recommends that the monetary authorities in Nigeria should reduce interest rate to attract low interest rates that can encourage credit and boost productivity across the sectors which will improve economic development in Nigeria

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