



THE NEXUS OF BEHAVIOURAL ECONOMICS, DIGITAL FINANCE AND SUSTAINABLE DEVELOPMENT: A MACROECONOMIC FRAMEWORK FOR NATIONAL GROWTH

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Abstract

This study examines the nexus between behavioural economics, digital finance, and sustainable development within a macroeconomic framework for national growth in Nigeria. The study is motivated by the growing transformation of Nigeria's financial system driven by fintech innovations, mobile banking, electronic payment systems, and digital financial inclusion initiatives, alongside persistent challenges of poverty, financial exclusion, and uneven economic development. It investigates how behavioural factors such as financial literacy, trust, risk perception, and cognitive biases influence the adoption and use of digital financial services, and how this adoption subsequently impacts sustainable development outcomes, including poverty reduction, employment generation, human development, and economic stability. The study adopts an ex post facto, time-series research design using secondary data from the Central Bank of Nigeria, the National Bureau of Statistics, the World Bank, the IMF, and other relevant databases. The analytical framework is anchored on an econometric model that links behavioural economics indicators, digital finance variables, and sustainable development indicators to national economic growth. The study employs descriptive statistics, unit root tests, cointegration analysis, and the Autoregressive Distributed Lag (ARDL) model to examine both short-run and long-run relationships among the variables. Findings from the conceptual and empirical synthesis suggest that behavioural economics significantly influences digital finance adoption, while digital finance enhances financial inclusion, productivity, and entrepreneurial activities. These outcomes collectively contribute to sustainable development and long-term national growth. The study concludes that integrating behavioural insights into digital finance policies is essential for maximizing the developmental impact of financial technologies in Nigeria. It recommends strengthening financial literacy programmes, improving digital infrastructure, and enhancing regulatory frameworks to support inclusive and sustainable economic development.

Keywords: Behavioural Economics, Digital Finance, Financial Inclusion, Sustainable Development, National Growth

1.1 Introduction

The global economy is undergoing a profound transformation driven by digitalization, financial innovation, and changing behavioural patterns among economic agents. In developing countries such as Nigeria, the interaction between behavioural economics, digital finance, and

sustainable development has become increasingly important for achieving inclusive growth, poverty reduction, financial inclusion, and long-term national development. According to Ozili (2022), the increasing digitization of financial services in Nigeria has transformed how individuals and businesses access, use, and manage financial resources. He noted that digital finance has emerged as a critical instrument for expanding financial inclusion and improving economic opportunities among vulnerable populations. Iorember and Eyo (2023) asserted that integrating behavioural economics and digital finance creates new opportunities for economic empowerment, particularly for low-income households and small-scale entrepreneurs who were previously excluded from formal financial systems. Nigeria's growing digital economy, characterized by mobile banking, fintech innovations, electronic payments, digital lending platforms, and agency banking systems, has significantly altered the financial landscape. The rapid growth of fintech firms such as Flutterwave, Paystack, Moniepoint, and OPay has enhanced financial accessibility and convenience across urban and rural communities. Akinwale and Grobler (2021) observed that digital technologies are increasingly becoming major drivers of financial inclusion and economic participation in Nigeria. Likewise, Ogunode (2024) argued that the digital transformation of Nigeria's financial sector has improved access to banking services, reduced transaction costs, and promoted financial empowerment among previously underserved populations.

Ozili (2021) emphasized that financial inclusion initiatives often fail when policymakers overlook behavioural barriers such as mistrust, low financial literacy, and resistance to technological innovations. Similarly, Nwankwo and Kanu (2023) maintained that users' perceptions of security and confidence significantly influence their willingness to adopt digital financial technologies. Peterson K. Ozili (2024), a Nigerian financial economist, argued that digital finance serves as "an enabler and channel for efficient green and social financing," thereby contributing to sustainable development objectives. Similarly, Echu et al. (2024) observed that digital finance has become a strategic mechanism for promoting economic growth, financial inclusion, and sustainable development in Nigeria. Iorember, Ebeh, and Ahmed (2025) noted that digital financial innovations support sustainable development by enhancing access to credit, increasing investment opportunities, and facilitating productive economic activities. The relevance of behavioural economics stems from the fact that economic actors often make decisions influenced by cognitive biases, social influences, heuristics, and bounded rationality rather than perfect rationality. Iorember and Ozili (2024) found that economies with stronger digital financial ecosystems tend to experience higher levels of economic participation and resilience. Similarly, Adebajo et al. (2026) reported that financial inclusion significantly promotes sustainable economic development by increasing savings mobilization, expanding investment, and fostering productive economic engagement. Okonkwo and Olayemi (2025) concluded that digital finance serves as a catalyst for inclusive growth by connecting marginalized populations to economic opportunities, thereby fostering sustainable national development. Consequently, the nexus among behavioural economics, digital finance, and sustainable development represents a critical framework for understanding contemporary pathways to national growth and economic transformation in Nigeria. Behavioural economics is a multidisciplinary field that combines insights from economics and psychology to explain how individuals make economic decisions under conditions of uncertainty, limited information, cognitive limitations, and social influences.

Unlike traditional economic theories that assume perfect rationality, behavioural economics recognizes that human beings frequently rely on mental shortcuts and subjective judgments when making financial decisions. According to Ozili (2023), behavioural economics provides a more realistic explanation of economic decision-making because it acknowledges the role of emotions, social influences, and cognitive biases in shaping financial behaviour. Similarly, Adebayo and Ojo (2022) argued that behavioural economics has become increasingly relevant in Nigeria due to the growing complexity of financial products and digital technologies that require individuals to make decisions under uncertainty. Iorember and Eyo (2024) noted that many Nigerians continue to make financial decisions based on social expectations, peer influence, and perceptions of risk rather than purely economic calculations. Likewise, Nwankwo (2025) observed that behavioural biases significantly affect financial inclusion outcomes and investment decisions among low-income households. Within Nigeria's financial sector, behavioural factors influence savings decisions, mobile banking adoption, investment behaviour, financial inclusion, and digital payment usage. Adesina et al. (2023) found that trust in financial institutions remains one of the strongest predictors of digital financial service adoption in Nigeria. Furthermore, Okoye and Chukwuemeka (2024) reported that financial literacy positively influences individuals' willingness to use mobile banking and digital payment systems. Sam-Abugu *et al.* (2025) concluded that financial literacy, trust, and risk perception jointly determine the extent to which individuals adopt digital financial innovations. Similarly, Ezeh and Eke (2026) found that behavioural awareness programmes improve consumers' confidence in digital financial platforms and increase financial inclusion levels. The major dimensions of behavioural economics relevant to this study include financial literacy, trust and confidence, risk perception, decision biases, and technology acceptance. These dimensions collectively shape financial choices and influence economic outcomes at both individual and national levels.

Digital finance refers to the delivery of financial services through digital platforms, including mobile devices, internet technologies, fintech applications, electronic payment systems, and digital banking infrastructures. Digital finance encompasses mobile money services, internet banking, fintech solutions, digital lending platforms, electronic payment systems, blockchain technologies, and digital currencies. Echu *et al.* (2024) maintained that digital finance enhances accessibility, affordability, and inclusiveness while simultaneously promoting sustainable economic growth and development. Mobile banking enables individuals to conduct financial transactions through mobile devices regardless of geographical location. Akinwale (2022) observed that mobile banking has significantly expanded financial access among rural populations in Nigeria. Digital payment systems facilitate the electronic transfer of funds and reduce dependence on cash transactions. Okoye and Eze (2025) found that electronic payment platforms have improved transaction efficiency, transparency, and accountability within Nigeria's financial sector. Fintech innovation involves applying advanced technologies to deliver financial solutions. Ozili (2023) argued that fintech innovations have disrupted traditional banking models and expanded access to financial services for underserved populations. Digital credit platforms provide access to loans through online channels without requiring conventional banking procedures. Iorember et al. (2025) noted that digital lending platforms have improved access to finance for small businesses and entrepreneurs who often face challenges in obtaining traditional bank loans.

Financial inclusion technologies help expand access to financial services for underserved populations. Adebisi and Yusuf (2024) asserted that agency banking, mobile money services, and fintech applications have become important tools for reducing financial exclusion across Nigeria. Sustainable development refers to development that meets present needs without compromising the ability of future generations to meet their own needs. The concept integrates economic, social, and environmental sustainability. According to Ozili and Iorember (2024), sustainable development requires a stable and inclusive financial system capable of supporting investment, innovation, employment creation, and improvements in social welfare. Similarly, Adeleye and Ahmed (2023) argued that sustainable development involves promoting economic prosperity while ensuring environmental protection and social inclusion. In Nigeria, sustainable development objectives include poverty reduction, employment creation, financial inclusion, economic diversification, environmental sustainability, and social equity. Iorember and Ebeh (2025) emphasized that achieving these objectives requires the effective utilization of digital technologies and innovative financial systems. Digital transformation has been identified as a major catalyst for achieving the Sustainable Development Goals. Ogunode (2024) maintained that digital technologies improve governance, productivity, innovation, and access to economic opportunities, thereby accelerating sustainable development outcomes. The relationship among behavioural economics, digital finance, and sustainable development can be understood through a macroeconomic framework in which behavioural factors influence the adoption and utilization of digital financial services. The successful adoption of digital finance promotes financial inclusion, thereby contributing to sustainable development and national growth. According to Ozili (2024), behavioural characteristics such as trust, financial literacy, and risk perception determine the extent to which individuals embrace digital financial innovations. When adoption levels increase, digital finance improves access to finance, savings mobilization, investment opportunities, and entrepreneurship development. Iorember *et al.* (2025) observed that enhanced financial inclusion resulting from digital finance contributes significantly to economic growth, poverty reduction, employment generation, and social welfare improvement. Consequently, sustainable development outcomes strengthen national economic resilience, improve productivity, and support long-term economic growth. The interaction among these variables demonstrates that behavioural economics provides the behavioural foundation, digital finance serves as the enabling mechanism, and sustainable development represents the desired outcome. Together, they form a comprehensive framework for understanding how Nigeria can achieve inclusive and sustainable national growth in the digital era.

Echu *et al.* (2024) conducted an empirical investigation into the potential of digital finance as a catalyst for sustainable development in Nigeria. The study examined how digital financial innovations such as mobile banking, electronic payment systems, fintech platforms, and digital lending services contribute to economic growth and social development. Using evidence from Nigeria's rapidly expanding digital financial ecosystem, the researchers found that digital finance significantly improves financial inclusion by providing easier access to banking and financial services for previously excluded populations. The study further revealed that digital finance enhances entrepreneurial activities by facilitating access to credit, reducing transaction costs, and improving business efficiency among micro, small, and medium-scale enterprises. In addition, the

findings showed that digital finance contributes positively to economic productivity through increased efficiency in financial transactions and resource allocation. The authors concluded that fintech innovations have the potential to accelerate sustainable development in Nigeria when supported by effective regulatory frameworks, digital infrastructure, consumer protection policies, and financial literacy programmes. The study emphasized that digital finance can serve as a strategic tool for achieving inclusive economic growth and sustainable development goals. Sam-Abugu *et al.* (2025) examined the combined effects of fintech innovation and financial literacy on sustainable financial inclusion in Nigeria. The researchers recognized that the availability of digital financial technologies alone may not guarantee financial inclusion unless users possess the knowledge and confidence to use them effectively. The study employed quantitative analytical techniques to assess how financial literacy influences the adoption and utilization of fintech services among different demographic groups. The findings indicated that digital financial technologies and financial literacy jointly enhance access to financial services, particularly among underserved and rural populations. The authors observed that individuals with higher levels of financial literacy were more likely to adopt mobile banking, digital payment platforms, and online savings products. The study further established that financial literacy improves trust in digital financial systems and reduces fears associated with electronic transactions. The researchers concluded that policymakers should integrate financial literacy programmes into Nigeria's digital financial inclusion strategy to maximize the developmental benefits of fintech innovations.

Adebanjo *et al.* (2026) investigated the relationship between financial inclusion and the macroeconomic drivers of sustainable development in Nigeria using Autoregressive Distributed Lag (ARDL) and Structural Vector Autoregressive (SVAR) models. The study sought to determine whether increased access to financial services contributes to sustainable economic growth and development outcomes. The empirical results demonstrated that financial inclusion exerts a significant positive influence on sustainable development by increasing investment, mobilizing savings, fostering entrepreneurship, and broadening economic participation. The study revealed that access to formal financial services enables households and businesses to accumulate capital, manage risks, and invest in productive activities. The authors further observed that financial inclusion contributes to poverty reduction, employment generation, and income improvement. Consequently, the study concluded that expanding financial inclusion should remain a central component of Nigeria's sustainable development strategy because it promotes inclusive growth and long-term economic stability. Okadi *et al.* (2026) examined the role of digital financial services in enhancing climate resilience within Nigeria's agricultural sector. Recognizing that agriculture remains highly vulnerable to climate-related shocks such as floods, droughts, and changing weather patterns, the study explored how digital finance can strengthen farmers' adaptive capacities. The findings revealed that digital financial services improve resilience among smallholder farmers by expanding access to credit, agricultural insurance, mobile payment systems, and savings opportunities. The study demonstrated that farmers who utilize digital financial services are better positioned to invest in climate-smart agricultural practices and recover from environmental shocks. The researchers concluded that digital finance is a critical tool for promoting agricultural sustainability and strengthening climate resilience in rural communities.

The study recommended greater investment in digital infrastructure and financial technologies targeting agricultural stakeholders.

The study examined how financial sector stability influences investment, employment, income generation, and social welfare outcomes. The findings revealed that financial stability serves as a foundation for sustainable development because it promotes investor confidence, encourages long-term investments, and facilitates efficient allocation of financial resources. The authors found that economies characterized by stable financial systems are more likely to achieve higher levels of economic growth, employment creation, and social development. The study concluded that policymakers should prioritize financial sector stability as a prerequisite for sustainable national development and long-term economic resilience. Additional empirical evidence was provided by Ozili (2023), who examined the contribution of digital financial inclusion to economic development in Nigeria. The study found that digital financial services significantly reduce barriers to financial access and promote participation in economic activities among marginalized populations. Similarly, Iorember, Ebeh, and Ahmed (2025) reported that digital finance contributes positively to sustainable development by improving access to credit, stimulating entrepreneurship, and enhancing economic resilience. Furthermore, Adebisi and Yusuf (2024) found that agency banking and mobile money services significantly increase financial inclusion levels in rural Nigeria, thereby contributing to poverty reduction and economic empowerment.

The Behavioural Economics Theory was developed primarily through the pioneering works of Daniel Kahneman and Amos Tversky (1979). The theory emerged as a response to the limitations of traditional economic theories that assume individuals always make rational decisions aimed at maximizing utility. Behavioural economists argue that real-world decision-making is often influenced by psychological, emotional, social, and cognitive factors, leading individuals to deviate from purely rational behaviour. The central assumption of the theory is that economic choices are frequently influenced by emotions, biases, social pressures, cognitive limitations, and subjective perceptions rather than objective calculations alone. Individuals often rely on mental shortcuts, or heuristics, when making decisions under uncertainty. These heuristics may lead to systematic biases such as loss aversion, overconfidence, anchoring, framing effects, and present bias. According to Ozili (2023), behavioural economics provides a realistic explanation of financial behaviour because individuals do not always evaluate risks and rewards objectively. He argued that trust, emotions, and perceptions significantly influence financial decision-making processes. Similarly, Adebayo and Ojo (2022) observed that many financial decisions in Nigeria are shaped by social influences, cultural expectations, and psychological factors rather than strict economic rationality. The relevance of Behavioural Economics Theory to this study lies in its ability to explain why individuals may adopt or reject digital financial services despite their potential economic benefits. According to Nwankwo and Kanu (2023), perceived risks, trust deficits, and behavioural biases often discourage individuals from embracing digital financial technologies. Likewise, Iorember and Eyo (2024) argued that behavioural factors significantly determine technology adoption behaviour, saving habits, borrowing decisions, investment choices, and financial participation. The theory provides valuable insights into technology adoption

behaviour, saving behaviour, financial literacy, investment decisions, risk perception, and financial decision-making. It therefore offers an appropriate theoretical foundation for understanding the behavioural mechanisms that influence digital finance adoption and sustainable development outcomes in Nigeria. The Technology Acceptance Model (TAM) was developed by Fred Davis (1989) to explain how individuals accept and use new technologies. The model proposes that technology adoption is primarily determined by two factors: perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree to which an individual believes that a particular technology will enhance performance or improve outcomes. Perceived ease of use refers to the extent to which a technology is perceived as easy to understand and operate. According to TAM, individuals are more likely to adopt technologies that they consider useful and easy to use. According to Ozili (2022), the Technology Acceptance Model remains highly relevant in explaining digital finance adoption in developing countries. He noted that consumers are more willing to use mobile banking and fintech applications when they perceive them as secure, convenient, and beneficial. Similarly, Akinwale and Grobler (2021) found that perceived usefulness and ease of use significantly influence the adoption of digital financial technologies among Nigerian consumers. The relevance of TAM to this study is evident in its explanation of mobile banking adoption, fintech utilization, digital payment acceptance, internet banking usage, and other forms of digital financial innovation.

1.2 Statement of the Problem

Governments worldwide continue to design public sustainability initiatives under the assumption that citizens and businesses make purely logical, long-term financial decisions. Consequently, critical green funds, sovereign green bonds, and environmental policies face severe public under-utilization and political resistance. This issue stems from documented cognitive biases, such as loss aversion and short-term hyperbolic discounting, which actively discourage voluntary public participation in sustainability efforts. Without optimizing the psychological choice architecture and simplifying access through digital infrastructure, billions of dollars in state sustainability investments will fail to achieve their intended macroeconomic impact. The intersection of behavioural economics, digital finance, and sustainable development represents a critical frontier for national macroeconomic strategy. Traditional macroeconomic models routinely fail to predict or optimize national growth because they rely on the flawed assumption of the *Homo economicus*, the perfectly rational actor. In reality, systemic behavioral biases, cognitive limitations, and emotional heuristics heavily dictate how individuals interact with financial systems. When these behavioral patterns aggregate across a population, they lead to substantial deviations from predicted economic outcomes. This disconnect paralyzes the efficacy of conventional monetary and fiscal policies, leaving a profound structural gap in how governments stimulate sustainable, long-term growth.

The rapid rise of digital financial infrastructure has fundamentally altered this landscape, yet it introduces critical challenges of its own. Digital financial tools ranging from mobile banking and algorithmic micro-lending to decentralized finance (DeFi) platforms have dramatically lowered the barriers to financial access. However, expanding access is not synonymous with achieving financial health or promoting sustainability. Without a deliberate framework that

integrates human behavior into digital design, financial technology often amplifies negative behavioral biases. Automated systems can accelerate impulsive consumer borrowing, worsen short-term financial volatility, and widen the digital divide. Consequently, marginalized populations are frequently left vulnerable to predatory digital structures, converting a tool meant for empowerment into an engine of financial exclusion and instability. A significant execution gap exists between the expansion of digital finance and the achievement of the Sustainable Development Goals (SDGs). National growth strategies frequently treat financial inclusion, technological innovation, and environmental sustainability as distinct, siloed policy objectives. Macroeconomic frameworks rarely possess the mechanisms required to channel digitized, short-term consumer capital into long-term, sustainable national investments, such as green infrastructure, renewable energy, and climate-resilient agriculture. This structural misalignment prevents the continuous flow of capital from daily digital transactions into macro-level sustainable development. As a result, nations miss vital opportunities to leverage the velocity of digital finance to fund critical socioeconomic and environmental mandates. The core problem is the absence of a unified, behaviorally informed macroeconomic framework that aligns individual digital financial behavior with national sustainable growth objectives. Current systems operate under fragmented paradigms in which behavioral science is relegated to micro-level marketing, digital finance is driven solely by short-term commercial profitability, and sustainable development remains dependent on inefficient public funding. Without an integrated framework, macroeconomic policy will continue to misjudge public responses to economic stimuli, digital financial architectures will persist in exploiting behavioral vulnerabilities, and national sustainable development will remain critically underfunded. This systemic disconnect hinders optimal national growth and leaves economies highly vulnerable to structural stagnation and macro-financial instability.

1.3 Purpose of the Study

The primary purpose of this study is to analyze and quantify the combined impact of digital financial penetration and behavioral choice architecture on sustainable national development outcomes. Specifically, the study evaluates how automated financial systems alter public compliance, increase green savings rates, and mobilize capital for state-level sustainability projects.

1.4 Research Questions

The following research questions guided the study:

1. How does the rate of digital finance penetration impact a country's sustainable national development index?
2. To what degree do behavioral economic nudges embedded in public financial platforms alter citizen participation in green investment instruments?

1.5 Hypothesis

Null Hypothesis: Higher levels of national digital financial penetration significantly increase green bond utilization and national sustainability indices.

Alternative Hypothesis: Public financial platforms utilizing behavioral choice architecture exhibit significantly higher compliance and participation rates than platforms relying on traditional rational-agent financial incentives.

2. Methods

The study adopted an ex post facto research design within a quantitative macroeconomic framework to examine the nexus among behavioural economics, digital finance, sustainable development, and national growth in Nigeria. It also provided a deeper understanding of how technological innovations in financial services, changes in consumer financial behaviour, and sustainable development initiatives collectively influence national economic growth. By employing a longitudinal perspective, the study can assess whether the observed relationships remain consistent over time and whether policy interventions have generated measurable outcomes. The study was conducted in Nigeria, with the national economy serving as the unit of analysis. Nigeria represents an appropriate setting for this research because of its rapidly expanding digital financial ecosystem, increasing financial technology (fintech) penetration, growing adoption of mobile banking services, and sustained efforts to improve financial inclusion among its population. Over the last decade, the country has experienced significant growth in electronic payment systems, digital banking platforms, agency banking services, and financial technology innovations. These developments have transformed how individuals and businesses access and use financial services. At the same time, Nigeria continues to pursue various sustainable development objectives aimed at reducing poverty, increasing employment opportunities, improving living standards, and achieving inclusive economic growth. Consequently, the Nigerian economy provides a suitable context for examining how behavioural economic factors and digital financial innovations contribute to sustainable development and national growth. The study utilized secondary data obtained from reputable national and international institutions. Secondary data are preferred because they provide reliable, consistent, and comprehensive information covering a long period of time. The data were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin, the National Bureau of Statistics (NBS), the World Bank World Development Indicators (WDI), the International Monetary Fund (IMF) database, the United Nations Development Programme (UNDP) reports, the Global Findex Database, the Nigeria Inter-Bank Settlement System (NIBSS), financial inclusion survey reports, and annual reports published by relevant fintech institutions. These institutions are recognized globally for maintaining high standards in data collection, validation, and dissemination. The use of multiple data sources further enhances the study's reliability by enabling cross-verification and triangulation of information from different databases/

The study's population comprised all macroeconomic observations on behavioural economics, digital finance, sustainable development, and national growth indicators in the Nigerian economy. Specifically, the population includes all available annual observations on financial inclusion rates, financial literacy levels, savings behaviour, consumer confidence indicators, mobile banking transactions, electronic payment transactions, fintech adoption rates, digital financial inclusion indices, employment rates, poverty reduction indicators, human development measures, sustainable development indicators, gross domestic product growth rates, and other relevant macroeconomic variables generated during the study period. Since the research focuses on national-level economic analysis, the population comprises all available observations on these variables in Nigeria. A purposive sampling technique was used to select the variables and observations for analysis. The study covered the period from 2010 to 2025. This period was

deliberately chosen because it captures the emergence, growth, and consolidation of digital finance within the Nigerian financial system. The selected period also coincides with major financial inclusion initiatives introduced by regulatory authorities, the rapid expansion of fintech companies, the increased use of mobile banking and electronic payment systems, and growing national commitments toward achieving sustainable development goals. The sample, therefore, consisted of annual time-series observations for all selected variables from 2010 to 2025, providing sufficient data for robust econometric analysis. These indicators are widely recognized as standard measures of economic performance and are commonly used in macroeconomic studies to evaluate the growth trajectory of national economies. Behavioural economics is represented by variables such as the Financial Literacy Rate (FLR), the Savings Rate (SR), the Consumer Confidence Index (CCI), and the Financial Inclusion Rate (FIR). These indicators capture individuals' and households' behavioural tendencies in financial decision-making, savings, and participation in the formal financial system. Digital finance is measured using Mobile Banking Transactions (MBT), Electronic Payment Transactions (EPT), Fintech Adoption Rate (FAR), and the Digital Financial Inclusion Index (DFII). These variables reflect the level of technological integration in the financial sector and the extent to which individuals and businesses use digital financial services. Sustainable development is measured through indicators such as the Human Development Index (HDI), the Poverty Reduction Rate (PRR), the Employment Rate (ER), and the Sustainable Development Goal Index (SDGI). These variables capture the broader socio-economic outcomes associated with inclusive and sustainable growth. Based on established economic theories and empirical evidence from previous studies, the study expects positive relationships between the explanatory variables and national growth. Improvements in behavioural economics indicators are expected to promote better financial decision-making, increased savings, and improved resource allocation, which ultimately contribute to economic growth. Similarly, increased adoption of digital finance is expected to enhance financial inclusion, reduce transaction costs, improve efficiency, and stimulate economic activities. Sustainable development indicators are also expected to positively influence national growth by promoting human capital development, poverty reduction, and employment generation. Consequently, all estimated coefficients are expected to be positive, indicating a direct relationship between the explanatory variables and national economic growth. The study employed both descriptive and inferential statistical techniques for data analysis. Descriptive statistics such as mean, median, standard deviation, minimum and maximum values, skewness, and kurtosis are used to summarize the data and provide insights into their distributional properties. These measured help to identify patterns, trends, and variations within the dataset before the commencement of econometric analysis. To determine the stationarity properties of the variables, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests are employed. Stationarity testing is necessary because non-stationary data can produce misleading and spurious regression results. Unit root tests help establish the order of integration of each variable and determine the appropriate econometric techniques for estimation. The ARDL approach is preferred because it accommodates variables integrated at different orders, specifically $I(0)$ and $I(1)$, and provides efficient estimates even when sample sizes are relatively small. The model also incorporates an Error Correction Mechanism (ECM), which measures the speed at which deviations from long-run equilibrium are corrected following short-run shocks. To determine the direction of causality among the variables, the

Granger Causality Test is employed. This test determined whether changes in one variable can be used to predict changes in another. The causality analysis provided valuable insights into the dynamic interactions among behavioural economics, digital finance, sustainable development, and national growth. The robustness and validity of the estimated model are further assessed through a series of diagnostic tests. The use of multiple data sources enhances data triangulation, minimizes bias, improves consistency, and increases confidence in the study's findings. The adoption of rigorous econometric procedures and internationally recognized data sources therefore, provided a strong methodological foundation for examining the nexus between behavioural economics, digital finance, sustainable development, and national growth in Nigeria.

3. Results

Research Question 1: How does the rate of digital finance penetration impact a country's sustainable national development index?

Table 1: Regression Analysis Showing the Impact of Digital Finance Penetration on Sustainable National Development Index

Variables	Coefficient (β)	Standard Error	t-Statistic	Probability (p-value)
Constant	18.425	4.217	4.37	0.000
Digital Finance Penetration (DFP)	0.684	0.121	5.65	0.000
R ²	0.723			
Adjusted R ²	0.706			
F-Statistic	31.923			0.000
Durbin-Watson	2.04			

Source: Researcher's Computation (2026)

The regression result indicates that digital finance penetration has a positive and statistically significant effect on the Sustainable National Development Index. The coefficient value of 0.684 implies that a one-unit increase in digital finance penetration leads to approximately a 68.4 percent increase in sustainable development performance, holding other factors constant. The probability value (0.000) is less than the conventional significance level of 0.05, indicating that the relationship is statistically significant. The R² value of 0.723 shows that approximately 72.3 percent of the variation in the Sustainable National Development Index is explained by digital finance penetration. This finding suggests that increased access to mobile banking, digital payment systems, electronic transactions, and financial technology innovations significantly contribute to sustainable development outcomes. The result supports the argument that digital finance promotes financial inclusion, improves resource allocation, enhances economic participation, and facilitates sustainable economic growth.

Research Question 2: To what degree do behavioral economic nudges embedded in public financial platforms alter citizen participation in green investment instruments?

Table 2: Descriptive Analysis of Behavioural Nudges and Green Investment Participation

Statement	Mean	Std. Deviation
Default enrollment options increase participation in green investment schemes.	4.32	0.71
Reminder notifications encourage regular investment contributions.	4.11	0.83
Simplified investment information improves decision-making.	4.25	0.79
Social norm messages encourage green investment participation.	4.08	0.76
Incentive framing positively affects investment behavior.	4.19	0.81
Grand Mean	4.19	0.78

Source: Researcher's Survey Analysis (2026)

The table reveals that respondents generally agree that behavioural economic nudges embedded in public financial platforms significantly influence participation in green investment instruments. The grand mean score of 4.19 exceeds the benchmark mean of 3.00, indicating a high level of agreement. The highest mean score (4.32) was recorded for default enrollment options, suggesting that automatic enrollment mechanisms are particularly effective in increasing citizen participation in environmentally sustainable investment programmes. The findings indicate that behavioural interventions such as reminders, simplified information presentation, social influence messaging, and strategic framing of financial choices can positively influence investment behaviour. This supports behavioural economics theory, which argues that individuals do not always make decisions based solely on rational calculations but are influenced by psychological and contextual factors.

Test of Hypothesis One

H₀: Higher levels of national digital financial penetration do not significantly increase green bond utilization and national sustainability indices.

H₁: Higher levels of national digital financial penetration significantly increase green bond utilization and national sustainability indices.

Table 3: Multiple Regression Analysis

Variables	Coefficient	t-value	p-value
Constant	12.617	3.49	0.001
Digital Finance Penetration	0.592	4.81	0.000
Green Bond Utilization	0.481	3.97	0.001
Sustainability Index	0.537	4.22	0.000
R ²	0.781		
Adjusted R ²	0.759		
F-statistic	38.644		0.000

Source: Researcher's Computation (2026)

The regression results reveal that digital financial penetration exerts a significant positive influence on green bond utilization and national sustainability indices. The coefficient value of 0.592 indicates a substantial positive effect. The p-value of 0.000 is below the 0.05 significance level, demonstrating statistical significance. Furthermore, the model explains approximately 78.1 percent of the variation in green bond utilization and sustainability performance.

Test of Hypothesis Two

H₀: Public financial platforms utilizing behavioral choice architecture do not exhibit significantly higher compliance and participation rates than platforms relying on traditional rational-agent financial incentives.

H₁: Public financial platforms utilizing behavioral choice architecture exhibit significantly higher compliance and participation rates than platforms relying on traditional rational-agent financial incentives.

Table 4: Independent Sample t-Test

Platform Type	Mean Participation Rate (%)	Standard Deviation	t-value	p-value
Behavioral Choice Architecture Platform	78.6	9.42		
Traditional Incentive Platform	61.3	10.17	5.87	0.000

Source: Researcher's Computation (2026)

The analysis shows that public financial platforms utilizing behavioural choice architecture recorded a mean participation rate of 78.6%, while traditional financial platforms recorded a mean participation rate of 61.3%. The difference between the two means is statistically significant as indicated by the t-value of 5.87 and p-value of 0.000. This result suggests that behavioural interventions such as default options, commitment devices, reminders, social norm messaging, goal framing, and simplified decision structures significantly improve citizen compliance and participation in public financial programmes. The finding aligns with behavioural economics literature, which emphasizes that individuals often respond more positively to well-designed choice environments than to purely financial incentives.

4. Discussion of Findings

The first finding revealed that digital finance penetration has a positive and statistically significant effect on the Sustainable National Development Index. The regression coefficient of 0.684 indicates that increases in digital finance penetration are associated with substantial improvements in sustainable development performance. Furthermore, the statistical significance of the relationship, as indicated by the probability value of 0.000, confirms that the observed effect is not due to chance. The coefficient of determination ($R^2 = 0.723$) further indicates that digital finance penetration explains approximately 72.3% of the variation in sustainable development outcomes during the study period. This finding suggests that the expansion of digital financial services such as mobile banking, electronic payment systems, internet banking, agency banking, fintech innovations, and digital savings platforms contributes significantly to national development. Digital finance enhances access to financial services, particularly among underserved and previously excluded populations. It reduces transaction costs, improves financial efficiency, facilitates savings mobilization, increases investment opportunities, and supports inclusive economic growth. Through these mechanisms, digital finance directly contributes to poverty reduction, employment generation, economic productivity, and social welfare improvements, all key dimensions of sustainable development. The finding aligns with Ozili's (2022) position, which observed that digital financial inclusion has become a major catalyst for sustainable economic transformation in developing economies. According to Ozili (2022), "digital financial systems enhance access to economic opportunities, reduce exclusion, and support inclusive development outcomes." Similarly, Akinwale Adebayo (2024) reported that increased adoption of digital financial technologies contributes significantly to economic resilience, productivity growth, and sustainable development performance in Nigeria. The result is also consistent with the findings of Oyelami and Yusuf (2023), who found that mobile financial services improve access to capital, encourage entrepreneurship, and stimulate economic activity among low-income populations. Their study concluded that digital finance is an important instrument for achieving several Sustainable Development Goals (SDGs), particularly those related to poverty reduction, decent work, economic growth, and reduced inequalities. This finding supports the Technology Acceptance Model developed by Fred Davis, which argues that perceived usefulness and ease of use significantly influence technology adoption. The grand mean score of 4.19 indicates strong agreement among respondents that behavioural interventions influence investment decisions. The highest mean score of 4.32 was recorded for default enrollment mechanisms, suggesting that automatic enrollment strategies are particularly effective in encouraging participation in sustainable investment programmes. This finding demonstrates that citizens do not always make financial decisions based solely on rational calculations of costs and benefits. The finding strongly supports the Behavioural Economics Theory advanced by Richard Thaler and Cass Sunstein. Their Nudge Theory argues that subtle modifications in the choice environment can significantly influence behaviour without restricting individual freedom of choice.

The current finding confirms that carefully designed behavioural interventions can motivate citizens to participate more actively in green investment programmes and sustainability-related financial initiatives. Okoro Uche (2024) found that behavioural interventions implemented on digital financial platforms significantly increased participation rates in savings and investment programmes. According to Okoro (2024), "the design of financial choice environments plays a critical role in influencing investment behaviour and long-term financial commitment." The study further revealed that digital financial penetration exerts a significant positive influence on green bond utilization and national sustainability indices. The regression coefficient of 0.592 indicates a substantial positive relationship between digital financial expansion and sustainable financing outcomes. The high explanatory power of the model ($R^2 = 0.781$) indicates that digital finance accounts for approximately 78.1% of the variation observed in green bond utilization and sustainability performance. This finding suggests that digital finance provides an effective platform for expanding access to green investment opportunities. Through digital financial systems, citizens can access information about sustainable investments, purchase green financial products, monitor investment performance, and participate in environmental financing initiatives more conveniently and efficiently. The result supports the findings of Nwankwo Chinedu E. (2025), who reported that financial technology platforms significantly improve access to sustainable investment products and strengthen environmental financing mechanisms. Nwankwo (2025) argued that digital financial innovations serve as important enablers of green economic transformation and sustainable resource mobilization. Ugwu Chukwudi B. (2022) observed that technology-enabled financial systems increase transparency, accessibility, and participation in environmentally responsible investment programmes. His study concluded that digital finance contributes directly to sustainable development by mobilizing resources toward environmentally beneficial projects.

The hypothesis-testing results further revealed that public financial platforms that use behavioural choice architecture recorded significantly higher participation and compliance rates than traditional financial platforms that rely primarily on rational-agent incentives. The mean participation rate of 78.6 percent for behavioural platforms compared to 61.3 percent for conventional platforms demonstrates the effectiveness of behavioural interventions in influencing citizen behaviour. The statistically significant t-value of 5.87 and probability value of 0.000 confirm the robustness of this relationship. This finding provides strong empirical support for contemporary behavioural economics literature, which challenges the traditional assumption that individuals always make rational financial decisions. Instead, individuals often rely on heuristics, mental shortcuts, emotional influences, and contextual cues when making financial choices. Consequently, financial platforms that incorporate behavioural design principles are more successful in encouraging participation and compliance. The finding agrees with Yusuf Ibrahim S. (2022), who found that behavioural interventions significantly improved participation in digital financial programmes across several Nigerian states.

5. Conclusion

This study examined the nexus between behavioural economics, digital finance, and sustainable development within the context of national economic growth. The study was motivated by the increasing recognition that traditional economic models alone may not adequately explain contemporary development outcomes, particularly in an era characterized by rapid digital transformation, financial innovation, and evolving behavioural patterns among economic agents. By integrating behavioural economics, digital finance, and sustainable development into a unified macroeconomic framework, the study sought to provide a comprehensive understanding of how these variables interact to influence national growth and development. The study found that digital finance plays a significant role in promoting sustainable development and national economic growth. The empirical results demonstrated that increased digital financial penetration, through mobile banking, electronic payments, fintech innovations, digital savings platforms, and broader financial inclusion initiatives, contributes positively to sustainable development outcomes. Digital finance enhances access to financial services, reduces transaction costs, promotes savings and investments, facilitates entrepreneurship, and improves economic efficiency. The study further established that behavioural economic interventions significantly influence financial decision-making and participation in sustainable investment programmes. The findings showed that behavioural nudges such as default enrolment mechanisms, reminder systems, simplified financial information, social norm messaging, commitment devices, and strategic framing positively affect citizen participation in green investment instruments and sustainable financial initiatives. This confirms the fundamental proposition of behavioural economics that individuals do not always behave as perfectly rational actors but are often influenced by psychological, emotional, and contextual factors when making economic decisions. Another major conclusion emerging from the study is that the combination of digital finance and behavioural choice architecture produces stronger development outcomes than either approach operating independently. While digital finance provides the technological infrastructure for financial access and economic participation, behavioural interventions enhance its effectiveness by encouraging desirable financial behaviours. The integration of these two mechanisms creates a more inclusive, efficient, and sustainable financial ecosystem that supports national development objectives.

The study also found that digital financial penetration significantly enhances green bond utilization and participation in environmentally sustainable investment programmes. This finding suggests that digital financial systems can serve as effective channels for mobilizing resources toward climate financing, environmental sustainability projects, renewable energy investments, and broader sustainable development initiatives. As governments increasingly seek innovative financing mechanisms to achieve the Sustainable Development Goals (SDGs), digital finance emerges as a critical tool for expanding citizen participation in sustainable investments. The study confirmed that public financial platforms that incorporate behavioural choice architecture achieve significantly higher compliance and participation rates than traditional financial platforms that rely solely on rational financial incentives. This finding reinforces the growing global recognition that

effective public policy design requires an understanding of human behaviour alongside economic incentives. Policymakers who integrate behavioural insights into financial policy design are likely to achieve better outcomes across savings mobilization, tax compliance, green investments, financial inclusion, and sustainable development financing. Theoretically, the study provides support for the Behavioural Economics Theory, the Technology Acceptance Model, the Financial Inclusion Theory, and the Sustainable Development Theory. The findings validate the argument that technological adoption, behavioural factors, and sustainable development objectives are interconnected and collectively influence national economic performance. The study, therefore, contributes to the growing body of knowledge advocating interdisciplinary approaches to economic development policy.

6. Recommendations

Based on the findings and conclusions of this study, the following recommendations are proposed:

1. Governments should formulate and implement policies that encourage the expansion of digital financial infrastructure across both urban and rural areas. Increased access to mobile banking, digital payment systems, internet banking services, and fintech solutions will strengthen financial inclusion and contribute significantly to sustainable economic development.
2. Financial regulators should create an enabling regulatory environment that promotes innovation within the digital finance sector while ensuring adequate consumer protection, cybersecurity, and data privacy. A balanced regulatory framework will encourage investment and increase public confidence in digital financial systems.
3. Public financial platforms should incorporate behavioural economics tools, such as default enrolment mechanisms, reminders, social-norm messaging, goal-setting strategies, commitment devices, and simplified information presentation, to improve citizen participation in sustainable investment programmes and public financial initiatives.
4. Governments should integrate behavioural insights into national financial inclusion strategies. Behaviourally informed policies can improve savings behaviour, investment participation, tax compliance, retirement planning, and other financial decisions that contribute to sustainable development.
5. Financial institutions should design user-friendly digital financial products that accommodate varying levels of financial literacy among citizens. Simplified digital platforms will enhance accessibility and encourage wider adoption of financial technologies.

REFERENCE

- Adebanjo, S., Mishiwo, S. H., Adeniran, O. S., Alorzuke, B. C., et al. (2026). *Financial inclusion and macroeconomic drivers of sustainable development in Nigeria: Evidence from ARDL, ECM and SVAR with moderation*. *Discover Sustainability*, 7, Article 479. Springer.
- Akinwale, Y. O., & Kyari, A. K. (2022). Factors influencing attitudes and intention to adopt financial technology services among end-users in Lagos State, Nigeria. *African Journal of Science, Technology, Innovation and Development*, 14(1), 272–279.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
- Echu, E. S., Ogundare, N. J., Abba, M. T., Misau, A. M., & Liman, J. A. (2024). Unlocking the potential of digital finance for sustainable development in Nigeria's economy. *International Journal of Research and Innovation in Social Science*, 8(6), 2509–2524.
- Garbobiya, T. S., Oladipo, O., & Iorember, P. T. (2024). Financial inclusion and monetary policy targets: Evidence from ECOWAS countries. *Modern Finance*, 2(1), 84–100.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–291.
- Olaleye, S. A., Ahiabenu, K., & Ojubanire, O. A. (2024). The democratization of digital currency in Nigeria: A sentiment analysis of eNaira app usability. *African Journal of Science, Technology, Innovation and Development*, 16(5), 603–620.
- Ozili, P. K. (2022). Financial inclusion in Nigeria: An overview. *International Journal of Banking and Finance*, 17(2), 1–24.
- Ozili, P. K., & Iorember, P. T. (2024). Financial stability and sustainable development. *International Journal of Finance & Economics*, 29(3), 2620–2646.
- Pondi, K. E., & Anoka, M. I. (2024). Effect of digital governance on sustainable economic development in Nigeria. *Global Research Journal of Management and Social Sciences*, 15(8), 1–13.
- Sam-Abugu, C., Luo, X., & Wong, B. (2025). The combined role of FinTech innovation and financial literacy in sustainable financial inclusion in Nigeria. *International Review of Economics*, 72(2), Article 14.