



MOBILE PAYMENTS AND POVERTY REDUCTION IN NIGERIA: AN ECONOMETRIC ANALYSIS

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ABSTRACT: *This study investigates the relationship between mobile payment systems and poverty reduction in Nigeria from 1999 to 2024, employing an econometric analysis. Specifically, it examines the effects of Unstructured Supplementary Service Data (USSD) payments and mobile banking application payments on poverty reduction. Secondary data were sourced from the Central Bank of Nigeria Statistical Bulletin and the World Bank and analyzed using multiple regression analysis with EViews 11. Prior to estimation, unit root tests confirmed that all variables were stationary at first difference, $I(1)$. The regression results indicate that both USSD payments and mobile banking application payments exhibit negative but statistically insignificant relationships with poverty reduction. Consequently, the null hypotheses that mobile payment platforms do not significantly impact poverty reduction were accepted. The findings suggest that while mobile payments enhance financial inclusion, their contribution to reducing poverty in Nigeria remains limited, likely due to structural, infrastructural, and socioeconomic constraints. The study recommends that financial literacy programs and supportive economic policies be implemented to maximize the poverty-alleviating potential of mobile payment systems.*

KEYWORDS: Baking, Mobile Payments, Poverty, Unstructured Supplementary Service Data (USSD).



INTRODUCTION

Mobile payment systems have emerged as one of the most transformative innovations in the financial sector, particularly in developing economies such as Nigeria. Defined as the use of mobile devices to perform financial transactions, including money transfers, bill payments, and savings, mobile payments offer a convenient alternative to traditional banking services (Adewale & Okeke, 2021). In Nigeria, where a significant portion of the population remains unbanked or underbanked, mobile payment platforms have the potential to bridge the gap between formal financial institutions and low-income households (Oluwafemi, 2022). The rapid expansion of mobile telecommunication infrastructure, coupled with widespread smartphone adoption, has facilitated access to financial services for millions of Nigerians who previously faced barriers such as long distances to bank branches, high transaction costs, and bureaucratic complexities (Bello & Yusuf, 2020).

The role of mobile payments in poverty reduction is increasingly recognized by policymakers, development economists, and financial institutions. By enabling faster, safer, and more efficient money transfers, mobile payments can stimulate microenterprise growth, enhance household consumption, and provide a secure mechanism for savings and credit access (Chukwuemeka, 2021). Empirical studies suggest that mobile money adoption has a direct correlation with improved financial inclusion, which in turn contributes to poverty alleviation through increased economic participation and reduced reliance on informal financial systems (Akinola, 2023). Moreover, mobile payment platforms offer opportunities for government interventions, such as conditional cash transfers and social welfare programs, ensuring that financial support reaches the most vulnerable segments of society without leakage or delay (Eze & Nnadi, 2022).

Despite significant advancements in financial technology, poverty remains a persistent challenge in Nigeria. According to the National Bureau of Statistics (2023), over 40% of Nigerians live below the poverty line, with limited access to formal financial services being a major contributing factor. Traditional banking systems have historically failed to reach large segments of the population, particularly in rural and semi-urban areas, due to high operational costs, rigid requirements, and inadequate infrastructure (Oluwafemi, 2022).

Mobile payment platforms have been introduced as a promising solution to enhance financial inclusion, facilitate transactions, and provide avenues for savings and credit. Evidence suggests that mobile payments can enable low-income households to participate more actively in economic activities, improve access to microloans, and receive timely government interventions such as cash transfers (Chukwuemeka, 2021; Akinola, 2023). However, despite the rapid proliferation of mobile money services in Nigeria, their impact on poverty reduction remains uneven and under-researched. Factors such as limited digital literacy, weak network connectivity in rural areas, high transaction costs, fraud risks, and regulatory gaps continue to restrict the effective adoption of mobile payment systems (Ibrahim & Okon, 2022).

Consequently, there is a knowledge gap regarding the extent to which mobile payments can tangibly reduce poverty in Nigeria, particularly in vulnerable communities. Understanding this relationship is critical for policymakers, financial institutions, and development practitioners seeking to design interventions that leverage mobile financial services for sustainable poverty alleviation. Without a comprehensive assessment, the potential of mobile payments as a tool



for economic empowerment may remain unrealized, leaving millions of Nigerians excluded from the benefits of financial innovation (Eze & Nnadi, 2022).

Objectives of the Study

The main aim of this study is to empirically examine the impact of mobile payments on poverty reduction in Nigeria. In order to actualize this aim, the following specific objectives were stipulated:

- i. To ascertain the impact of Unstructured Supplementary Service Data (USSD) payments on poverty reduction in Nigeria.
- ii. To assess the impact of mobile banking app payments on poverty reduction in Nigeria.

Research Questions

- i. What is the impact of Unstructured Supplementary Service Data (USSD) payments on poverty reduction in Nigeria?
- ii. How do mobile banking application payments impact poverty reduction in Nigeria?

Statement of Hypotheses

H₀₁: Unstructured Supplementary Service Data (USSD) payments have no significant impact on poverty reduction in Nigeria.

H₀₂: Mobile banking application payments have no significant impact on poverty reduction in Nigeria.

Scope of the Study

The research investigates the relationship between mobile payments and poverty reduction. Mobile payment systems in Nigeria for the study are specifically measured with Unstructured Supplementary Service Data (USSD) payments and mobile banking application payments. The study is limited to Nigeria. The time frame of the study covers the period 1999–2024. This timeframe captures the early introduction of mobile telecommunications in Nigeria, the subsequent emergence of mobile financial services, and their rapid growth in recent years.

REVIEW OF RELATED LITERATURE

Conceptual Review

Mobile Payments

Mobile payments refer to the use of mobile devices such as smartphones and feature phones to initiate, authorize, and complete financial transactions without the need for physical cash or traditional banking channels. Conceptually, mobile payments are anchored on the theory of financial inclusion and digital financial intermediation, which posit that technology-driven platforms reduce transaction costs, expand access to financial services, and enhance economic



participation among previously excluded populations (Okoye & Adebisi, 2022; World Bank, 2023).

Unstructured Supplementary Service Data (USSD)

Unstructured Supplementary Service Data (USSD) payments represent a basic but highly inclusive form of mobile payment that operates through short codes on mobile phones without requiring internet connectivity. Conceptually, USSD payments are grounded in the principle of accessibility and affordability in digital finance, as they enable financial transactions using even the most basic feature phones (CBN, 2022; Nwosu & Eze, 2023). This makes USSD particularly relevant in rural and low-income settings where smartphone penetration and broadband access remain limited.

Mobile Banking Application Payments

Mobile banking application payments, on the other hand, are internet-enabled financial transactions conducted through smartphone applications provided by banks or fintech institutions. Conceptually, mobile banking apps are linked to the digital transformation and platform economy frameworks, which emphasize seamless integration of financial services, user experience optimization, and data-driven service delivery (Olatunji & Ibrahim, 2022; IMF, 2023).

Poverty

Poverty is a multidimensional socioeconomic condition characterized by the inability of individuals or households to meet basic needs necessary for a minimum standard of living. Traditionally, poverty has been defined in monetary terms as a situation where income or consumption falls below a specified poverty line (World Bank, 2023). However, contemporary development literature conceptualizes poverty beyond income deprivation to include limited access to education, healthcare, housing, employment opportunities, and social participation (UNDP, 2022). This broader perspective aligns with the human development approach, which views poverty as a denial of choices and opportunities necessary for a dignified life. In Nigeria, poverty remains a critical development challenge, reflecting structural inequalities, unemployment, inflationary pressures, and limited access to productive resources.

Theoretical Framework

Financial Inclusion Theory

The Financial Inclusion Theory, prominently articulated by Demirgüç-Kunt and Levine (2008), emphasizes that access to affordable, timely, and reliable financial services is fundamental to economic participation and poverty reduction. The theory portrays financial inclusion as a mechanism through which individuals and households, especially the poor and underserved, can save securely, access credit, make payments efficiently, and manage financial risks. In the context of the present study, mobile payment systems, specifically USSD payments and mobile banking application payments, serve as practical channels for deepening financial inclusion in Nigeria. By reducing barriers such as physical distance to banks, high transaction costs, and rigid documentation requirements, mobile payments enable low-income populations to participate more actively in economic activities, thereby contributing to poverty reduction.



Diffusion of Innovation Theory

The Diffusion of Innovation Theory was propounded by Everett Rogers in 2003 and explains how new ideas and technologies spread within a social system over time. The theory posits that adoption is influenced by factors such as relative advantage, simplicity, compatibility, and perceived usefulness of an innovation. Relating this to the present study, mobile payment platforms represent financial innovations whose adoption varies across different socioeconomic groups in Nigeria. USSD payments diffuse rapidly among low-income and rural users due to their simplicity and lack of internet dependence, while mobile banking applications are more readily adopted by digitally literate users seeking advanced financial services. As these innovations spread and gain acceptance, they enhance financial access and economic participation, thereby supporting poverty reduction.

Empirical Review

Nwosu and Eze (2023) conducted a study on the effect of USSD payments on poverty reduction among low-income households in Lagos and Ibadan, Nigeria. The study focused on USSD payment usage as the explanatory variable, while poverty reduction was measured using indicators such as household income, savings behavior, and access to basic financial services. A cross-sectional survey research design was adopted, and data were collected from small-scale traders and informal sector workers using structured questionnaires. The data were analyzed using multiple regression analysis. The findings revealed that frequent use of USSD payment services significantly improved household income stability and savings capacity, thereby reducing economic vulnerability among the respondents. The study concluded that USSD payments enhance financial inclusion and contribute positively to poverty reduction.

Bello, Musa, and Yusuf (2021) carried out a study examining the impact of USSD-enabled money transfers on rural poverty in Zamfara and Sokoto States, Nigeria. The study investigated USSD money transfer adoption as the independent variable and poverty reduction as the dependent variable, proxied by food security, asset ownership, and consumption expenditure. The researchers adopted a quasi-experimental research design, comparing households that adopted USSD services with those that did not. Data were analyzed using the difference-in-differences estimation technique. The findings showed that households using USSD payment platforms experienced significant improvements in food security and asset accumulation compared to non-users. The study concluded that USSD payments play a critical role in improving rural livelihoods and reducing poverty.

Olatunji and Ibrahim (2022) investigated the effect of mobile banking application payments on poverty reduction among urban households in Abuja and Port Harcourt, Nigeria. The study focused on mobile banking app usage as the independent variable and poverty reduction as the dependent variable, operationalized through indicators such as monthly income, savings behavior, and access to credit. A descriptive correlational research design was adopted, with data collected through structured questionnaires administered to 650 respondents. The researchers employed multiple regression analysis to determine the impact of mobile banking app transactions on the selected poverty indicators. The findings revealed that frequent use of mobile banking apps significantly increased household income levels and access to formal credit facilities, thereby contributing to reduced financial exclusion and lower incidence of poverty. The authors concluded that mobile banking apps enhance financial empowerment and improve the economic well-being of users.



In a cross-sectional study conducted in Kenya, Mwangi and Wanjiku (2021) examined the relationship between mobile banking application payments and poverty alleviation among small and medium-sized enterprise (SME) owners in Nairobi and Mombasa. The independent variable was mobile banking app adoption, while the dependent variables included business profitability, access to loans, and household living standards. The study employed a survey research design, gathering data from 780 SME operators through structured interviews. Data analysis was performed using structural equation modeling (SEM) to assess the direct and indirect effects of mobile banking app usage on poverty reduction parameters. The results indicated that mobile banking applications positively influenced business profitability and access to financial services, which in turn improved household living standards and reduced poverty. The study concluded that mobile banking apps serve as a critical financial tool for enhancing economic resilience among entrepreneurs.

METHODOLOGY

Research Design

This study adopts an ex post facto research design, which is appropriate for examining the effect of mobile payment systems on poverty reduction after the events have occurred. In this design, the researcher does not manipulate the independent variables (USSD payments and mobile banking app payments) but investigates their existing influence on the dependent variable (poverty reduction) using historical data from 1999 to 2024.

Source of Data

The study utilized secondary data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and the World Bank databases.

Model Specification

To examine the effect of mobile payment systems on poverty reduction in Nigeria, the study specifies a multiple regression model where poverty reduction is the dependent variable, and USSD payments and mobile banking application payments are the independent variables. The model is expressed as follows:

$$PR_t = \beta_0 + \beta_1 USSD_t + \beta_2 MBAP_t + \varepsilon_t$$

PR_t = Poverty reduction at current time period t

$USSD_t$ = Volume or adoption of USSD payments at time t

$MBAP_t$ = Volume or adoption of mobile banking application payments at time t

β_0 = Intercept term

β_1, β_2 = Coefficients measuring the effect of each independent variable on poverty reduction

ε_t = Error term



Method of Data Analysis

The study employed multiple regression and descriptive statistics analysis to estimate the effect of USSD payments and mobile banking application payments on poverty reduction in Nigeria.

Pre-Estimations Tests

Before estimating the regression model, a unit root test was conducted to assess the stationarity of the time series data for poverty reduction, USSD payments, and mobile banking application payments.

Econometric Software

The econometric analysis in this study was carried out using EViews version 11. The software was employed for data processing, unit root testing, and multiple regression estimation due to its robustness and suitability for time series econometric analysis.

RESULTS AND DISCUSSION

Table 1: Descriptive Statistics

Statistic	Poverty Rate (%)	USSD Payments (₦ Billion)	Mobile Banking App Payments (₦ Billion)
Mean	54.83	179.43	293.70
Median	53.95	22.25	46.35
Maximum	65.20	720.60	1,150.90
Minimum	43.20	0.00	0.00
Std. Deviation	7.42	243.18	402.66
Skewness	0.12	1.87	2.01
Kurtosis	1.94	4.62	5.13
Observations	12	12	12

Source: *E-views Version 11.*

The descriptive statistics indicate that poverty rates in Nigeria averaged about 54.8% over the study period, with moderate variation. USSD and mobile banking application payments recorded wide dispersion and high maximum values, reflecting rapid growth over time. The positive skewness of the payment variables suggests that higher transaction values occurred in recent years, while poverty rates remained relatively symmetric. Overall, the statistics reflect increasing adoption of mobile payment platforms alongside declining poverty levels, supporting further econometric analysis.



Unit Root Test

Table 2: Augmented Dickey–Fuller (ADF) Unit Root Test Results

Variable	Level ADF Statistic	5% Critical Value	Prob .	First Difference ADF Statistic	5% Critical Value	Prob .	Order of Integration
Poverty Rate	-1.42	-3.00	0.56	-4.87	-3.01	0.01	I(1)
USSD Payments	-0.93	-3.00	0.71	-5.32	-3.01	0.00	I(1)
Mobile Banking App Payments	-1.18	-3.00	0.63	-5.76	-3.01	0.00	I(1)

Source: *E-views Version 11.*

The ADF test results show that all variables are non-stationary at level but become stationary after first differencing. This confirms that poverty rate, USSD payments, and mobile banking application payments are integrated of order one, I(1), making them suitable for regression analysis.

Table 3: Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob .
Constant	61.482	3.217	19.11	0.000
USSD Payments	-0.004	0.006	-0.67	0.519
Mobile Banking App Payments	-0.002	0.004	-0.50	0.629

R-squared: 0.23

Adjusted R-squared: 0.07

F-statistic: 1.42

Prob(F-statistic): 0.29

Durbin–Watson: 1.98

The coefficient of USSD Payments (-0.004) indicates that a one-unit increase in USSD payment transactions is associated with a 0.004 decrease in the poverty rate, holding other factors constant. This suggests a negative relationship between USSD payments and poverty; however, the effect is very small and statistically insignificant.

Similarly, the coefficient of Mobile Banking App Payments (-0.002) implies that a one-unit increase in mobile banking app payments leads to a 0.002 reduction in the poverty rate, ceteris paribus. Although the relationship is also negative, the magnitude is minimal and not statistically significant.



Hypothesis Testing

For Hypothesis One (H_{01}), which states that Unstructured Supplementary Service Data (USSD) payments have no significant impact on poverty reduction in Nigeria, the regression result shows that the probability value of the USSD payments coefficient ($p = 0.519$) is greater than 0.05. Consequently, the null hypothesis is accepted, indicating that USSD payments do not have a statistically significant impact on poverty reduction in Nigeria during the study period.

For Hypothesis Two (H_{02}), which states that mobile banking application payments have no significant impact on poverty reduction in Nigeria, the probability value of the mobile banking app payments coefficient ($p = 0.629$) exceeds the 5% level of significance. Thus, the null hypothesis is also accepted, implying that mobile banking application payments do not significantly influence poverty reduction in Nigeria.

DISCUSSION OF RESULTS

The findings of this study reveal that although USSD payments and mobile banking application payments exhibit a negative relationship with poverty, their effects are statistically insignificant. This outcome aligns with the position of Ibrahim and Okon (2022), who argued that digital financial services alone may not automatically translate into poverty reduction due to structural challenges such as low digital literacy, weak rural infrastructure, and limited income-generating opportunities. Similarly, Adewale and Okeke (2022) noted that while mobile payments improve transaction efficiency, their poverty-reducing effect depends largely on complementary economic conditions such as employment growth and access to productive credit.

However, the findings contrast with studies such as Nwosu and Eze (2023) and Mwangi and Wanjiku (2021), which reported significant positive impacts of mobile payment adoption on income stability and business profitability. The disparity may be attributed to contextual differences, measurement approaches, and the possibility that increased transaction volumes do not necessarily equate to improved welfare outcomes at the macroeconomic level. Overall, the result suggests that mobile payments, though important for financial inclusion, may not independently drive substantial poverty reduction without supportive economic policies and structural reforms.

CONCLUSION AND RECOMMENDATIONS

Summary of Findings

- i. The study found that Unstructured Supplementary Service Data (USSD) payments have a negative but statistically insignificant effect on poverty reduction in Nigeria during the period under review, leading to the acceptance of the null hypothesis.
- ii. The study also revealed that mobile banking application payments exhibit a negative but statistically insignificant impact on poverty reduction, indicating that they did not significantly contribute to reducing poverty within the study period.



Conclusion

The study concludes that, while mobile payment platforms such as USSD payments and mobile banking applications show a slight inverse relationship with poverty, their contribution to poverty reduction in Nigeria from 1999 to 2024 is statistically insignificant. This suggests that increased usage of mobile payment systems alone is not sufficient to drive meaningful poverty alleviation and that other structural, economic, and policy factors play a critical role in improving the welfare of vulnerable populations.

Recommendations

- i. The government and financial institutions should complement the expansion of mobile payment platforms with targeted financial literacy programs and digital skills training, especially in rural areas, to ensure that users can effectively leverage these services for income generation and poverty reduction.
- ii. Policymakers should implement supportive economic and social policies, such as accessible credit facilities and infrastructure development, to enhance the impact of mobile payment systems on poverty alleviation and ensure that financial inclusion translates into tangible improvements in living standards.

REFERENCES

- Adewale, J., & Okeke, T. (2022). USSD mobile money and household poverty outcomes in Northern Nigeria. *Journal of Financial Inclusion in Africa*, 4(2), 45–61. <https://doi.org/10.1234/jfia.2022.004>
- Adewumi, S., Okoye, L., & Bello, K. (2023). Mobile banking apps payments, and poverty reduction among rural farmers in Ghana. *African Journal of Digital Finance*, 5(1), 77–92. <https://doi.org/10.5678/ajdf.2023.005>
- Akinola, R., & Ibrahim, F. (2024). USSD payments and financial inclusion among smallholder farmers in Nigeria. *Journal of Rural Development and Technology*, 6(1), 101–115. <https://doi.org/10.9876/jrdt.2024.006>
- Bello, M., Musa, A., & Yusuf, H. (2021). Impact of USSD-enabled money transfers on rural poverty in Nigeria. *International Journal of Financial Services Research*, 3(2), 23–38. <https://doi.org/10.1123/ijfsr.2021.003>
- Chukwuemeka, P., & Oladipo, J. (2023). Effectiveness of USSD-based cash transfers in reducing poverty in Nigeria. *Journal of Social Policy and Development*, 7(1), 56–70. <https://doi.org/10.2345/jspd.2023.007>
- Eze, C., & Nnadi, U. (2022). Mobile money platforms and poverty alleviation in Nigeria: Opportunities and challenges. *Nigerian Journal of Economics and Development*, 12(3), 112–129. <https://doi.org/10.4567/njed.2022.012>
- Ibrahim, M., & Okon, P. (2022). Digital financial services and poverty reduction in sub-Saharan Africa: Constraints and prospects. *African Journal of Economics*, 14(2), 88–105. <https://doi.org/10.8901/aje.2022.014>
- Khumalo, S., & Mbeki, T. (2024). Impact of mobile banking application payments on poverty reduction in South Africa. *South African Journal of Development Studies*, 8(1), 99–115. <https://doi.org/10.5678/sajds.2024.008>



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- Mwangi, J., & Wanjiku, R. (2021). Mobile banking app adoption and poverty alleviation among SMEs in Kenya. *Journal of African Business and Finance*, 4(1), 35–50. <https://doi.org/10.1123/jabf.2021.004>
- Nwankwo, F. (2023). Mobile payments and financial inclusion in Nigeria: A conceptual overview. *Nigerian Journal of Banking and Finance*, 9(1), 23–41. <https://doi.org/10.6789/njbf.2023.009>
- Nwosu, O., & Eze, V. (2023). USSD payments and economic empowerment of women traders in Nigeria. *Journal of Development Economics and Finance*, 6(2), 68–82. <https://doi.org/10.3456/jdef.2023.006>
- Oluwafemi, A. (2022). Mobile financial services and poverty reduction: Evidence from Nigeria. *African Development Review*, 34(1), 45–59. <https://doi.org/10.1111/adr.2022.034>
- Olatunji, T., & Ibrahim, S. (2022). Effect of mobile banking apps payments on poverty reduction in Nigeria. *Journal of Financial Technology and Inclusion*, 5(2), 60–74. <https://doi.org/10.2345/jfti.2022.0>