Financial Inclusion without Economic Resilience: Revisiting the Impact of Digital Payments on Poverty Outcomes in Rural Zimbabwe

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Abstract

This study employed structural equation modelling (SEM) to explore the relationship between the adoption of digital payment technologies, financial inclusion and socio-economic implications in Zimbabwe. A model established the effects of digital adoption on financial inclusion and socio-economic impacts using data from a survey of 221 rural residents in Gutu District of Masvingo Province of Zimbabwe. The results indicate that the adoption of digital payments is mostly influenced by structural and behavioural factors, particularly digital availability, trust and social influence. The extensive adoption of digital payment platforms was mostly limited to transactional tasks, such as remittances and payments, with use on transformative applications like savings, investment and income generating activities being limited. The study further identifies a "resilience gap," whereby increased access to and use of digital financial services does not necessarily translate into broader livelihood transformation or sustained economic resilience outcomes. Digital payments use promoted short-term coping and financial mobility with limited impact on longer-term outcomes such as wealth accumulation, income stability and livelihood diversification. The research recommends the need to move from access-oriented policies towards integrated approaches that promote productive use of digital finance, build confidence and embed digital financial systems into broader long-term rural development frameworks.

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INTRODUCTION

Digital financial inclusion has increasingly attracted the attention of policymakers, multilateral development organisations and academic researchers as a potent driver for economic development, especially in developing countries where large portions of the population are excluded from formal financial services (Ozili, 2018; Demirgüç-Kunt *et al*., 2022; World Bank, 2022). Financial inclusion is broadly regarded as the delivery of affordable, accessible and suitable financial services like payments, savings, credit and insurance to the under-served population, especially the unbanked, who are predominantly located in rural areas with limited access to formal financial institutions (Demirgüç-Kunt *et al*., 2022; Danladi *et al*., 2023; World Bank, 2024). Empirical evidence points to the potential of digital financial inclusion in improving consumption smoothing, savings behaviour and the ability of households to manage risk (World Bank, 2024; Mhlanga, 2025; Osuma, 2025).

Over the past decade, digital financial inclusion has emerged as a central pillar of development policy across Sub-Saharan Africa, where it is widely promoted as a transformative tool for expanding access to financial services and reducing poverty (Demirgüç-Kunt *et al*., 2022; World Bank, 2022). In Zimbabwe, this shift has been particularly pronounced, with the rapid proliferation of mobile money platforms, interoperable payment systems through Zimswitch, a national electronic funds switch and clearing system for Zimbabwe. Zimswitch facilitates digital financial services throughout the economy, which have significantly increased the reach of formal and semi-formal financial channels into rural areas (Reserve Bank of Zimbabwe [RBZ], 2022; POTRAZ, 2023).

Despite the rapid expansion of digital payment systems and improvements in financial inclusion indicators, rural poverty and vulnerability remain persistent across many parts of Sub-Saharan Africa (Klapper, 2024). This raises important concerns about whether increased digital financial access necessarily translates into meaningful economic resilience and long-term livelihood transformation.

Therefore, despite these digital payments infrastructure developments being supported by national policy frameworks and regulatory initiatives aimed at deepening financial inclusion, rural financial participation remains highly

restrictive. This disparity persists because, although the technical reach of digital infrastructure has expanded, access remains fragmented due to underlying structural barriers. These include high transactional costs, limited digital literacy and inconsistent network reliability in remote areas, which prevent traditionally excluded rural populations from transitioning from basic platform awareness to meaningful, integrated usage.

The advent of digital payment systems raised high hopes that financial inclusion in rural areas, where traditional banking infrastructure is limited, will improve and poverty levels reduced (Kawara *et al*., 2025; Osuma, 2025; Saka *et al*., 2025). Digital payment platforms were expected to compensate the lack of physical bank branches and formal financial services in these areas that historically impede access to the financial system (RBZ 2022; Saka *et al*., 2025). Digital payment platforms, that utilise mobile technology to facilitate lower transaction costs that transcend geographical barriers and facilitate rapid financial transactions, were therefore, positioned as an effective poverty reducing and financial inclusion tool (POTRAZ, 2023).

In many rural communities, persistent infrastructural challenges such as unreliable network coverage, limited access to appropriate devices and inconsistent electricity supply continue to hinder the effective and sustained use of digital financial services (RBZ, 2022; POTRAZ, 2023; World Bank, 2023). These constraints are widely regarded as foundational instruments for advancing financial inclusion which, in this context, refers to the ability of individuals and households to meaningfully use affordable, reliable and appropriate financial products to support economic participation and improve livelihoods (Ozili, 2018; Demirgüç-Kunt *et al*., 2022). The underlying development assumption is that improved access can contribute to poverty reduction through participation in economic activities (World Bank, 2022). In many rural settings, digital financial participation remains largely transactional and consumption-oriented, with limited integration into productive activities (Chamboko, 2024; Chinoda and Kapingura, 2024). As a result, their broader contribution to long-term poverty reduction and rural resilience is limited.

This raises an important question, as to how far the digital payment system has impacted rural livelihoods via financial services access. While the metrics of financial inclusion, account ownership, transaction volumes and platform usage have improved significantly in many economies (Demirgüç-Kunt *et al*., 2022), rural poverty and vulnerability remain widespread in much of Sub-Saharan Africa (Hassan *et al*., 2024; Otekunrin, 2025). This discontinuity between access and financial inclusion outcomes raises concerns about the effectiveness of digital financial tools as instruments for transformative financial access. In many rural settings, where digital payment platforms are in use, their application is solely for basic transaction purposes like remittances and payments, with limited evidence of their contribution to longer-term outcomes like asset accumulation, livelihood diversification, or economic shock resilience capacity building (Osuma, 2025). These routine low-value transactions such as person-to-person transfers and bill payments, do not necessarily promote more productive financial behaviour such as saving, investment, or business development (Mhlanga, 2025; Osuma, 2025).

This study contributes to digital financial inclusion discourse by incorporating a long-term welfare and development dimension, in the understanding of the dynamics between digital financial platforms and rural financial inclusion. It posits that financial inclusion, as currently framed, may increase access but not necessarily enhance economic resilience, particularly in contexts marked by structural constraints, limited productive opportunities, static social systems and low financial capability (Chamboko, 2024; Chinoda and Kapingura, 2024). Rural economic resilience, defined as the ability of households to withstand shocks, adapt to changing conditions and sustain livelihoods over time, requires more than access to financial instruments; it depends on the effective and sustained use of these tools within enabling economic and institutional contexts (Ozili, 2018; Hemerijck and Bokhorst, 2025). Thus digital financial tools should promote a resilience-based financial inclusion, which focuses not only on access-based frameworks centred on adoption and usage, but also on impact-based frameworks that lead to long-term economic transformation (World Bank, 2022; Hemerijck and Bokhorst, 2025). This redirects policy-relevant insights for Zimbabwe and similar contexts from access-centric strategies towards more holistic approaches that encompass infrastructure development, trust building, financial capability and livelihood support (RBZ, 2022; World Bank, 2023).

LITERATURE REVIEW

The long-term socio-economic impact of digital financial adoption can be understood from the context of technology adoption theories. A combination of the technological adoption theories, the information technology success model and the behavioural theories like the Capability Approach Model and the Social Exclusion Theory offers an explanation of the nexus between digital financial adoption, financial inclusion and rural poverty patterns (Delone and Mclean, 1992; Agwu, 2021; Ayoo, 2022; Mhlanga; 2025). The widely recognised technology adoption theories are based on Technology Acceptance Model (TAM), Diffusion of Innovation (DOI) and the Unified Theory of Acceptance and Use of Technology (UTAUT) help to understand how digital financial technology can be accepted and assimilated within the rural financial markets (Davis, 1989; Venkatesh *et al*., 2003).

In turn, the Technology Success Model helps to measure the success level of adopting a certain technology on social outcomes, thereby making it a central theory to this study, the premise being that assimilation of the digital financial technology in rural transaction markets, helps to develop household capabilities to respond to financial shocks, thereby reducing the social exclusion and financial exclusion gap, consequently eliminating poverty gap (Wewege *et al*., 2020). There is abundant evidence that digital financial platforms adoption enhances convenience, efficiency and security of exchange, while extending financial services to previously under-served and marginalised populations, in a way strengthening the economic participation of households (Ayoo, 2022; Ediagbonya and Tioluwani, 2023; Mothobi and Kebotsamang, 2024). However, the relationship between digital payment adoption and improved household welfare is not automatic. The extent to which digital financial technologies contribute to reduced financial exclusion and enhanced household resilience often depends on intervening factors such as digital literacy, affordability, institutional trust, gender dynamics and the availability of supporting infrastructure (Wewege *et al*., 2020; World Bank, 2023).

Understanding the connection between poverty and financial markets in rural economies is complicated by the nature of rural financial markets (World Bank 2022; Burkhauser *et al*., 2024). In rural settings, financial markets are fragmented and very thin, with the bulk of economic activities often

characterised by non-monetary and semi-formal systems, where income is irregular, seasonal, or entirely absent (Milano and Talandier, 2025). Fragmentation of rural financial markets explains why most rural economies remain subsistent in nature, without commercial orientation, a factor that reinforces the poverty cycle. In a society where households primarily produce for their own consumption, rather than for market exchange, there is limited or no financial flows, thereby making the role of financial markets marginal in economic transformation (Mgomezulu *et al*., 2024).

Furthermore, in rural economies, financial markets are sometimes replaced by barter trade, which continues to play an important role in economic transactions, particularly in areas with limited access to formal financial systems. Goods and services are exchanged directly without monetary transactions, making it difficult to shift from low-level subsistence systems to high income commercialised systems (Kamoyo and Makochekanwa, 2018). These practices disconnect households from financial markets. In addition, the social system within the rural communities relies on community networks, shared resources and natural assets, enabling these communities to meet basic needs with very little or no monetary transactions, thereby eliminating the need for digital financial systems (Mhlanga, 2025). Consequently, rural economies continue to be excluded from the economic benefits associated with improved financial sector development.

This study adopts an integrated theoretical perspective in which different theories explain distinct dimensions of digital financial adoption and inclusion. TAM and UTAUT primarily explain behavioural intention and technology usage through constructs such as perceived usefulness, ease of use and social influence (Davis, 1989; Venkatesh *et al*., 2003). The Information Systems Success Model complements these theories by linking system adoption to broader user outcomes and effectiveness (Delone and McLean, 1992). The Capability Approach further explains how access to digital financial systems may expand economic agency and livelihood opportunities within marginalised communities (Sen, 1990). Together, these frameworks provide the theoretical foundation for the study constructs, namely digital access, cognitive trust, social influence, institutional support, adoption behaviour and financial inclusion.

DIGITAL FINANCIAL INCLUSION AND RURAL POVERTY ERADICATION

There is growing evidence that financial inclusion can contribute to poverty reduction, particularly within rural economies characterised by persistent economic exclusion and limited access to formal financial systems. However, existing studies present differing perspectives regarding the extent and sustainability of these benefits. For instance, Ayoo (2022) and Ediagbonya and Tioluwani (2023) argue that digital financial services improve economic participation by lowering transaction costs and expanding access to financial resources among underserved populations. Similarly, Asongu and Odhiambo (2023) observe that digital finance has enhanced financial integration across several African economies. In contrast, Agwu (2021) and Bello (2024) caution that financial access alone may not automatically translate into meaningful poverty reduction where structural constraints such as low incomes, weak infrastructure and limited digital literacy persist. Within rural Zimbabwe, these challenges remain particularly significant despite the rapid expansion of mobile money and digital payment platforms (RBZ, 2022; POTRAZ, 2023). Consequently, while financial inclusion is widely associated with inclusive growth and livelihood improvement (Bhatia and Dawar, 2024; Oanh, 2024), its developmental impact within rural communities often depends on broader socio-economic and institutional conditions that shape how financial services are accessed and utilised.

Factors such as inadequate infrastructure, low financial literacy and socio-cultural barriers that contribute to financial exclusion (Demirgüç-Kunt *et al*., 2022) inhibit individuals from fully participating in economic activities, thereby perpetuating poverty cycles. To that effect, theories of technology adoption position digital payment platforms as a potential solution to financial exclusion through facilitating access to financial services, promoting savings and enabling economic participation (Mothobi and Kebotsamang, 2024). However, adoption in rural areas remains constrained by infrastructural limitations and lack of trust in digital systems (Wewege *et al*., 2020). Addressing these barriers is essential for leveraging digital technologies as tools for poverty eradication. Available evidence proves that the assimilation of digital financial systems in rural transactions generates positive poverty reduction impacts in rural areas of developing countries (Chand and Kumar, 2024; Hassan *et al*., 2024; Otekunrin, 2025).

Inclusive growth strategy ensures that equitable access to financial resources enables disadvantaged groups to participate in and benefit from economic growth (Mbodj and Laye, 2025). In rural contexts, financial inclusion mechanisms, such as microfinance, mobile money and agent banking, help overcome structural barriers, including geographic isolation, high transaction costs and limited banking infrastructure (Danladi *et al*., 2023; Ediagbonya and Tioluwani, 2023). Access to financial services enhances the capabilities of rural households by enabling them to make strategic investments in education, healthcare and income-generating activities. In this regard, financial inclusion extends beyond economic utility to become a tool for human development and social empowerment (Ayoo, 2022; Bekele, 2025). Simatele and Maciko (2022) demonstrate that technology-driven financial services bring financial systems closer to rural populations, reducing barriers to access.

Furthermore, financial inclusion contributes to economic productivity and regional development by facilitating savings, investment and efficient allocation of resources. It also strengthens the transmission of monetary policy and supports inclusive economic growth, with evidence across Sub-Saharan Africa showing that increased financial inclusion is associated with growth driven by trade expansion and population dynamics in rural areas (Chinoda and Kapingura, 2024). Similarly, Khan *et al*. (2022) find a positive relationship between financial inclusion and economic growth in underserved regions.

Despite these benefits, access to financial services, particularly credit, remains limited in many rural areas of Sub-Saharan Africa (Balana and Oyeyemi, 2022). Credit constraints are a major barrier to poverty reduction, as they limit households' ability to invest in productivity-enhancing technologies. Empirical evidence indicates that such constraints negatively affect technology adoption among rural households (*ibid.*). These constraints are often driven by lack of collateral, irregular income streams and limited financial histories.

Cull and Hartarska (2023) note that collateral-based lending models are often ineffective in rural areas due to unclear or informal land ownership systems. In response, financial inclusion initiatives, particularly digital finance and group-based lending models, have introduced alternative credit assessment mechanisms, enabling low-collateral or collateral-free access to finance (Tidjani

and Madouri, 2024). Such innovations not only facilitate entrepreneurship, but also enhance household resilience to shocks, including crop failures, health emergencies and income volatility, which are prevalent in rural settings (Yusriadi and Cahaya, 2022).

Evidence from Zimbabwe reinforces the theoretical link between financial inclusion and poverty reduction. A study by Mhlanga (2020), using multiple regression analysis in Manicaland Province, found that access to financial services and borrowing significantly reduces poverty among smallholder farmers. This underscores the role of financial inclusion in supporting agricultural productivity and rural livelihoods. Digital financial services, particularly mobile banking and mobile money platforms, have further strengthened this relationship by reducing transaction costs, improving convenience and expanding access to financial products (Suri *et al*., 2023; Osabutey and Jackson, 2024). The success of mobile money systems in Africa illustrates the transformative potential of digital finance in rural economies.

Recent empirical studies provide additional support. Mhlanga (2025) finds that digital financial inclusion significantly reduces rural poverty by improving access to savings, credit and insurance services. Similarly, Dube and Chummun (2019) show that mobile money usage in rural Zimbabwe enhances household welfare by stabilising income flows and enabling micro-investments. Naito (2023) further reports that mobile money increases the likelihood of saving and borrowing by 14% and 12% percentage points, respectively. However, despite the strong theoretical and empirical support for financial inclusion as a poverty reduction tool, some scholars caution against overgeneralisation. Ozili (2021) argues that financial inclusion initiatives may expose vulnerable populations to financial risks, including over-indebtedness and digital fraud. Moreover, the effectiveness of financial inclusion is often moderated by structural and socio-economic factors, including, gender disparities, digital literacy gaps and weak infrastructure. For instance, women in rural Africa frequently face greater barriers to accessing financial services despite targeted inclusion efforts (Saluja *et al*., 2023). Similarly, limited digital literacy and inadequate network infrastructure can restrict the adoption and effective use of digital financial services (Naito, 2023).

Enhanced access to digital financial markets unlocks access to essential services and opportunities that contribute to the development of individual capabilities toward the achievement of well-being (World Bank, 2023). In that regard, structural challenges, such as limited financial infrastructure that restrict access to financial markets and reduce availability of essential financial products, are viewed as conditions which exacerbate household income vulnerabilities and poverty (Banerjee and Duflo, 2019; Alvi *et al*., 2025). Technology adoption models provide structured frameworks for understanding how individuals and groups accept and utilise new digital technologies within rural financial ecosystems. Access to digital payment platforms can improve households' ability to participate in financial transactions, receive remittances, access markets, manage savings and respond to economic shocks more efficiently (Demirgüç-Kunt *et al*., 2022) In rural contexts, particularly in the adoption of digital payment platforms in Africa, user behaviour is influenced not only by individual perceptions, but also by structural, cultural and socioeconomic factors (Amofah and Chai, 2022). Consequently, scholars increasingly argue that no single theory sufficiently captures this complexity, instead integrated or context-specific models are required to achieve comprehensive explanatory power (*ibid.*).

STUDY DESIGN AND METHODOLOGY

The study adopted a quantitative, cross-sectional survey research design to examine the relationship between digital payment adoption, financial inclusion and economic resilience outcomes among rural households in Zimbabwe. This study is based on data collected from 221 respondents from Gutu District of Masvingo Province of Zimbabwe. The sample size exceeds the minimum thresholds commonly recommended for covariance-based SEM analysis, particularly for models with multiple latent constructs and observed indicators (Hair *et al*., 2020). Interview-based structured questionnaires were administered across respondents through face-to-face, community gathering points and local markets over a four-month period from June to September 2024. The questionnaire consisted primarily of close-ended items measured using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The instrument was pre-tested in a comparable rural setting to assess clarity, contextual relevance and reliability prior to the main survey.

The district selected for the study is predominantly rural and characterised by subsistence agriculture, with informal economic activity and limited access to formal financial infrastructure. It exhibits many structural realities typical of rural Zimbabwe, such as low- and irregular-income levels, limited formal employment opportunities, infrastructural deficits and a heightened vulnerability to environmental and economic shocks. These characteristics make it an appropriate and relevant context for examining the dynamics of digital financial adoption, rural financial inclusion and economic resilience (World Bank, 2023; Hassan *et al*., 2024; Otekunrin, 2025). Additionally, the district has been experiencing a gradual expansion of mobile money and digital payment platforms, making the district an ideal candidate for studies on digital payment adoption and usage outcomes (RBZ, 2022; POTRAZ, 2023).

The questionnaire captured various dimensions of digital payment adoption, financial inclusion and community impact. Adoption status was captured by digital access, measured by indicators such as ownership of a mobile device and network connectivity; behavioural factors such as trust, perceived usefulness and ease of use, following the TAM and UTAUT models (Davis, 1989; Venkatesh *et al*., 2003) and financial usage, focusing on the frequency and type of transactions, such as payments, remittances and savings (Suri and Jack, 2016; Ozili, 2018). In addition, the questionnaire included measures of socio-economic resilience like income stability, coping mechanisms and the ability to respond to financial shocks (World Bank, 2023; Hemerijck and Bokhorst, 2025).

To assess the adequacy and fitness of the Structural Equation Model (SEM), several goodness-of-fit indices were evaluated. These included the Chi-square statistic (χ^2), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) and the Standardised Root Mean Square Residual (SRMR). Following recommendations by Hair *et al*. (2020) and West *et al*. (2023), model fitness was considered acceptable where CFI and TLI values were above 0.90, RMSEA values were below 0.08, SRMR values were below 0.08 and where the Chi-square statistic was non-significant ($p > 0.05$), indicating minimal differences between the observed and model-implied covariance matrices.

DATA ANALYSIS TECHNIQUES

The quantitative data analysis for this study was executed using a two-stage SEM approach, implemented via R software. This approach separates the assessment of the measurement model from the estimation of the structural model, ensuring that the latent constructs are psychometrically sound before testing hypothesised paths (Hair *et al*., 2020) and based on latent variables that were generated by a set of observed variables as presented from equations (1) to (6). The specification of the latent constructs was guided by established technology adoption and digital financial inclusion literature, particularly TAM), UTAUT and prior financial inclusion studies that emphasise access, trust, social influence, institutional support, adoption behaviour and usage outcomes as key determinants of digital financial participation (Davis, 1989; Venkatesh *et al*., 2003; Demirgüç-Kunt *et al*., 2022). Digital access (DA) was measured using three observed indicators: smartphone access (SmartphoneAcc), access to reliable network connectivity (AccRelNetCon) and mobile device access (MobDevAcc). These indicators capture the infrastructural readiness required for rural users to participate in digital payment ecosystems. Cognitive trust (CT) was measured using observed indicators relating to perceived ease of use, accessibility of digital platforms and perceived security of digital platforms. These items reflect users' confidence in the usability, reliability and safety of digital payment systems.

Social influence (SI) was measured using three observed indicators: use of digital platforms for convenience, willingness to recommend digital payment platforms and merchant acceptance of electronic payments. These indicators capture the extent to which peer behaviour, social validation and market acceptance influence adoption decisions. Institutional support (IS) was measured using observed indicators relating to the perceived importance of reliable and stable internet, trustworthy and secure systems and accessible and affordable devices. These items reflect the enabling institutional and infrastructural conditions required for effective digital financial participation. Adoption (AD) was measured using observed indicators relating to mobile money use, mobile banking use and general digital payment usage. Financial inclusion (FI) was measured using observed indicators relating to experience of lower transaction costs and access to investment opportunities. The reliability and validity of these latent constructs were assessed using factor loadings,

Cronbach's Alpha, Composite Reliability (CR) and Average Variance Extracted (AVE) before estimating the structural paths.

$$DA = SmartphoneAcc + AccRelNetCon + MobDevAcc \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$CT = EOU + AccDigPymtPlat + PerSecDigPlat \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

$$SI = UseForConv + RecDigPlat + MerchAccElectrPlat \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

$$IS = ImpOfRelStabNet + ImpTrustSecSys + ImpAccAfforDev \ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

$$AD = UseMobMoney + UseMob\ Bank + digPymt \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

$$FI = ExpLowCostTrans + HaveAccInvmtOpport \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

The structural paths for the CB-SEM were modelled as according to equations (7) to (14)

$$AD = \alpha_0 + \alpha_1 DA + \varepsilon_{11} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

$$AD = \beta_0 + \beta_1 CT + \varepsilon_{12} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (8)$$

$$AD = \omega_0 + \omega_1 SI + \varepsilon_{13} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (9)$$

$$AD = \varphi_0 + \varphi_1 SEC + \varepsilon_{14} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (10)$$

$$FI = \gamma_0 + \gamma_1 AD + \varepsilon_{15} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (11)$$

$$FI = \delta_0 + \delta_1 IS + \varepsilon_{16} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (12)$$

$$FI = \theta_0 + \theta_1 SEC + \varepsilon_{13} \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots . \ldots (13)$$

Type equation here. (14)

The $\alpha_i s, \beta_i s, \omega_i s, \varphi_i s, \gamma_i s, \delta_i s \; and \; \theta_i s$ are parameters to be estimated for each model and the ε_{ij} are the random error terms for the models. Equation (7) estimated the relationship between adoption status and digital access, equation (8) estimated the effect of cognitive trust on adoption decision and the relationship between social influence and adoption decisions is determined by equation (9). The influence of socio-economic factors on adoption status were addressed by equation (10), while equation (11) estimated the relationship between adoption status and financial inclusion. Institutional support and socio-economic effects on financial inclusion were estimated by equations (12) and (13), respectively. The adoption construct was measured using observed indicators relating to mobile money usage, mobile banking usage and general digital payment usage behaviour, captured through binary and frequency-based responses while equation (14) addressed the impacts of socio-economic factors on financial inclusion.

The mediation effect of digital platform adoption on financial inclusion was tested for four constructs, namely cognitive trust, social influence, digital access and socio-economic factors. The premise was that digital adoption has a positive effect on financial inclusion via each of these four constructs. Financial inclusion was measured using indicators relating to transaction cost reduction and access to investment opportunities, reflecting usage-oriented dimensions of financial participation within rural contexts (Ozili, 2018' Demirgüç-Kunt *et al.*, 2022). The mediation effect of digital payment adoption on financial inclusion was tested for cognitive trust, social influence, digital access and socio-economic factors.

FINDINGS

Age distribution is presented in five categories with the age group between 18 and 24 years constituting 22.6%, followed by 45-54 years with 22.2%, then 25-34 years has 14.9%, 35-44 years has 21.3%. The data shows a fair representation of different age categories, thereby guaranteeing the age effect is

fairly incorporated in the study. Indications are that 56.6% of the respondents are male and 43.4% are female, permitting the research to capture the gender effects of digital payment adoption. In terms of education status, those with secondary education, top at 43.4%, followed by those with tertiary education at 40.3%, while those with no formal education were a mere 6.3%. The sample data indicates that a larger proportion of the respondents commands good levels of digital financial transaction, with only 6.3% without formal education. The rest attained at least primary, secondary and tertiary education. Basic education is the foundation for basic digital capability and education profile suggests a baseline level of literacy that may support engagement with digital financial platforms. (Asongu and Odhiambo, 2023). The demographic characteristics of respondents is summarised on Table 1.

Table 1: *Distributional characteristics of respondents* (Research data, 2024)

		Frequency	**Percent**
Age	18-24	50	22.6
	25-34	33	14.9
	35-44	47	21.3
	45-54	49	22.2
	55 and above	42	19.0
Gender	Male	125	56.6
	Female	96	43.4
Educational background	No formal Education	14	6.3
	Primary Education	22	10.0
	Secondary Education	96	43.4
	Tertiary Education	89	40.3
Digital payment usage for a month recall	Only Cash, no digital payment	24	10.9
	Only digital, no cash payment	19	8.6
	More digital, less cash payments	94	42.5
	More cash, less digital payments	84	38.0
Adoption status	Adopted digital platforms	197	89.14%
	Non-adopters	24	10.86%

Finally, Table 1 reflects one of the most interesting features about digital financial platform adoption patterns. It also shows that individuals who use more digital and less cash constitute the majority with 42.5%, followed by those using more cash and less digital at 38%. The rest of the people using only cash and no digital are at 10.9%, and those who use only digital and no cash at 8.6%. The distribution pattern reflects that digital payment platform adoption has been

a central part of rural transactions. The data reveals near-universal adoption, with 89.14% of the respondents adopting digital payment platforms. This high adoption rate reflects the widespread penetration of mobile money services in rural Zimbabwe where the majority are poor (POTRAZ, 2023; World Bank, 2023; Batista and Vicente, 2025).

DIGITAL PAYMENT PLATFORM USAGE BY PURPOSE

Figure 1 illustrates that 75.57% of the adopters use digital platforms for sending or receiving money to and from family and friends. This reinforces the strategic importance of digital payment platforms in facilitating transfer payments, including remittances, which plays a critical role in supporting rural poor communities. In addition, 65.61% of the adopters use the digital platforms for paying bills which include utility bills, school fees, insurance and mobile phone airtime, thereby unlocking the accessibility of essential financial services to the vulnerable communities. Payment for goods and services at physical stores and markets accounts for 46.15% of the respondents, followed by 38.46% who make purchases from online stores. The other 34.39% of the respondents use digital platforms for receiving payments for goods and services, while 29.41% utilise the digital channels for savings.

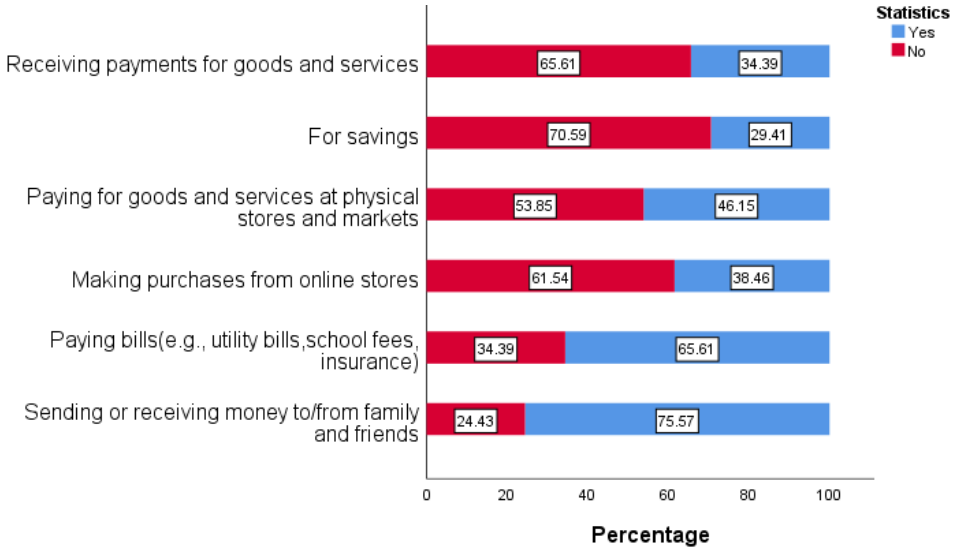

Figure 1: *Digital platform uses by purpose* (Research data, 2024)

The analysis presented in Figure 1 is descriptive in nature and is intended to illustrate general usage patterns across respondents. The usage pattern is limited mostly to basic transactional activities such as person-to-person transfers, bill payments, merchant payments and remittances (Ricci *et al*., 2025). Engagement with deeper financial services such as savings, credit, investment and insurance remains relatively low, implying that digital financial inclusion is more functional than transformative. This supports Chamboko, (2024) who posits that access alone does not necessarily lead to meaningful developmental outcomes, especially in contexts characterised by low usage, limited product diversity and weak integration into productive economic activities.

MULTIVARIATE NORMALITY TESTING

Multivariate normality was assessed using two complementary tests applied simultaneously to the full set of 16 indicator variables. All SEM analyses were conducted in R using the lavaan package. The Henze-Zirkler test and Mardia's skewness and kurtosis test results are presented on Table 2.

Table 2: *Multivariate Normality Test Results* (Author's own calculations from field survey data, 2024)

Test	Statistic	p-value	Result
Henze-Zirkler (asymptotic)	1.054	< .001	Not multivariate normal
Mardia Skewness (asymptotic)	—	.009	Significantly skewness confirmed
Mardia Kurtosis (asymptotic)	—	.250	Not significant — no extreme tails

Both the Henze-Zirkler and Mardia's skewness tests confirmed significant departure from multivariate normality with a HZ = 1.054, $p < .001$ and $p = .009$, respectively. Thus, the standard Maximum Likelihood (ML) estimation that assumes multivariate normality would produce biased standard errors and inflated chi-square statistics (Hair *et al*., 2020). Hence the ML with Robust standard errors (MLR) estimator incorporating the Satorra-Bentler scaled test statistic was deployed for all covariance-based SEM analysis to adjust for non-normal skewness. This produces robust fit indices and parameter standard errors appropriate for the data structure confirmed here.

Table 3: *Factor loadings, construct reliability and convergence validity* (Author's own calculations from field survey data, 2024)

Construct	Observed Variables	Std. Loading	CR	AVE
DA	Smartphone access	0.834***	0.893	0.735
	Access to reliable network connectivity	0.868***		
	Mobile Device Access	0.870***		
CT	Rate ease of use of digital payment platforms	0.879***	0.893	0.735
	Rate accessibility of digital platforms	0.835***		
	Rate the perceived security of digital platforms	0.858***		
SI	Use for convenience	0.823***	0.827	0.617
	Would you recommend digital payment platforms?	0.855***		
	Have merchants accepted electronic payments	0.666***		
IS	Importance of reliable and stable internet	0.356***	0.889	0.623
	Importance of trustworthy and secure systems	0.763***		
	Importance of accessible and affordable devices	0.642***		
AD	Used Mobile Money	0.628***	0.901	0.637
	Used Mobile Banking	0.597***		
	Digital Payments Usage	0.491***		
FI	Have experienced low transaction costs	0.694***	0.566	0.398
	Have access to investments opportunities	0.561***		
SEC	Education (weight = 0.500)	0.500***	—	—
	logIncome (weight = 0.500)	0.500***		

Although the financial inclusion construct produced lower AVE and CR values relative to recommended thresholds, the construct was retained due to its theoretical relevance and the exploratory nature of measuring functional financial inclusion within rural contexts, characterised by limited formal financial participation (Ozili, 2018; Demirgüç-Kunt *et al*., 2022). The poverty status originally included in this SEM analysis was dropped as it failed both from the factor loadings, and CR and AVE thresholds. The rule applied was that items with standardised loading < 0.40 were candidates for removal (Ozili, 2021; Mhembwe, 2025). Given that poverty status failed all tests from factor loadings to the CR and AVE tests, the SEM could not be used to estimate the poverty impact of digital financial platform adoption. The task was then

reserved for the Heckman sample selection model, with results presented at a later stage.

Table 4: *Model fit indices* **(**Author's own calculations from field survey data, 2024)

χ^2.scaled	109.529	CFI robust	1.000
df. scaled	123.000	TLI robust	1.020
p.value scaled	0.802	RMSEA. robust	0.000
		SRMR	0.050

Table 4 summarises the fitness of the model estimated. The results confirm a strong model parsimony and explanatory power. The Root Mean Square Error of Approximation (RMSEA) was below 0.05, reflecting minimal approximation error and the Standardised Root Mean Square Residual (SRMR) was also below 0.05, indicating low residual discrepancies between observed and predicted values. The Chi-square (χ^2) statistic was non-significant ($p > 0.05$), suggesting that there is no significant difference between the observed covariance matrix and the model-implied covariance matrix. This indicates a good overall fit based on suggestions by West *et al*. (2023).

STRUCTURAL PATH COEFFICIENTS

Table 5: *Structural path coefficient for financial inclusion model* (Author's own calculations from field survey data, 2024)

Path	beta_std	SE	z	p-value	Decision
DigitalAccess -> Adoption	0.756	0.053	8.717	0.000	Supported
CognitiveTrust -> Adoption	0.429	0.051	5.463	0.000	Supported
SocialInfluence -> Adoption	0.338	0.098	3.687	0.000	Supported
SEC_Composite -> Adoption	-0.025	0.030	-0.354	0.724	Not Supported
Adoption -> FinancialInclusion	0.226	0.253	2.236	0.025	Supported
InstitutionalSupport -> FI	0.173	0.196	1.441	0.150	Not Supported
SEC_Composite -> FI	0.202	0.098	2.139	0.032	Supported

The results displayed on Table 5 reveal that digital access exerts the strongest positive influence on adoption with a coefficient of 0.756 and $p < 0.001$, confirming that infrastructure and device availability are foundational to

financial inclusion. This aligns with Mothobi and Kebotsamang (2024), who emphasise network coverage and affordability as core enablers of rural digital finance. Cognitive Trust with a coefficient of 0.429 and $p < 0.001$ significantly predicts adoption, consistent with findings from Mutale and Shumba (2024), underscoring that users' perceptions of reliability and security enhance adoption decisions. Similarly, social influence with a coefficient of 0.338 and $p < 0.001$ demonstrates that peer networks and local community endorsement remain powerful behavioural motivators in rural contexts, in support of Mukong and Nanziri, (2021). Interestingly, digital adoption was found to have a substantial positive effect on financial inclusion with a coefficient of 0.226 and $p = 0.025$. These findings support Suri and Jack (2016) and Pazarbasioglu *et al*. (2020) who aver that digital payment platforms enhance households' ability to build financial strength. Contrary to Ozili (2021) and Subramaniam and Masron (2025), institutional support was found to be insignificant in influencing financial inclusion. This may point to ineffective institutional arrangements in Zimbabwe, as access to digital financial platforms is still inhibited by inequalities and cost barriers that prevent a market-led financial inclusion.

R^2 FOR THE DIGITAL ADOPTION AND FINANCIAL INCLUSION MODEL

To determine the amount of variance explained by the model on digital adoption and financial inclusion, the R^2 results are presented on Table 6. The findings confirm that all variables, including digital access, cognitive trust and social influence, collectively explain 86.9% of digital adoption variations and 11.7% of financial inclusion variations.

Table 6: *Variance explained (R^2)* (Author's own calculations from field survey data, 2024)

Construct	R^2	Interpretation
Adoption	0.869	Strong effect
Financial Inclusion	0.117	Week effect

The results for the mediation of digital adoption across all paths are summarised on Table 7. The mediation effect of digital adoption on financial inclusion was tested using percentile bootstrap confidence intervals with 500 resamples, seed = 2024 based on maximum likelihood estimator (ML). An indirect effect is confirmed when the 95% bootstrap CI excludes zero.

Table 7: *Mediation effects digital adoption* (Author's own calculations from field survey data, 2024)

Effect	β	SE	p	CI Lower	CI Upper	Mediation
DA → AD →FI	0.264	0.126	0.036	0.021	0.514	Confirmed
CT → AD→ FI	0.157	0.082	0.055	0.012	0.333	Confirmed
SI → AD→ FI	0.204	0.122	0.094	0.011	0.511	Confirmed
SEC → AD →FI	-0.006	0.018	0.741	-0.046	0.027	Not confirmed
SEC direct effect	0.203	0.098	0.038	0.013	0.417	Confirmed

Findings indicate that adoption partially mediates the relationship between digital access, cognitive trust, social influence and financial inclusion. Only socio-economic capability failed the test, implying that does not route through adoption. Its effect on FI is entirely direct with a coefficient of 0.203 and p = .032. The confirmed evidence for digital adoption mediation effect corroborates prior evidence that digital payment platforms can function as catalysts for inclusive development when supported by enabling conditions. This supports similar findings by Mashizha *et al*. (2025) that in Zimbabwe, technology adoption generates catalytic effects on the financial sector. The mediation results provide novel insight into the indirect channels through which digital infrastructure and trust affect financial inclusion outcomes, primarily by enabling usage that strengthens financial resilience. This supports theoretical propositions within technology acceptance and capability expansion frameworks (Sen, 1990), linking technological empowerment to poverty reduction.

CONCLUSION AND RECOMMENDATIONS

The findings confirm that the adoption of digital payments in rural areas is influenced mostly by structural and behavioural factors, especially digital access, trust and social influence. However, the transition from adoption to meaningful financial inclusion remains incomplete. Digital payment platforms are extensively used for transactional purposes, with little orientation towards transformative financial activities like savings, investment and enterprise development. Implications for policy and practice alludes to the need to boost financial literacy, build trust and enhance system reliability, making sure users

are both willing and capable of interacting with digital platforms in a meaningful way. That should be supported by financial products and services that enable livelihood transformation, such as savings instruments, microcredit facilities and insurance products designed for rural settings. The study has several limitations that should be acknowledged. First, the cross-sectional nature of the data limits the ability to establish long-term causal relationships. Second, the analysis is confined to one rural district, which may limit broader generalisation to other contexts. Third, the study relied on self-reported responses, which may introduce response bias. Finally, the financial inclusion construct was measured using a limited number of indicators, reflecting the challenges of operationalising inclusion within rural and semi-formal financial settings.

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