Innovations

Fintech Innovations and Sustainable Development in Nigeria

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Abstract: *The research investigated how fintech innovations could aid Nigeria's sustainable development. The study utilised primary data through survey questionnaire shared to FinTech operators in Nigeria duly registered with the FinTech Association of Nigeria. The research further used the structural equation model to analyzed the sourced data. Results showed that Fintech can contribute to SDG8 by enabling digital payments, remittances, and quick access to finance. Also, fintech can help boost innovation. This study recommended that fintech companies should focus on creating products/services that will directly support job creation as one of their sustainable goals.*

Keywords: *Fintech, Fintech Innovations, Structural Equation Model, Sustainable Development Goals, Fintech Operators*

1.1 Introduction

Fintech innovations have brought about significant changes in the financial sector, particularly in developing countries like Nigeria, by increasing financial inclusion and promoting economic growth. However, the lack of adequate regulatory frameworks has resulted in various challenges that obstruct the attainment of sustainable development goals (SDGs), specifically goals 1, 4, 8, and 9. Despite the growing adoption of fintech, poverty remains widespread in Nigeria, with more than 40% of the population living below the poverty line, especially in rural areas where infrastructure is lacking. This suggests that the fintech industry is falling short in addressing the needs of the poor and underprivileged segments of society (World Bank, 2020).

Although fintech innovations have the potential to revolutionize the education sector, there is a significant lack of access to quality education in Nigeria. A report by the World Bank (2020) shows that Nigeria has one of the lowest literacy rates in the world, with only 62% of the population being literate. Fintech innovations have the potential to improve educational outcomes and contribute to SDG 4 (Quality Education) by expanding access to financial education and increasing the efficiency of students. The

lack of access to quality education hinders the adoption and effective use of fintech solutions, particularly in rural areas. The limited access to digital infrastructure and a lack of coordination between financial and educational institutions may also be hindering these efforts in Nigeria (Abdu, 2021).

Fintech innovations have the potential to promote decent work and economic growth by providing access to financial services, improving efficiency in financial transactions, and creating new job opportunities in the fintech industry. However, the absence of adequate regulatory frameworks has resulted in a lack of trust in the fintech industry, leading to reduced investment and limited growth opportunities. Also, fintech innovations can support economic growth and contribute to SDG 8 by increasing access to credit for businesses. Among the businesses are the SMEs, the high risk associated with lending to SMEs may be deterring traditional financial institutions from participating in Fintech lending platforms, which may limit the potential impact of these innovations (Izedonmi et al., 2021).

Fintech innovations are dependent on the availability of reliable and robust infrastructure. In Nigeria, the inadequate infrastructure, particularly in rural areas, hinders the adoption and effective use of fintech solutions. This limits the potential for innovation and growth in the fintech industry, thereby hindering the achievement of SDG 9.While Fintech innovations can also support sustainable infrastructure development and contribute to SDG 9 by increasing access to financing for infrastructure projects, limited regulatory frameworks and a lack of coordination between financial institutions and infrastructure developers may be limiting the potential impact of these innovations in Nigeria (Aremu et al., 2021).

The reality of SDGs and Fintech is hinged on the dogma ofthe Technology Acceptance Model (TAM) which is a widely used framework that explains user acceptance of technology. While TAM has been used extensively in research on the adoption of various technologies, including fintech, limited studies have investigated the applicability of TAM in the context of SDGs.

Therefore, the study is two-fold: firstly, there is a need to investigate the applicability of TAM in the context of fintech innovations and their contribution to the attainment of the Sustainable Development Goals. Secondly, there is a need to identify the factors that influence user acceptance of fintech solutions, particularly in developing countries like Nigeria, where the use of fintech is still relatively low.

Addressing these problems will provide insights into the factors that hinder or facilitate the successful adoption and use of fintech solutions in the attainment of the Sustainable Development Goals. It will also guide the development of policies and interventions that promote the effective use of fintech solutions in addressing the challenges facing the financial sector in developing countries, like Nigeria.

2.1 Fintech Innovation and Sustainability Development Goals

2.1.1 Effects on SDG 1- No Poverty

In order to combat poverty, effectively manage personal finances, and access financial services for improved living standards through fintech, it is crucial to comprehend the factors that motivate adoption. Fintech solutions hold the potential to enhance the financial stability and resilience of individuals, provided they are willing to embrace these services initially (Mahmud, Joarder, & Muheymin-Us-Sakib, 2022). Appiah-Otoo & Song, (2021) through their research shows that Poverty remains a significant challenge in the 21st Century, linked to inadequate financial resources, disease, dangerous social groups, lack of leisure activities, stigmatization, low living standards, economic hardships, and poor diet. Ending poverty in all its forms is a key priority for policymakers and organizations like the United Nations and the World Bank.

Customers and service providers alike save money when mobile money is utilized in conjunction with other payment method. People who previously couldn't access financial services can now do so remotely, which improves market efficiency while simultaneously broadening financial inclusion (Brown et al., 2020). Through financial development and inclusion, FinTech can help promote growth and reduce growth volatility (Heng et al., 2016), as well as eliminate poverty. Berkmen and his allies have taken over the city (Berkmen et al., 2019).

In order to reduce poverty, it is necessary to first understand the causes that contribute to its existence. A wide range of cultural, political, social, and other elements combine to produce poverty. Ethnic and income inequality, political competition, federal grants and the foreign-born population in the United States are some of the most important determinants of extreme poverty in the European Union, whereas agricultural holding size, resource productivity, social protection and domestic material consumption are the most important factors influencing poverty in the EU (Ulman and Căutișanu, 2020).

Ozili, (2018) argued that financial inclusion decreases poverty and increases economic growth. To alleviate extreme poverty, FinTech acts as an effective solution for boosting access to financial services and increasing financial inclusion by making financial services more widely available. Appiah-Otoo & Song, (2021) through their research shows that Poverty remains a significant challenge in the 21st Century, linked to inadequate financial resources, disease, dangerous social groups, lack of leisure activities, stigmatization, low living standards, economic hardships, and poor diet. Ending poverty in all its forms is a key priority for policymakers and organizations like the United Nations and the World Bank. Fintech promotes financial inclusion, lowers transaction costs, improves financial access, reduces information asymmetry and household risk, and supports rural e-commerce and social wealth accumulation, thereby enhancing living standards and welfare, especially in China. Additionally, the results show that economic growth boosts household per capita consumption, thus reducing poverty.

2.1.2 Effects on SDG 4-Quality Education

Lianxing Yang and Yunzhe Hong (2023), highlighted that regions with lower levels of educational input, output, and economic development are seen to experience most effect of the Fintech. Concepts of educational resources sharing via digital financial platforms encouraging the development of educational technologies by facilitating new infrastructure. The strength of predominant digital divide is lessened strengthening niche marketing while increasing the use of financial services, especially in underdeveloped areas, resulting in the reduction of educational inequality. Phenomenon like public education expenditure, household income and consumption increases as Fintech promotes inclusion, convenience, and efficiency, expanding resource accessibility to disadvantaged individuals. It is further revealed that role of Fintech in achieving educational equity by fostering smart education, e-learning, and educational information technology cannot be underestimated. They argued that digital financial platforms support the sharing of educational resources and innovative approaches such as smart teaching and experiential learning and these platforms also provide a range of financial services to support basic education, driving educational reform and innovative financial practices. Equal access for remote and less economically developed areas are made possible by Fintech's digital applications which offers inclusive financial services to low-income groups, improving access to formal credit and reducing educational inequality through technologies like big data and cloud computing to provide targeted financial solutions.

Furthermore, fintech encourages educational funds for less advantaged groups and supports the creation of new infrastructure for high-quality education. Products like "smart campus" and "campus payments" contribute to a more mobile, digital, and intelligent educational ecosystem. In short, fintech has a significant impact on advancing new infrastructure, improving financial services, and promoting educational digitalization, particularly benefiting underdeveloped regions lacking high-quality teaching resources.

Fintech's influence on education goes beyond funding and includes encouraging students to become financially literate. Numerous fintech platforms provide educational tools and resources to aid students in understanding responsible borrowing, saving, and budgeting. These platforms empower students to make well-informed decisions regarding their education and future financial security by fostering financial literacy (Rootstack, 2023)

2.1.3 Effects on SDG 8- Decent work and Economic Growth

Gomber (as cited in Ogbeide & Obadeyi, 2023) states that financial innovation has significantly driven economic growth in both developed and developing countries over the past few decades. Innovations such as credit cards, online banking, and mobile payments have simplified consumer access to credit and financial

management, leading to increased consumer spending and economic activities. Levine (as cited in Ogbeide & Obadeyi, 2023)also state that financial innovation enhances the efficiency of financial intermediation, reducing financial market frictions like transaction costs, agency costs, and information asymmetry, which increases credit availability. This boost in credit availability spurs investment, job creation, and economic progress.

Financial innovation promotes economic acceleration by increasing access to finance, particularly for small and medium-sized enterprises (SMEs) and underserved populations. Innovations like mobile banking and peer-to-peer lending have expanded access to credit and financial services, spurring entrepreneurship, job creation, and overall economic growth (Acharya et al., 2016). Additionally, financial innovation enhances the efficiency and stability of financial markets. The development of new risk management tools, such as credit default swaps and collateralized debt obligations, helps financial institutions manage and transfer risk, reducing the likelihood of financial crises and promoting long-term economic growth (Claessens et al., 2018).

A fundamental channel through which financial innovation drives economic growth is financial inclusion. Enhancing access to financial services and products for underserved populations, often through technology and mobile banking solutions, is crucial. According to the World Bank's Global Findex database (2021), Nigeria has improved financial inclusion, with the number of adults with a bank account increasing from 30% in 2014 to 40% in 2017. Financial innovation increases the efficiency of financial intermediation by reducing transaction costs, lowering information asymmetries, and improving risk management, leading to increased investment, job creation, and economic growth (Rajan, 2015).

Moreover, financial innovation facilitates technological innovation by financing research and development and providing the necessary funding for the commercialization of new technologies. This boosts productivity, competitiveness, and economic growth (Bariviera et al., 2017; Alimi & Olubusoye, 2018).

2.1.4 Effects on SDG 9- Industry, Innovation and Infrastructure

Hausemer (as cited in Pauliukevičienė & Stankevičienė (2021) stated that growing adoption of new technologies and FinTech innovations promotes SDG9 (Industry, Innovation and Infrastructure) by transforming traditional financial services. Fintech innovations are providing financial services to many unbanked individuals worldwide through mobile devices and are being recognized as transformative in enhancing financial inclusion (Senyo & Osabutey, 2020). Shi et al(as cited in Yap, Hui Shan Lee, & Ping Xin Liew, (2023) argued that financial inclusion fosters innovation by providing firms with limited financial resources access to the necessary funds to support technological, organizational, and business advancements. It does this by modernizing

the financial system through risks reduction and transaction costs while offering an efficient payment system and enhancing institutional efficiency. (Yap, Hui Shan Lee, & Ping Xin Liew, 2023)

2.1.5 Effects of Fintech on Sustainable Development Goals in Nigeria

Nigeria, the largest economy in Africa, has seen substantial financial innovation over the past decade, especially in mobile banking, payment systems, and digital currencies. The Central Bank of Nigeria introduced the Cashless Nigeria Policy in 2012 to reduce cash usage and promote electronic payments. Since then, mobile banking and digital payment systems have grown significantly, particularly among younger Nigerians (Olorunfemi, 2019). There is also increasing interest in digital currencies like Bitcoin among Nigerian investors and consumers (Ali & Adeoye, 2019). These advancements are enhancing financial inclusivity, the efficiency of the financial system, and overall economic vibrancy in Nigeria.

Financial innovation has notable implications for Nigeria's economy. It reduces transaction costs, especially in remittances and international trade. Nigeria, one of Africa's largest recipients of remittances, received over $23 billion in 2018 (World Bank, 2019). High transaction costs associated with remittances limit their impact on economic growth. Innovations like blockchain technology and digital currencies reduce these costs, increasing the amount of money recipients receive (Ali & Adeoye, 2019; Adetiloye et al., 2019). These financial instruments have also spurred self-employment, reduced unemployment, and curbed social vices, thereby boosting economic activity. Overall, financial innovation reduces transaction costs in international trade, increases exports, and promotes economic growth in Nigeria and other developing countries.

Digitalization has the potential to drive economic progress in developing countries like Nigeria in various ways. It promotes economic growth and diversification, creates jobs, enhances financial inclusion, empowers SMEs, and improves public service delivery. By diversifying Nigeria's economy beyond traditional sectors such as oil and agriculture, digitalization can spur significant economic growth. According to the World Bank, digital technologies could contribute up to $300 billion (over 9% of GDP) to Nigeria's economy by 2025, driven by sectors like e-commerce, fintech, software development, and IT-enabled services.

Digitalization also creates employment opportunities, particularly for the youth. The International Finance Corporation (IFC) estimates that digital technologies could generate over 9 million jobs in Nigeria by 2030, especially in e-commerce, digital services, and software development. As a key component of financial innovation, digitalization can significantly enhance financial inclusion in Nigeria, where many people remain unbanked. The Central Bank of Nigeria's National Financial Inclusion Strategy aims to use digital technologies to ensure 95% of Nigerian adults have access

to financial services by 2024. Initiatives like mobile banking, digital payments, and agent banking are already making strides toward this goal.

Digitalization empowers SMEs by providing new market opportunities and access to technology-driven tools. The Nigeria Digital Economy Diagnostic Report highlights how digital platforms promote SME growth, connect them to larger markets, and facilitate access to finance and business support services. Furthermore, digitalization streamlines government processes, enhances transparency, and improves service delivery. The Nigerian government has implemented initiatives such as the National Identity Management System, e-Government Master Plan, and various online platforms to automate processes, reduce corruption, and boost public sector efficiency

The impact of fintech startups on Nigeria's economic progress can vary based on factors such as government regulations, infrastructure development, cybersecurity, and consumer adoption. However, fintech startups have significantly influenced Nigeria's economic landscape in recent years. Key areas of impact include:

Financial Inclusion: Fintech startups have expanded financial inclusion by providing services to previously underserved populations. By leveraging technology, they offer banking, payments, and other financial products to individuals and small businesses in rural and urban areas.

Access to Capital: Fintech startups have created new avenues for accessing capital, particularly for SMEs. Innovative solutions like peer-to-peer lending platforms, crowd funding, and digital wallets have made credit and investment opportunities more accessible, stimulating economic growth and entrepreneurship.

Job Creation and Economic Growth: The growth of fintech startups has led to job creation in areas such as software development, data analytics, and digital marketing. As these companies expand, they generate employment opportunities and contribute to overall economic growth.

Increased Efficiency and Transparency: Fintech solutions have improved the efficiency and transparency of financial transactions. Technologies like mobile banking, digital payments, and block chain have reduced reliance on cash, enhancing the speed and security of financial operations and fostering trust in the financial system.

Innovation and Competition: Fintech startups have driven innovation in Nigeria's financial sector, prompting traditional banks to offer more user-friendly digital services. This competition has led to improved financial products and services, benefiting consumers and promoting economic development.

Introduction of New Financial Products: New financial products increase financial inclusion, expand access to credit, develop the capital market, manage risks, and leverage technology-driven efficiency. For example, mobile banking and digital payment platforms have allowed people to access financial services via smart phones, promoting economic progress.

Access to Credit: Innovative financial products facilitate easier access to credit for individuals and small businesses, stimulating entrepreneurship and investment, leading to job creation and economic development.

Capital Market Development: New financial products like Real Estate Investment Trusts (REITs) and Exchange-Traded Funds (ETFs) have provided new investment opportunities, increasing liquidity and depth in the capital market, attracting both domestic and foreign investors, and boosting economic growth.

Risk Management: New financial products, such as insurance and derivatives, help individuals and businesses manage risks effectively, encouraging investment and innovation. Microinsurance products, for instance, have helped individuals and small businesses protect themselves against various risks, fostering economic resilience.

Technology-Driven Efficiency: New financial products often leverage technology to enhance transaction efficiency. This reduces costs, improves speed, and enhances transparency, contributing to overall economic progress. Blockchain technology, for example, has the potential to streamline processes, reduce fraud, and improve transaction efficiency, promoting economic growth.

2.2 The Unified Theory of Acceptance and Use of Technology (UTAUT)

It is very crucial to understand how fintech innovations are accepted and adopted by users in order to be able to develop effective ways of reaching the audience. Persada, Miraja, & Nadlifatin (2019), revealed that The Unified Theory of Acceptance and Use of Technology (UTAUT) was conceived by Venkatesh et al. in 2003. It endeavors to elucidate user inclination towards employing an information system (IS). The framework delineates four constructs which were formulated through a process of review, mapping, and integration of eight prominent theories and models: the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Motivational Model (MM), the Theory of Planned Behavior (TPB), a amalgamated Theory of Planned Behavior and Technology Acceptance Model (C-TAM-TPB), the Model of PC Utilization (MPCU), the Innovation Diffusion Theory (IDT), and the Social Cognitive Theory (SCT), as primary determinants of information system utilization: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC).

Performance Expectancy (PE) denotes the extent to which a user perceives that utilizing the system will enhance their job performance. Effort Expectancy (EE) reflects the level of ease associated with using the system. Social Influence (SI) gauges the degree to which a user believes that significant others endorse the use of the system. Facilitating Conditions (FC) assesses the user's conviction regarding the availability of requisite infrastructure and support to employ the system. Behavioral Intention (BI) pertains to a user's assessment of their propensity to engage in a specific behaviour.

2.3 Empirical evidences from Nigeria

Okewu, Pius Onobhayedo, and Moru (2023) in their research on attaining the sustainable development goals using blockchain-based cybersecurity that address trust deficits in online transactions was designed using software engineering models such as use case diagrams and component diagrams, with the aim of enhancing transparency and openness in transactions by leveraging the functionalities of blockchain technology, established that fintech innovations have a significant impact on achieving Sustainable Development Goals (SDGs) in Nigeria by enhancing financial inclusion, promoting economic growth, and ensuring transparency and accountability in financial transactions. They found that digital payments and mobile wallets, such as those facilitated by platforms like Paga and Flutterwave, increase access to financial services for unbanked populations in Nigeria, contributing to poverty reduction (SDG 1) and reduced inequalities.

Blockchain and distributed ledger technology foster transparency and accountability in Nigerian financial systems, addressing corruption and enhancing trust in both public and private sectors, which is crucial for promoting peace, justice, and strong institutions. Peer-to-peer lending platforms like Kiakia expand access to credit for small businesses and underserved individuals, empowering economic growth (SDG 8) and fostering innovation and infrastructure development (SDG 9).

Insurtech innovations, such as those from companies like Aella Credit and Paystack, reduce vulnerabilities and increase resilience to economic shocks by providing affordable insurance options, thereby enhancing social protection systems and promoting good health and well-being. Robo-advisors and automated investment platforms democratize access to wealth management services and encourage sustainable investments, supporting responsible consumption and production and climate action.

Regtech innovations streamline regulatory compliance in Nigeria, reducing the risk of financial crimes and corruption, thus reinforcing the rule of law and ensuring effective institutions. Personal finance management tools, such as those offered by Cowrywise and Carbon, enhance financial literacy, empowering individuals to manage their finances better and contributing to economic stability (SDG 8).

Digital banking services from neobanks like Kuda make banking more accessible and affordable, promoting economic integration (SDG 9) and inclusive financial services. Artificial intelligence and machine learning improve fraud detection and customer service in financial transactions, enhancing security and supporting sustainable industry, innovation, and infrastructure (SDG 9).

However, the massive deployment of information and communications technology (ICT) in Nigeria opens up opportunities for cyber threats, which must be addressed to realize the benefits of fintech fully. A blockchain-based cybersecurity system can promote transparency and accountability in online transactions, ensuring that all stakeholders are involved in the consensus process. This aligns with the principles of transparency and accountability in governance, mitigating corruption and strengthening institutions.

The regulation of fintech in Nigeria is critical in ensuring that these innovations contribute positively to sustainable development. Effective regulatory frameworks, such as the Central Bank of Nigeria's guidelines on mobile money services and digital banking, can curb the misuse of technology for crimes and corruption, ensuring that the benefits of fintech innovations are realized while minimizing potential risks. This regulatory oversight is essential for maintaining trust in financial systems and ensuring that technological advancements align with global efforts to achieve the SDGs.

Overall, fintech innovations, supported by robust regulation, play a vital role in advancing sustainable development in Nigeria by enhancing financial inclusion, promoting transparency, and ensuring the efficient and accountable use of resources. These advancements contribute to the global effort to achieve a more sustainable and equitable future by 2030. Udo et al., (2023) examines the impact of financial technology (FinTech) on economic development by proxy fintech innovations on sustainable development goals (SDGs) in Nigeria. The study moves beyond previous approaches that relied on indirect measures of FinTech and aggregated indicators of financial inclusion. Instead, it uses direct measures of FinTech, such as automated teller machines (ATMs), web pay, mobile banking, and point of sale (POS) systems, along with unbundled financial inclusion indicators to understand their individual impacts on economic growth and financial inclusion.

It made use of data collected quarterly from 2009Q1 to 2019Q4 from the Central Bank of Nigeria (CBN) and the World Bank Development Index. The Autoregressive Distributed Lag (ARDL) model was employed to estimate both long-term and short-term causal relationships. FinTech activity was proxied by transaction values on each retail digital platform, while economic growth was measured using GDP per capita in US dollars. Financial inclusion was assessed through three dimensions: availability (number of bank branches), penetration (bank depositors per 1,000 adults), and usage (credit to the private sector as a percentage of GDP). Control variables included the

financial deepening index and communication index to account for their influence on the economy and financial inclusion.

The findings reveal that direct measures of FinTech, specifically POS, web pay, and mobile banking, positively influence financial inclusion and economic growth (SDG 8). Mobile banking emerged as the most significant contributor, indicating a shift towards more accessible and convenient digital financial services. In contrast, ATMs negatively impacted economic growth and financial inclusion due to high maintenance costs and security concerns, leading to the closure of many ATM galleries and resulting in infrastructural deficits that hinder the inclusive financing of a growing banked population.

Based on these findings, it was recommended that robust regulatory and supervisory frameworks be implemented to enhance the usage, availability, and penetration of FinTech solutions/innovations. This includes addressing infrastructural deficits by increasing the number of ATMs and improving security measures, as well as formulating policies that encourage saving habits among lower-income populations. Additionally, cost-efficient and purpose-driven FinTech solutions should be developed to provide citizen-centric funding, with legislation tailored to Nigeria's specific context to protect new entrants in the financial system from predatory practices.

In conclusion, this study demonstrates that FinTech innovations play a significant role in promoting economic growth (SDG 8) and financial inclusion in Nigeria. By addressing the identified infrastructural and regulatory challenges, Nigeria can better leverage FinTech to achieve its sustainable development goals, fostering a more inclusive and robust financial ecosystem.

Okoh, Olopade and Eseyin (2023) carried out a research with the aim to investigate the impact of fintech innovation, specifically digital payment systems, on Nigeria's economic growth and by proxy its alignment with Sustainable Development Goals (SDGs). By examining the influence of digital payments on the country's Gross Domestic Product (GDP) over the period from 2009 to 2020, the study seeks to understand how various forms of digital payments contribute to economic development and the broader SDG agenda.

The research employed the Auto Regressive Distributed Lag Model (ARDL) which involves the use of quarterly time series data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin. The variables analyzed include Automated Teller Machine Payment (ATMV), Point of Sale (POSV), Mobile Application Payment (MAPV), and Instant Payment (NIPV), with GDP serving as the dependent variable. The short-run ARDL regression model was then applied to identify the relationships between these variables and GDP.

The findings indicate a complex relationship between digital payment systems and economic growth in Nigeria. The analysis shows that MAPV and POSV have a positive and significant impact on GDP, suggesting that increased usage of mobile applications

and point of sale systems boosts economic activity. This positive effect is linked to the adoption of digital technologies and the promotion of a cashless economy. However, NIPV and ATMV exhibit a negative and significant impact on GDP. The negative effects are attributed to factors such as inadequate power supply, poor internet infrastructure, delays in transaction reversals, and cash shortages at ATMs, which hinder the effectiveness of these digital payment methods.

Despite these insights, the study identifies a gap in the broader implementation and effectiveness of digital payments. The negative impacts of NIPV and ATMV highlight infrastructural and operational challenges that need to be addressed. To maximize the benefits of fintech innovations, the research suggests several recommendations: integrating digital finance education into school curricula, increasing public awareness through bank-led education campaigns, expanding high-speed internet networks, and improving regulatory frameworks. Regular inspections of ATMs and stringent regulations against fraudulent POS practices are also essential.

In conclusion, while fintech innovations, particularly mobile applications and POS systems, significantly contribute to economic growth and support SDGs related to financial inclusion and infrastructure development, the study reveals critical areas needing improvement. Addressing these gaps will enhance the effectiveness of digital payments, fostering a more inclusive and sustainable economic growth trajectory for Nigeria.

Appah Ebimobowei, Sekeme Felix Tebepah, and Doutimiareye Newstyle, (2023) in their study investigates the relationship between digital financial services and economic growth in Nigeria from 2006 to 2021, highlighting how fintech innovations impact the attainment of Sustainable Development Goals (SDGs). It focuses on automated teller machines (ATMs), point of sales (PoS) services, mobile banking, and web banking, examining their influence on Nigeria's real gross domestic product (GDP). Anchored in the Technology Acceptance Model (TAM), the research employs purposive sampling to gather quarterly data from the Central Bank of Nigeria.

Their methodology combines ex post facto and correlational research designs, using a sample size derived from quarterly data collected between 2006 and 2021. The data, obtained from the Central Bank of Nigeria's statistical bulletin and the National Bureau of Statistics, is analyzed through univariate, bivariate, and multivariate techniques, specifically employing the Vector Error Correction Model (VECM) for robust analysis.

From their findings, ATMs are revealed to have positive but insignificant effect on GDP, suggesting limited direct economic impact. Conversely, PoS services exhibit a significant positive influence on GDP, highlighting their vital role in facilitating economic transactions. Similarly, web banking shows a significant positive impact on GDP, emphasizing the importance of internet-based financial services. Mobile banking, although positively correlated with GDP, shows an insignificant impact, pointing to potential areas for enhancement in mobile financial services.

These results underline the essential role of digital financial services in driving economic growth, crucial for achieving SDGs such as decent work and economic growth (SDG 8), industry, innovation, and infrastructure (SDG 9), and reduced inequalities.

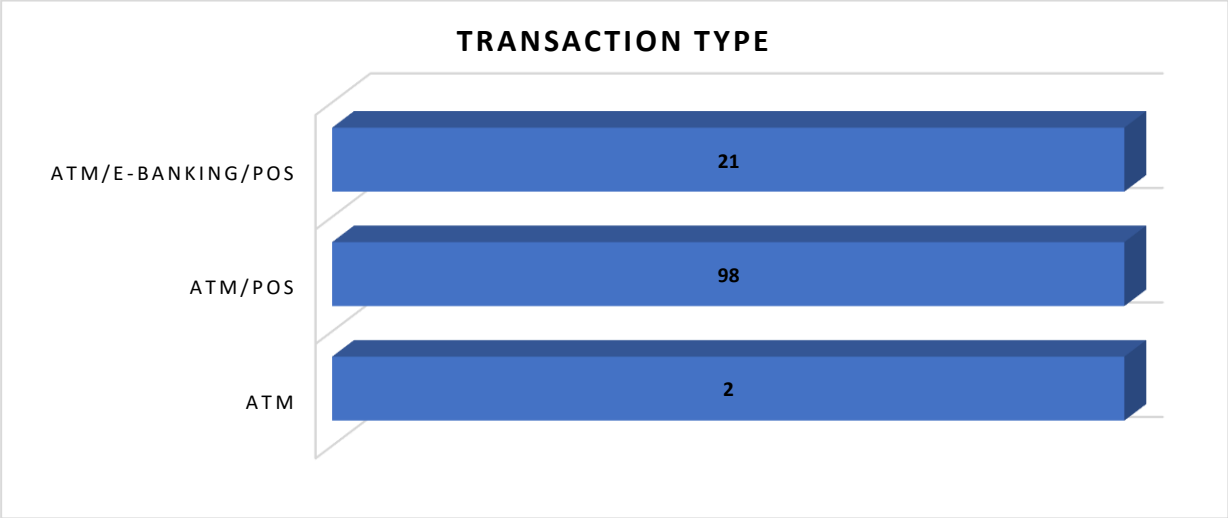
Linking the findings to the broader context of SDGs, the research highlights the transformative potential of fintech innovations in advancing sustainable development. Enhanced financial inclusion, increased transaction efficiency, and the promotion of digital literacy are key ways fintech can contribute to these global goals. The study calls for collaborative efforts between government entities, financial institutions, and technology providers to create an enabling environment for digital financial services, thereby driving economic growth and contributing to the attainment of SDGs in Nigeria.

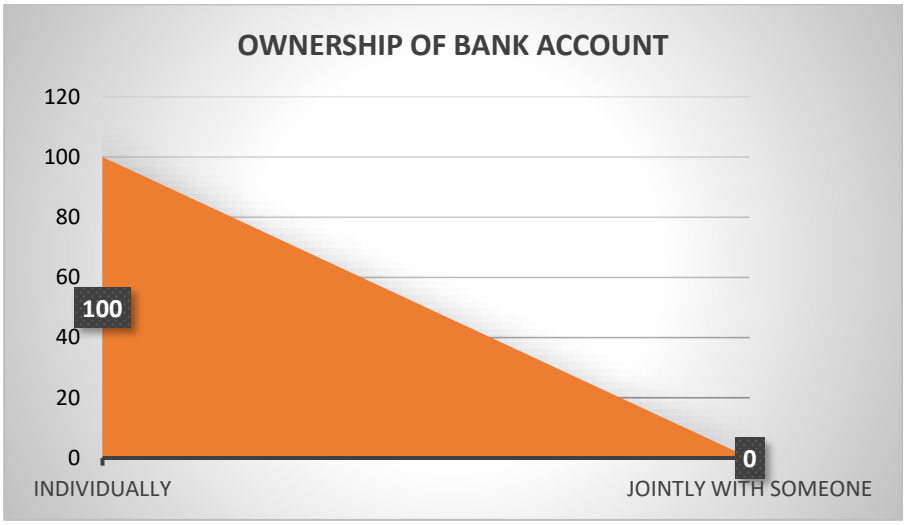
3.1 Methods

The study used survey questionnaire to source its primary data focusing on fintech and sustainable development. The responders were FinTech operators in Nigeria and the researcher, based on judgmental sampling, shared 100 questionnaires to selected FinTech operators in Nigeria.

4.1 Presentation of Statistics

Figure 4.1: Data on Transaction type, Ownership of bank account, and influence of opening account





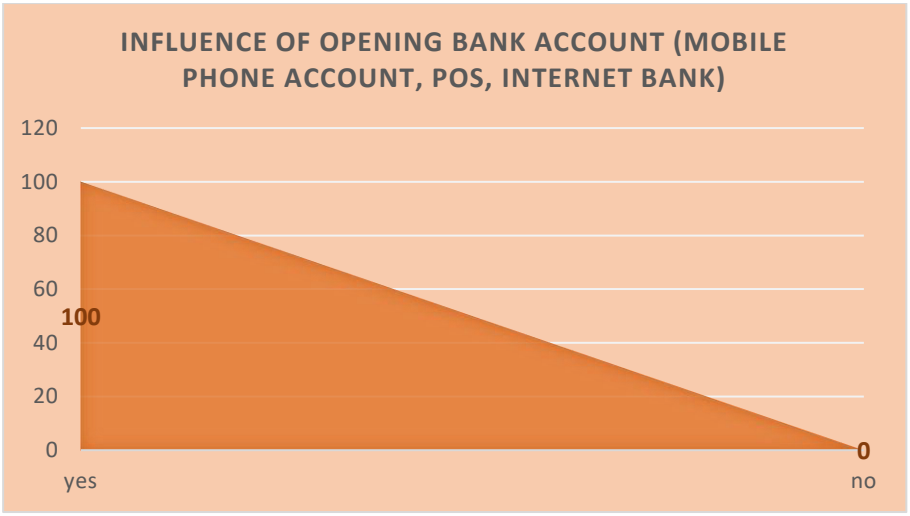


Figure 4.1 provided valuable insights into respondents' financial transaction behaviors, bank account ownership preferences, and the factors that influence their decision to open bank accounts, revealing trends and patterns essential to understanding the evolving banking landscape in the context of fintech advancements. Regarding transaction types, a clear majority of respondents—98 individuals—use both Point-of-Sale (POS) systems and Automated Teller Machines (ATMs) for their financial activities. This indicates a strong reliance on these two transaction methods for routine banking and payments. Only 2 respondents exclusively use ATMs, suggesting that POS systems are integral to daily financial transactions. Additionally, 21 respondents utilize a combination of POS, ATMs, and E-banking services, reflecting a growing trend of embracing a mix of traditional and digital financial tools. This suggests that a segment of the population is more willing to adopt digital banking solutions alongside conventional transaction methods, indicating an openness to technological innovations in financial services.

When it comes to account ownership, all respondents reported owning individual bank accounts, with none indicating joint account ownership. This trend highlights a preference for maintaining personal control over financial resources, potentially influenced by privacy concerns. The factors motivating respondents to open bank accounts were notably consistent across the sample. The use of mobile phone accounts, POS systems, and Internet banking were identified as the primary drivers for account opening. This underscores the transformative impact of digital banking technologies in reshaping consumer financial behaviors. The convenience offered by mobile and Internet banking, alongside the widespread use of POS systems, simplifies access to banking services and encourages greater engagement with the formal financial sector.

4.2 Descriptive Statistics

The descriptive statistics output presented in Table 4.1 is on only the latent variables. This statistics show the following the average value, minimum and maximum value, the standard deviation value, the skewness, and the kurtosis value.

Table 4.1: Descriptive Statistics Results

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Npt	100	5.00	10.00	7.0202	1.68414	0.177	0.243	-1.370	0.481
Qedu	100	8.00	31.00	23.1600	4.67471	-1.522	0.241	2.346	0.478
Infinov	100	9.00	34.00	27.6700	5.81891	-2.104	0.241	3.529	0.478
Teleg	100	3.00	15.00	5.5000	2.89374	1.825	0.241	2.931	0.478
Dweg	100	9.00	35.00	28.6200	6.47416	-2.248	0.241	3.816	0.478
Atm	100	4.00	20.00	17.5700	4.23610	-2.358	0.241	4.218	0.478
Swift	100	5.00	20.00	16.9900	3.36799	-2.259	0.241	4.320	0.478
Intbank	100	6.00	25.00	21.4600	4.87090	-2.425	0.241	4.639	0.478
googlewallet	100	7.00	20.00	17.3100	2.88743	-2.302	0.241	4.601	0.478
Bchain	100	8.00	25.00	21.9400	2.53787	-2.364	0.241	9.039	0.478
Mmoney	100	20.00	25.00	22.3131	1.41887	0.257	0.243	-0.713	0.481
X1	100	7.00	25.00	21.3800	4.46486	-2.491	0.241	4.845	0.478
X2	100	7.00	20.00	17.0000	2.57023	-2.367	0.241	5.260	0.478
X3	100	14.00	20.00	17.8300	1.23137	-0.960	0.241	1.484	0.478
X4	100	16.00	20.00	18.2700	1.04306	0.089	0.241	-0.620	0.478
Valid N (listwise)	98								

Source: SPSS Output

Table 4.1 displays the descriptive statistics results of the construct variables No Poverty (npt), Quality Education (qedu), Decent Work and Economic Growth (dweg), Industry, Innovation and Infrastructure (infinov), Telegram (teleg), ATM (atm), SWIFT (swift), Internet Banking (intbank), Google Wallet (googlewallet), Block-chain (bchain), Mobile Money (mmoney), CBN Guidelines on Operations of Electronic Payment Channels in Nigeria (X1), CBN Guidelines on International Mobile Money Remittance Service in Nigeria (X2), CBN Regulation on Electronic Payments and Collections for Public and Private Sectors in Nigeria(X3), SEC Crowd-funding Rules and CBN Risk-Based Cyber-Security Framework (X4). The mean and standard deviation value of the variable decent work and economic growth (dweg) is the highest, followed by the variable Industry, Innovation and Infrastructure (infinov). All the construct variables except npt, teleg, mmoney, and X4 are negatively skewed. npt, qedu, mmoney, X3, and X4 have kurtosis values less than three meaning they are platykurtic. While others have kurtosis values greater than three except teleg whose kurtosis value is approximately three.

4.3 Test of Hypothesis

Table 4.2: Test Result One

	Coef	T-Stat	P-V
Block chain -> Decent work & Economic growth	0.08	1.18	0.24
Google Wallet -> Decent work & Economic growth	0.51	2.28	0.02
Internet Banking -> Decent work & Economic growth	0.37	1.36	0.17
Mobile Money -> Decent work & Economic growth	-0.07	2.03	0.04
Adjusted R-Square	0.89		
Fit Summary			
	Saturated Model	Estimated Model	
SRMR	0.09	0.09	
d_ULS	2.28	2.28	
d_G	1.24	1.24	
Chi-Square	586.74	586.74	
NFI	0.75	0.75	
rms Theta	0.19		

Source: Author's computation 2025

The values of blockchain, Google Wallet, internet banking, and mobile money are 0.08, 0.51, 0.37, and -0.07 with probability values of 0.24, 0.02, 0.17, and 0.04 respectively. Blockchain, Google Wallet, and Internet banking all positively influence

decent work & economic growth. Although mobile money is inversely linked with decent work & economic growth. Google Wallet and mobile money significantly impact decent work & economic growth. The hypothesis that there is no statistically significant causal relationship between fintech and the availability of decent work is rejected. This means fintech and decent work & economic growth are statistically significant. The value of the adjusted R-square is 0.89, this indicates that the independent variables can explain the change in the dependent variable about 89%. The model is about to capture the variation in the explained variable. The remaining 11% are those factors outside the model that affect the dependent variable. Finally, the summarized fitness results show that the model has a good fit especially the result of the SRMR, NFI, and rms Theta statistics. Next, we present the output of the third equation.

Table 4.4: Test Result Two

			Coef	T-Stat	P-V
Block chain -> Industry, Innovation & Infrastructure			0.08	1.46	0.14
Google Wallet -> Industry, Innovation & Infrastructure			0.43	2.01	0.04
Internet Banking -> Industry, Innovation & Infrastructure			0.46	1.80	0.07
Mobile Money -> Industry, Innovation & Infrastructure			-0.01	0.36	0.72
Adjusted R-Square		0.89			
Fit Summary					
	Saturated Model	Estimated Model			
SRMR	0.09	0.09			
d_ULS	2.24	2.24			
d_G	1.33	1.33			
Chi-Square	615.13	615.13			
NFI	0.73	0.73			
rms Theta	0.19				

Source: Author's computation 2025

The result shows that blockchain, google wallet, and Internet banking have a positive impact on the fourth sustainability indicator (Industry, Innovation & Infrastructure). Google wallet and Internet banking are significantly associated with Industry, Innovation & Infrastructure. However, the interaction between mobile money and Industry, Innovation & Infrastructure is negative and insignificant. Google wallet and Internet banking are significantly related to Industry, Innovation & Infrastructure. The adjusted R-square is 0.89 suggesting that the explanatory variable explained 89% variation in the explained variable. The SRMR value is both the saturated model and

estimated model yield the same value. This is an indication that the model has a better fit. Also, the NFI value is 0.73 close to one still pointing to the fact that the model has a good fit. The rms Theta value is below 0.20 implying there is no issue with the residuals. Considering these results, it is clear that fintech has a significant influence on sustainability development. The subsequent results presented below reveal how different sets of government regulations influence these fintech products.

4.4 Discussion of Findings

Fintech can contribute to SDG8 by enabling digital payments, remittances, and quick access to finance. By implication, fintech supports SMEs by providing them with finance, enhancing their cash flow management, and reducing transaction costs (UNDP, 2019). New jobs are also created in the financial sector as a result of the increase in fintech adoption most especially in the areas of digital banking and payment systems. According to a report by the International Fund for Agricultural Development (IFAD) (2019), fintech can help raise the volume and reduce the cost of remittances, which can lead to poverty reduction and economic growth. Finally, this study finds out that fintech can help boost innovation.

5.1 Recommendations

Fintech innovations are seen to drive employment opportunities and economic growth significantly. Based on this finding, it is suggested that fintech companies should also focus on creating products/services that will directly support job creation as one of their sustainable goals. They can create platforms for micro, small and medium business financing, facilitating gig work, and upskilling programs. Similarly, the government can formulate policies and create an enabling environment that will encourage entrepreneurship, increase employment opportunities and stimulate economic growth.

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