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LEVERAGING DIGITAL FINANCE FOR DRIVING SUSTAINABLE ECONOMIC GROWTH IN NIGERIA

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Abstract
This study aims to explore the Leveraging Digital Finance for Driving Sustainable Economic Growth in Nigeria. This research explores the significance of digital finance and its potential impact on Nigeria's economy. It aims to assess how digital finance influences economic growth, financial inclusion, and stability. Using a positivist approach, the study involved 384 participants, with data analyzed through regression analysis to identify the relationships between digital finance and key economic outcomes. The study also tested three null hypotheses, all of which were rejected, confirming strong connections between digital finance and sustainable development indicators. The Technology Acceptance Model (TAM) formed the theoretical foundation, offering insights into how users accept and adopt digital finance solutions. Additionally, the Capability Approach Theory was used to examine how digital finance can enhance individual capabilities and overall well-being. Ultimately, the research highlights the role of digital finance in fostering sustainable development in Nigeria and provides valuable recommendations for policymakers, financial institutions, and other stakeholders. The study advocates for greater adoption of digital finance to promote economic growth, financial inclusion, and stability in the country.

Keywords: Digital Finance, Economic Growth, Financial Inclusion

Introduction

The convergence of digital finance and sustainable development in Nigeria presents a transformative opportunity to reshape the nation's economy, addressing long-standing issues such as financial inclusion, economic growth, and environmental sustainability. As the world enters the digital age, the digital revolution has emerged as a crucial driver of economic transformation. This technological shift provides unprecedented opportunities to tackle challenges related to accessibility, efficiency, and transparency within Nigeria's financial sector. Positioned at a critical juncture, Nigeria has the potential to harness digital finance as a key instrument in achieving its sustainable development goals (Dang et al, 2024).

Emerging research highlights the significant role that digital finance plays in advancing the achievement of the United Nations' Sustainable Development Goals (SDGs) in Nigeria. Studies by Adebisi et al. (2023) and Gbegi (2023) demonstrate how digital financial services can not only increase financial inclusion by reaching underserved populations but also drive economic empowerment, reduce poverty, and create an environment conducive to sustainable growth. Additionally, the integration of digital finance into Nigeria's economic systems is increasingly seen as a strategic means of mobilizing resources for sustainable development projects, strengthening the country's resilience against economic volatility and environmental challenges (Obasi, 2024).

Sustainable development has emerged as a cornerstone concept for global economic, social, and environmental policymaking. First defined by the Brundtland Commission (1987) as development that meets present needs without compromising future generations' ability to meet theirs, the concept has evolved to address complex

challenges including climate change, economic inequality, and social injustice. Contemporary perspectives emphasize a balance among economic growth, social inclusion, and environmental protection, particularly in the context of developing countries such as Nigeria (Adebayo & Chinedu, 2023; Smith & Thomas, 2022).

Globally, the United Nations Sustainable Development Goals (SDGs) continue to provide a comprehensive framework for achieving sustainability by 2030. Key initiatives include reducing carbon emissions, expanding renewable energy adoption, and enhancing access to quality education and healthcare (United Nations, 2022; Johnson, 2023). However, recent global progress reports suggest that efforts must accelerate to meet these targets (World Bank, 2022). In Africa, sustainable development faces unique challenges such as limited infrastructure, political instability, and vulnerability to climate change. At the same time, the continent possesses significant opportunities, including abundant renewable energy resources and a young, growing population. Initiatives such as the African Union's Agenda 2063 seek to leverage these opportunities for inclusive and sustainable growth (African Union, 2022).

In Nigeria, Africa's largest economy, sustainable development efforts focus on areas such as energy transition, technology-driven agriculture, and the digital economy. Despite persistent challenges including environmental degradation and oil dependency, the country has made strides in solar energy adoption, climate-smart agriculture, and technology-enabled service delivery (Okeke & Ibe, 2024). Achieving sustainable development in Nigeria requires addressing the interlinked challenges of funding gaps, technological disparities, and governance issues, while fostering innovation, equity, and environmental stewardship (Kumar & Singh, 2023; Nguyen & Tran, 2024).

Digital finance comprising mobile money, online banking, fintech solutions, and digital wallets is increasingly recognized as a transformative tool for sustainable development, particularly in developing economies (World Bank, 2022; Olanrewaju, 2023). Globally, digital finance facilitates financial inclusion, reduces transaction costs, and provides innovative solutions for poverty alleviation, access to healthcare, and education (Ahemen, 2024). The growth of the global fintech sector, supported by technology advancements and enabling regulatory frameworks, serves as a model for countries like Nigeria seeking to harness digital finance for sustainable development.

In Africa, digital financial platforms have expanded access to previously underserved populations, bridging gaps left by traditional banking systems (African Development Bank, 2023). Nigeria, with its large population, increasing mobile penetration, and supportive policies such as the National Financial Inclusion Strategy, has emerged as a leader in digital finance adoption. By enhancing access to financial services for the unbanked, digital finance stimulates entrepreneurship, increases economic participation, and supports poverty reduction (Afolabi, 2022; Eze, 2022).

Digital finance also aligns with environmental sustainability objectives. Digital transactions reduce reliance on paper-based banking systems, enabling green finance initiatives and contributing to a lower carbon footprint (Uzoma, 2024). Additionally, fintech solutions can support the efficient allocation of resources, promote renewable energy financing, and facilitate socially inclusive programs (Ade, 2020).

Despite its potential, the deployment of digital finance in Nigeria faces several challenges. These include inadequate digital literacy, infrastructural deficits, cyber security risks, and regulatory uncertainties (Ibrahim & Musa, 2022). Addressing these obstacles requires a coordinated approach involving government policies, private-sector innovation, and international partnerships (Okeke, 2022). Research underscores the need for targeted interventions to enhance user trust, ensure secure digital environments, and promote equitable access to digital financial services (Ibe, 2024).

The relationship between digital finance and sustainable development in Nigeria is multifaceted. Economically, digital finance facilitates greater financial inclusion, enabling marginalized communities to engage in productive activities and increase household income. Socially, it promotes inclusion by targeting underserved populations, including women and rural residents, thereby addressing inequalities (Nwankwo & Adeola, 2023). Environmentally, digital finance contributes to sustainability through the promotion of green finance solutions and reduction of the ecological footprint associated with traditional banking operations (Uzoma, 2024).

The growing adoption of digital finance in Nigeria presents a unique opportunity to accelerate sustainable development. By integrating technological innovation with economic and social policy, digital finance can serve as a catalyst for inclusive growth, poverty reduction, and environmentally sustainable practices. Continued empirical research, supportive policy frameworks, and robust infrastructural investments are essential to fully realize this potential (Musa et al 2025).

Digital payment systems have emerged as a critical driver of economic development in Nigeria, offering innovative ways to conduct financial transactions while promoting efficiency, transparency, and financial inclusion. Digital payment technologies including mobile wallets, online payment platforms, and electronic transfers enable secure, convenient, and cost-effective transactions, thereby reducing reliance on cash-based systems which are often associated with high transaction costs, security risks, and inefficiencies (Ajayi, 2021; Ogunsanya, 2023).

Recent years have witnessed a substantial increase in the adoption of digital payment systems in Nigeria, driven by initiatives from the Central Bank of Nigeria, such as the promotion of cashless transactions and digital financial inclusion programs (CBN, 2024). These efforts aim to provide formal financial access to underserved populations, empowering individuals and businesses to participate more fully in economic activities (Green & Patel, 2022). Digital payments also facilitate transparency in transactions, reduce informal economic activities, and enhance accountability, all of which contribute to sustainable economic growth (Ogunsanya, 2023).

Policymakers, financial institutions, and technology providers should collaborate to expand digital payment infrastructure, enhance digital literacy, and establish consumer protection mechanisms to maximize the benefits of digital payment adoption (Ajayi, 2021; Green & Patel, 2022). Despite progress, challenges such as limited internet access, inadequate digital literacy, and cyber security risks hinder widespread adoption. Investments in digital infrastructure, targeted training programs, and robust cyber security frameworks can improve adoption rates and optimize the

contribution of digital payments to sustainable development.

Digital banking services provide individuals and businesses with the ability to access and manage their finances remotely via mobile apps, online platforms, and digital wallets. Services include account management, funds transfer, loans, and investments, providing convenience and enhancing financial inclusion (Okoye & Nwosu, 2022; Adeyemi & Ogunnaike, 2021). In Nigeria, the adoption of digital banking has accelerated, with fintech firms and traditional banks offering innovative platforms such as mobile banking, internet banking, and digital wallets. These platforms allow users to perform transactions securely and efficiently, even in remote areas, thereby reducing barriers to financial access and supporting underserved communities (Okoye & Nwosu, 2022).

Digital banking enhances economic participation, promotes financial literacy, and supports entrepreneurship, all of which are critical components of sustainable economic development (Green & Patel, 2022). Policymakers, regulators, and financial institutions should foster an enabling environment for digital banking through regulatory support, consumer education, and investment in digital infrastructure to maximize economic impact. Limited penetration of digital banking in rural areas and insufficient financial literacy among users remain significant challenges. Implement community-level financial education programs, expand mobile banking infrastructure, and incentivize banks to serve rural populations.

Financial Technology (Fintech) and Sustainable Economic Development

Fintech represents the innovative use of technology to deliver financial services and includes applications such as blockchain, artificial intelligence, robo-advisors, peer-to-peer lending, crowd funding, and insurtech (Aremu & Adeyemi, 2022; Olaniyan & Lawal, 2021). By transforming traditional financial services, fintech enhances efficiency, reduces transaction costs, promotes transparency, and expands access to credit for underserved populations.

Nigeria has experienced rapid growth in fintech adoption between 2020 and 2024, with numerous startups offering innovative solutions that improve financial inclusion and stimulate economic activity. Fintech solutions facilitate secure, cost-effective financial transactions, enable entrepreneurship, and foster innovation across multiple sectors of the economy (Aremu & Adeyemi, 2022). Moreover, the integration of fintech into Nigeria's financial ecosystem contributes to sustainable economic development by providing financial access to previously excluded communities and supporting small and medium-sized enterprises (SMEs) (Olaniyan & Lawal, 2021). Stakeholders, including government, regulators, and private fintech operators, should collaborate to create a supportive policy and regulatory environment, encourage innovation, and provide capacity-building programs to maximize the economic and social benefits of fintech adoption. Despite the growth of fintech, challenges such as regulatory uncertainty, cyber security threats, and digital literacy gaps continue to constrain its full potential.

Strengthening regulatory frameworks, enhancing cyber security protocols, and implementing targeted digital literacy programs will help unlock the full potential of fintech for sustainable economic development in Nigeria. Digital payments,

digital banking, and fintech collectively constitute the pillars of digital finance that can significantly contribute to sustainable economic development in Nigeria. By promoting financial inclusion, enhancing transparency, reducing transaction costs, and facilitating access to credit, these digital financial innovations provide a pathway to inclusive, resilient, and sustainable economic growth. Continued research, supportive policy interventions, and strategic investment in infrastructure and capacity-building are essential to fully leverage digital finance for the country's sustainable development objectives.

Echu et al. (2024) examines the effect of Unlocking the Potential of Digital Finance for Sustainable Development in Nigeria's Economy. A positivist approach utilizing a sample size of 384 participants. Data analysis was conducted using regression analysis to examine the relationships between digital finance and sustainable development indicators. The findings show that Significant associations between digital finance adoption and sustainable development outcomes, including economic growth, financial inclusion, and financial stability. The study recommends that government can promote the adoption and utilization of digital finance to drive sustainable economic growth, financial inclusion, and stability in Nigeria. Limited understanding of the extent to which digital financial services can address the multifaceted challenges of economic inclusivity, growth, and environmental sustainability. Conduct further empirical research to explore the intricate dynamics between digital finance and sustainable development outcomes, identifying opportunities, challenges, and strategic pathways for Nigeria.

Madugbe et al. (2025) examines the Impact of Fintech-Driven Financial Inclusion on Economic Growth in Nigeria. The study Utilized quarterly time series data from Q1 2011 to Q4 2023, employing the Autoregressive Distributed Lag (ARDL) model to capture both short-run and long-run effects of financial inclusion on real GDP per capita. The findings show that Financial inclusion driven by fintech positively impacts economic growth in Nigeria. The study recommends that Enhance fintech-driven financial inclusion initiatives to stimulate economic growth, focusing on underserved populations. Inconsistent results in previous studies regarding the effect of fintech on economic development. Conduct experimental investigations to assess the impact of fintech on Nigeria's economy, addressing inconsistencies in existing literatureOzili (2025) examines the effect of Sustainable Digital Finance: Where We Are Now and Where We Need to Be. Theoretical analysis identifying characteristics of the emerging sustainable digital finance sector and forecasting future developments. The findings show that Emergence of digitalization policies, digital finance policies, sustainability and climate change policies; low interest in sustainable digital finance; rise of green washing by digital finance providers; growing public interest in sustainable digital finance information. The study recommends that Develop environmental, social, and governance (ESG)-compliant digital finance laws and regulations; establish a sustainable digital finance sandbox to develop sustainability-oriented digital financial services; create international standards for sustainable digital finance. Lack of comprehensive ESG-compliant regulations and standards for sustainable digital finance. Collaborate with stakeholders to develop and implement ESG-compliant regulations and standards for sustainable digital finance. Oluwaseye et al. (2025) examines the effect of Fintech Innovations, Regulations, and Sustainable Development in Nigeria. Primary data collection through

questionnaires administered to Fintech operators in Nigeria, with data analysis using structural equation modeling. The findings Fintech has a potential contribution to Sustainable Development Goal 4 (quality education) by providing financial services that support education and training; regulations help enhance fintech products. The study recommends that Government and fintech firms should focus on low-income earners and underserved populations to provide micro-loans, insurance products, and saving tools; empower citizens through various entrepreneurial programs. Limited focus on low-income earners and underserved populations in fintech initiatives. Develop targeted fintech products and services for low-income earners and underserved populations, supported by appropriate regulations and policies.

Chimezie et al. (2025) examines the impact of Financial Innovation on Sustainable Development in Nigeria" Utilized annual time series data from the World Bank Development Indicator covering 1990 to 2021, employing the ARDL approach and the Vector Error Correction Model for data analysis. The findings show that financial innovations in the financial sector positively and significantly impacted sustainable development in Nigeria; financial innovations in the monetary sector and per capita income exerted a negative impact on sustainable development. The study recommends Enhance financial education using social media and radio to improve financial inclusion; ensure that loans are available at reasonable interest rates. Negative impact of financial innovations in the monetary sector and per capita income on sustainable development. Implement policies that promote positive financial innovations in the monetary sector and address factors negatively affecting per capita income to enhance sustainable development

To explore the role of digital finance in advancing sustainable development in Nigeria's economy, this study employs a nuanced theoretical framework that integrates the Technology Acceptance Model (TAM) and the Capability Approach. Both theories offer valuable insights into the adoption and impact of digital financial services, with TAM focusing on user acceptance of technology and the Capability Approach emphasizing human empowerment and development.

The Technology Acceptance Model (TAM), developed by Fred Davis in 1989, is a key theory in understanding how individuals come to accept and use new technologies. TAM posits that the likelihood of technology adoption is primarily influenced by two factors, perceived usefulness and perceived ease of use. Users are more likely to embrace new technology if they believe it will enhance their job performance and if they perceive it as easy to use.

However, while TAM has been instrumental in technology adoption studies, it does have limitations. For instance, it assumes a rational, linear decision-making process, which may not fully account for the complex, iterative nature of technology adoption. Additionally, TAM tends to overlook the social, cultural, and emotional factors that influence technology adoption, which are particularly relevant in diverse and developing markets like Nigeria (Venkatesh et al., 2003).

Despite these limitations, TAM remains highly relevant in the Nigerian context, particularly in the digital finance landscape. Understanding the perceived usefulness and ease of use of digital financial services is crucial for policymakers and service providers to design solutions that resonate with users. This understanding can drive

financial inclusion and, consequently, contribute to sustainable economic development by making digital finance more accessible and effective for the Nigerian population (Adebisi et al., 2023; Okoye & Eze, 2023).

The Capability Approach, first proposed by Amartya Sen and further developed by Martha Nussbaum, serves as a complementary theory in this framework. This approach focuses on individuals' ability to convert resources into meaningful achievements. It assumes that development should be measured by the real freedom individuals have to pursue the outcomes they value, rather than simply by economic growth or resource accumulation. According to the Capability Approach, the success of development should be judged by whether people can live lives they have reason to value (Sen, 1999).

One key limitation of the Capability Approach is that it does not provide specific guidance on how to implement policies effectively. The theory also requires comprehensive data to assess individuals' capabilities, which can be challenging to collect, especially in a complex environment like Nigeria (Nussbaum, 2011). In the context of digital finance, the Capability Approach offers a powerful lens for understanding how access to financial services can empower individuals. By enabling access to banking, credit, insurance, and other financial tools, digital finance can expand economic and social opportunities for Nigerians, thereby enhancing their capabilities to pursue their desired goals. This approach aligns with the idea that sustainable development is not only about economic growth but also about improving individuals' well-being and freedom to make choices (Chukwuemeka & Okeke, 2024).

The integration of TAM and the Capability Approach provides a comprehensive framework for understanding digital finance in the context of sustainable development. TAM helps to explain the technological and behavioral factors that influence the adoption of digital finance, emphasizing how perceptions of usefulness and ease of use affect user behavior. On the other hand, the Capability Approach broadens the perspective by emphasizing the role of digital finance in enhancing human capabilities and fostering economic opportunities, which are crucial for long-term development (Sen, 1999). This integrated approach highlights the need for digital finance solutions in Nigeria to be not only accessible and user-friendly but also empowering. The success of digital finance in driving sustainable development requires that these services meet the real needs of users and provide opportunities for personal empowerment and socio-economic mobility. By addressing the assumptions and limitations of both TAM and the Capability Approach, this framework can inform the design of more inclusive, effective, and sustainable digital finance strategies that contribute to Nigeria's development goals (Authors' perceptions of theories integration, 2024).

Combining the insights of both theories, this study underscores the importance of designing digital financial services that are both widely accepted by users and capable of expanding their opportunities for economic participation and social advancement. Through such an approach, digital finance can play a pivotal role in advancing Nigeria's sustainable development objectives, ultimately contributing to an inclusive and resilient economy

Statement of the Problem

The rapid expansion of digital banking, mobile money services, and fintech

innovations in Nigeria has played a pivotal role in bridging the divide between traditional banking and the digital economy. These innovations facilitate more efficient financial transactions and support inclusive economic growth (Idris et al., 2022). This digital transition not only enhances economic diversification but also promotes environmentally sustainable practices by reducing the carbon footprint associated with conventional banking operations and supporting green finance initiatives.

However, despite these advancements, Nigeria's journey toward fully leveraging digital finance for sustainable development faces significant hurdles, including regulatory barriers, cyber security concerns, and the lack of digital literacy and infrastructure development (Abdul et al, 2024). Overcoming these challenges requires a concerted effort from the government, private sector, and international partners to create an environment conducive to innovation, equitable access to digital financial services, and alignment with sustainability principles.

Understanding the intersection between digital finance and sustainable development in Nigeria goes beyond examining the digitalization of financial services. It involves envisioning a future where digital finance becomes a cornerstone for sustainable economic growth, leading Nigeria toward a more inclusive, resilient, and environmentally sustainable future (Benjamine, 2020). The ongoing academic dialogue and empirical research in this field are vital in guiding policymakers, industry stakeholders, and practitioners as they navigate the complexities of this transformative journey.

Globally, the integration of digital technologies into financial services has emerged as a powerful force driving economic transformation and creating pathways toward sustainable development (Moses et al et al., 2025). This is particularly relevant for emerging economies like Nigeria, where digital finance offers a promising solution to overcome traditional barriers to financial inclusion, stimulate economic growth, and address critical sustainability challenges. Despite Nigeria's vast resources and large population, the country faces pressing issues such as financial exclusion, poverty, and environmental degradation (Ibrahim et al, 2025). Digital finance presents a compelling opportunity to mitigate these issues and foster sustainable economic growth.

Recent literature highlights the transformative impact of digital financial services in increasing access to finance, especially for underserved communities, which contributes to poverty reduction and economic empowerment (Adebisi et al., 2023). Additionally, the role of digital finance in promoting environmental sustainability through green finance initiatives and reducing the carbon footprint of traditional banking practices has gained significant attention (Blessing et al, 2025). However, despite the promising potential of digital finance in Nigeria, there remains a need to address challenges such as regulatory constraints, cyber security risks, and infrastructure gaps (Karimu et al, 2025).

The complexity of the relationship between digital finance and sustainable development outcomes necessitates a thorough exploration to understand the opportunities, challenges, and strategies that can optimize the impact of digital finance in Nigeria (Musa et al, 2024). The central research question guiding this study is: *How can digital finance be effectively harnessed to promote sustainable development in*

Nigeria's economy, considering both the opportunities and challenges within the digital financial ecosystem?

The primary objective of this research is to explore the relationship between digital finance and sustainable development in Nigeria. This includes analyzing the impact of digital financial services on economic inclusivity, growth, and environmental sustainability, identifying barriers to effective integration of digital finance into sustainable development efforts, and proposing strategic recommendations to maximize the contribution of digital finance to Nigeria's sustainable development goals.

By addressing this research question, the study aims to contribute to the scholarly conversation on digital finance and sustainable development, offering practical insights for policymakers, financial institutions, and stakeholders in Nigeria's digital financial ecosystem. The increasing importance of digital finance in the global economy and the urgent need for sustainable development solutions in Nigeria and beyond make this exploration timely and relevant (Idris et al., 2022).

Unlocking the potential of digital finance for sustainable development presents a critical opportunity to transform Nigeria's economy. Situated at the intersection of technological innovation and economic sustainability, this exploration holds significant promise in reshaping the nation's financial landscape. As Nigeria stands on the brink of this transformative journey, integrating digital finance into its economic framework offers both unique opportunities and challenges. The following research questions were raised to be answered:

1 What is the relationship between the adoption of digital payment systems and sustainable economic development in Nigeria?
2 How does the adoption of digital banking services influence sustainable economic development in Nigeria?
3 What impact does the adoption of fintech solutions have on sustainable economic development in Nigeria?

The main objective of the research paper is to Leveraging Digital Finance for Driving Sustainable Economic Growth in Nigeria while the specific objectives are to:

1 Examine the relationship between the adoption of digital payment systems and sustainable economic development in Nigeria.
2 Assess the influence of digital banking services adoption on sustainable economic development in Nigeria.
3 Investigate the impact of fintech solutions adoption on sustainable economic development in Nigeria.
4 The following null hypothesis has been formulated for test:

Ho_1: There is no significant relationship between the adoption of digital payment systems and sustainable economic development in Nigeria.

Ho_2: The adoption of digital banking services does not significantly influence sustainable economic development in Nigeria.

Ho_3: The adoption of fintech solutions does not significantly influence sustainable economic development in Nigeria

Methodology

This study adopted a positivist research philosophy and a quantitative research

approach to empirically test theoretical propositions regarding the relationship between digital finance and sustainable economic development. The choice of positivism is justified as it allows for the collection of measurable, objective data that can validate theoretical assertions through statistical analysis. A quantitative approach was deemed appropriate to quantify perceptions, behaviors, and relationships among variables and to provide generalizable findings. The target population for this study comprised bank staff, bank customers, small and medium-sized enterprise (SME) owners, and financial analysts in Jos, Nigeria. This population was selected because these groups are directly engaged with digital financial services and can provide informed insights into their adoption and impact on sustainable economic development. A self-administered questionnaire was used to collect primary data.

The questionnaire employed a five-point Likert scale, ranging from "Strongly Agree" (1) to "Strongly Disagree" (5), to measure respondents' perceptions and attitudes toward digital finance practices. This scale was selected for its simplicity, reliability, and ability to capture variations in attitudes and opinions quantitatively. A total of 400 questionnaires were distributed, of which 384 were completed and returned, representing the final sample size. This sample size was calculated using the infinite population formula to ensure statistical precision at a 95% confidence level, as recommended by Kothari (2004). Both descriptive and inferential statistical techniques were employed to analyze the data. Descriptive statistics summarized the demographic characteristics of respondents and provided an overview of responses across survey items. Inferential statistics, specifically multiple regression analysis, were used to test the study hypotheses and determine the variance in sustainable economic development explained by the dimensions of digital finance, namely: digital banking, digital payments, and financial technology (fintech). Additionally, the reliability and validity of the survey instrument were assessed to ensure internal consistency and measurement accuracy of the constructs. Reliability was evaluated using Cronbach's alpha, while construct validity was assessed through expert reviews and pre-testing. Finally, Analysis of Variance (ANOVA) was applied to explore the strength and significance of the relationships between independent and dependent variables, providing detailed insights into the impact of digital finance on sustainable economic development.

Results

A total of 384 questionnaires were properly filled and retrieved for this study (the collected questionnaires showed a 96% response rate). The questionnaires were coded, analysed and tested for reliability and validity of instrument. The Cronbach Alpha test was used to check for the reliability of the questionnaire. A value of 0.80 showed that the instrument is reliable and good for further analyses. The Cronbach Alpha for constructs/variables of the study are all above the value of 0.80.

Table 1: The Model Summary indicates that the regression model used to predict Sustainable Economic Development (SED) from Digital Payment, Digital Banking, and Financing Technology

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.970[a]	.940	.940	.90536	.871

a. Predictors: (Constant), Financing Technology, Digital Banking, Digital Payment

b. Dependent Variable: Sustainable Economic Development

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4897.009	3	1632.336	1991.420	.000[b]
	Residual	311.480	380	.820		
	Total	5208.490	383			

a. Dependent Variable: Sustainable Economic Development

b. Predictors: (Constant), Financing Technology, Digital Banking, Digital Payment

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.629	.251		2.503	.003
	Digital payment	.993	.046	.839	21.528	.000
	Digital banking	.063	.032	.041	1.989	.027
	Financing technology	.135	.042	.106	3.227	.001

a. Dependent Variable: Sustainable Economic Development

From Table 1: The Model Summary indicates that the regression model used to predict Sustainable Economic Development (SED) from Digital Payment, Digital Banking, and Financing Technology is very strong. The R value of 0.970 shows a very high positive correlation between the combined independent variables and sustainable economic development. The R^2 value of 0.940 means that 94% of the variance in sustainable economic development can be explained by the three predictors in the model. The adjusted R^2 (0.940) confirms that the model remains robust after adjusting for the number of predictors. The standard error of estimate (0.90536) indicates that the predicted values of sustainable economic development deviate, on average, by approximately 0.91 units from the observed values. The Durbin-Watson statistic (0.871) suggests some positive autocorrelation, which is below the ideal range of 1.5–2.5 and may need further attention.

The ANOVA table tests the overall significance of the regression model. The

F-value of 1991.420 with a p-value of 0.000 indicates that the regression model is statistically significant at the 1% level. This means that collectively, Digital Payment, Digital Banking, and Financing Technology significantly predict sustainable economic development in Nigeria. The high F-value also reflects the strong explanatory power of the model.

The Coefficients table shows the individual contribution of each predictor: Digital Payment (B = 0.993, β = 0.839, p < 0.001). This variable has the largest standardized beta coefficient, indicating it is the strongest predictor of sustainable economic development. A unit increase in digital payment adoption is associated with nearly a 0.993-unit increase in sustainable economic development. Digital Banking (B = 0.063, β = 0.041, p = 0.027). Digital banking also positively influences sustainable development, although its effect is smaller relative to digital payments. The relationship is statistically significant at the 5% level. Financing Technology (B = 0.135, β = 0.106, p = 0.001). Financing technology positively contributes to sustainable development and is statistically significant. While its impact is smaller than digital payment, it still plays a meaningful role. Constant (B = 0.629, p = 0.003). Represents the baseline value of sustainable economic development when all independent variables are zero.

Discussion of Findings

The results of this study demonstrate a robust and statistically significant relationship between digital finance (specifically Digital Payment, Digital Banking, and Financing Technology) and Sustainable Economic Development (SED) in Nigeria. The high R^2 value of 0.940 indicates that 94% of the variance in sustainable economic development can be explained by the three dimensions of digital finance. This suggests that the integration of digital finance into the economic landscape of Nigeria plays a pivotal role in driving sustainable development by improving financial access, reducing transaction costs, and promoting economic inclusivity.

Digital Payments, with the highest standardized beta coefficient (β = 0.839), emerge as the strongest predictor of sustainable economic development in Nigeria. The positive relationship is consistent with prior studies that emphasize how digital payments facilitate efficient financial transactions, reduce reliance on cash, and lower the barriers for economic participation (Green & Patel, 2022; Adebisi et al., 2023). This finding supports the assertion that digital payments are crucial for improving financial inclusion and stimulating economic growth, particularly in underserved regions where access to formal financial services is limited (Ogunsanya, 2023).

Digital Banking also contributes positively to sustainable economic development, although its effect is relatively smaller than digital payments (B = 0.063, β = 0.041). This finding aligns with the work of Okoye & Nwosu (2022), who argue that digital banking services enhance access to banking, loans, and investments, especially in rural and remote areas of Nigeria. However, the smaller coefficient suggests that while digital banking is important, it may not have as immediate or widespread an impact as digital payments. One reason for this could be Nigeria's ongoing challenges with internet connectivity and digital literacy, which may limit the full potential of digital banking services, particularly in rural communities (Ibrahim & Musa, 2022).

Financing Technology, with a standardized beta of $\beta = 0.106$, also plays a significant role in driving sustainable economic development. This supports the findings of Aremu & Adeyemi (2022), who noted that fintech innovations, including blockchain, peer-to-peer lending, and mobile-based financial solutions, are transforming Nigeria's financial ecosystem by providing more efficient access to capital and credit, particularly for small businesses and underserved populations. This contribution of fintech to financial inclusion is particularly important in promoting entrepreneurship and innovation, which are key drivers of long-term economic growth.

However, despite these positive findings, the Durbin-Watson statistic (0.871) suggests some degree of positive autocorrelation in the residuals, which may indicate that the model's assumptions about independence of errors are somewhat violated. This could imply that other factors influencing sustainable economic development in Nigeria, such as infrastructure development, government policies, or external economic shocks, were not fully captured by the model. Future research could address this by incorporating additional variables such as political stability, infrastructure development, and global economic trends.

These findings are largely consistent with the work of Ajayi (2021), who identified the pivotal role of digital payment systems in enhancing financial inclusion and driving economic growth in Nigeria. Ajayi's research found that the adoption of digital payment systems contributed to a reduction in transaction costs and promoted greater transparency in financial operations, aligning with the significant impact observed in this study.

On the other hand, some studies show more nuanced views. For instance, Ibrahim & Musa (2022) found that while digital banking and payments have positive effects on economic growth, challenges such as cybersecurity risks and low digital literacy limit their effectiveness in rural areas. This aligns with the smaller impact of digital banking in our study, highlighting that while the infrastructure exists, it may not be fully utilized due to barriers in accessibility and security.

In contrast, Chukwuemeka & Okeke (2024) argue that digital payments are less impactful on Nigeria's sustainable economic development when compared to other development factors such as political stability and social infrastructure. They suggest that the enthusiasm for digital finance overlooks deeper issues like poor regulatory frameworks and inadequate infrastructure that hamper the potential of digital finance. While our study acknowledges these limitations, the strong impact of digital payments in this research suggests that digital finance is a key enabler for sustainable development, even though it requires complementary efforts in infrastructure and regulation.

Moreover, the World Bank (2022) report on digital finance in emerging economies emphasizes the need for comprehensive policy frameworks to ensure that digital payment systems do not disproportionately benefit the already financially included, further highlighting the importance of creating an equitable environment for digital finance adoption, especially in underserved populations. This aligns with the findings of this study, which underscore the potential of digital payments to reduce transaction costs and enhance financial inclusion, but also points out that broader systemic challenges must be addressed

Conclusion

This study provides strong evidence of the positive relationship between digital finance and sustainable economic development in Nigeria. The findings demonstrate that digital payments, digital banking, and financing technology each contribute significantly to enhancing financial inclusion, reducing transaction costs, and promoting economic growth. Among these, digital payments were identified as the most influential factor, followed by financing technology and digital banking, which also play important roles in fostering sustainable development.

The results of this research align with existing literature that highlights the transformative potential of digital finance in driving economic and social development. However, the study also points out that despite the high impact of digital finance, challenges such as cyber security risks, low digital literacy, and infrastructure deficits need to be addressed to fully realize its potential. These limitations underline the importance of creating a robust environment for digital finance, including enhanced regulatory frameworks and policies to support innovation while ensuring protection for consumers.

Recommendations

The Following recommendations were made

i. To maximize the impact of digital finance on sustainable economic development, there is a need for significant investment in digital infrastructure, particularly in underserved and rural areas. Expanding internet connectivity, improving mobile network coverage, and ensuring reliable electricity supply are crucial for the successful adoption of digital finance solutions across the country.

ii. The increasing reliance on digital financial services calls for robust cyber security frameworks. Policymakers and financial institutions should prioritize the development of secure platforms to protect users' financial data and transactions. This will build trust among consumers and mitigate potential risks associated with cybercrime.

iii. Digital literacy and financial education are essential to empower Nigerians to fully participate in the digital economy. Targeted programs should be developed to increase awareness and skills among the population, particularly in rural areas. Financial institutions, government agencies, and educational institutions should collaborate to provide training on the use of digital financial services.

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