



Digitalisation of Banking Services and Financial Inclusion Potential of Women Entrepreneurs in Dodoma Municipality, Tanzania

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ABSTRACT

Despite global advancements in digital financial technologies, women entrepreneurs in developing economies, particularly sub-Saharan Africa, still face persistent barriers to access financial services due to low financial literacy, limited resources, and restrictive social norms. This paper empirically examines the impact of digitalising banking services on financial inclusion among women entrepreneurs in Dodoma municipality, Tanzania. Underpinned by the Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM) as a theoretical lens, this paper employs a cross-sectional design with a quantitative approach, surveying 117 registered women entrepreneurs at the Machinga Complex in Dodoma City Council using a structured questionnaire. Descriptive statistics and multiple linear regression were used to analyse the impact of digital finance platforms, mobile money services, and the agency banking model on women entrepreneurs' financial inclusion potential. The findings reveal that mobile money is the most widely used digital service (89%), significantly enhancing access, affordability, and usage of financial services, accounting for 37% of the variance in women entrepreneurs' financial inclusion. Digital finance platforms account for over 50% of financial inclusion, with agency banking contributing a modest yet significant 12.2%. The internet banking model remains the most underutilized due to limited digital literacy and infrastructure. The paper concludes that the digitalisation of banking services has a significant potential to bridge financial exclusion gaps among women entrepreneurs in Tanzania. Despite outstanding progress, gender disparities persist, necessitating targeted interventions. The paper recommends that policymakers and bank officials should enhance digital infrastructure, financial literacy programs, and tailored mobile money solutions to empower women entrepreneurs, supporting the inclusive economic development goals and the African Union Agenda 2030. The findings underscore the transformative potential of digital banking in addressing financial exclusion among underserved populations.

Keywords: Banking Services, Digitalisation, Financial Inclusion, & Women Entrepreneurs

I. INTRODUCTION

Across the globe, the digitalisation of banking services presents a powerful opportunity for expanding financial inclusion for underserved populations, particularly women entrepreneurs (Chandel & Arora, 2025; Aziz *et al.*, 2022). By digitalising banking operations, commercial banks can bridge exclusion gaps, allowing women entrepreneurs to actively pursue entrepreneurial activities (Sowmya & Pai, 2025; Alom *et al.*, 2025). By leveraging digital technologies, commercial banks can optimize critical processes and deliver vital services through electronic platforms, including mobile money, agency banking, internet banking, and others (Alom *et al.*, 2025; George & Lazar, 2024; Aziz *et al.*, 2022; Saurabh, 2017).

Despite the growing potential of digital technology in boosting financial inclusion and supporting the attainment of the African Union Agenda 2030 for Sustainable Development (Chandel & Arora, 2025), disparities in access to and progress in digital technology continue to affect population segments excessively (Alom *et al.*, 2025). This is common in developing economies where African countries struggle with limited financial inclusion and entrenched poverty (Aziz *et al.*, 2022; George & Lazar, 2024). In this context, including financially excluded groups remains a critical focus of the global policy agenda, drawing the attention of policymakers, scholars, and development practitioners due to its adverse effect on economic development, poverty reduction, and social equity (Alom *et al.*, 2025; Chandel & Arora, 2025).

Statistics show that less than 25% of African adults have access to bank accounts or other formal financial institutions (Demirgüç-Kunt *et al.*, 2018). In other words, over 75% of the African population depends on informal financial solutions, such as savings groups, moneylenders, and rotating savings and credit associations (ROSCAs), to

address their financial needs. Unfortunately, most of these informal methods lack sufficient security and reliability. Additionally, 29 out of 33 sub-Saharan African countries exhibit low financial inclusion indices (Ofori-Abebrese *et al.*, 2020), underscoring the urgent need for specific interventions to address these disparities. Many sub-Saharan Africans still face restricted access to formal banking services, credit, insurance, and investment opportunities.

Women's exclusion from financial services remains a pressing global issue, where women comprise 54% of the world's unbanked population (FinScope, 2023; Demirgüç-Kunt *et al.*, 2018). Moreover, only 30% of women aged 15 years and older hold a bank account compared to 39% of men in the same age category (Holloway *et al.*, 2017). Indeed, women appear to face disproportionate barriers that limit their participation in economic activities to improve their livelihoods. Tanzania has made considerable progress in enhancing the availability and uptake of formal financial services, increasing from 76% in 2017 to 89% in 2023 (Bank of Tanzania, 2024; FinScope, 2023). Similarly, it significantly improved access and usage of mobile money services, extending its reach to over 35 million individuals (*ibid*).

By 2022, Tanzania recorded 38,338,776 active mobile money subscriptions (Bank of Tanzania, 2024). The proportion of Tanzanian adults accessing financial services surged from 27% in 2011 to 65% in 2017 (Demirgüç-Kunt *et al.*, 2018). Dodoma City Council made striking strides in financial inclusion, increasing from 67% in 2017 to 75.5% in 2023, equivalent to a growth of 8.7% (Ugulumu *et al.*, 2023). However, disparities in financial exclusion remain evident despite these achievements, affecting smallholder farmers, youth, and women in rural areas (FinScope, 2023; Ugulumu *et al.*, 2023). Women remain the most excluded or underrepresented segment in the digital technology sector (Myamba, 2024). Disparities in women's financial inclusion are attributable to insufficient income, low financial literacy, and limited access to smartphones and other digital tools (Were *et al.*, 2021).

Despite progress in expanding financial services in Tanzania (FinScope, 2023), gender disparities remain underexplored (Sowmya & Pai, 2025). Women face barriers such as a lack of collateral, low financial literacy, and restrictive social norms (Rani & Kumar, 2024). These factors limit their access to formal financial systems and hinder business growth. Women-owned enterprises also struggle with digital adoption due to limited resources and skills (Kapinga *et al.*, 2021). This affects their ability to benefit from digital banking services to improve their livelihood. This paper examines the influence of digitalisation of banking services on women entrepreneurs' financial inclusion potential in Tanzania. In particular, it uncovers the potential of technology to bridge the gender gap in financial access. Understanding these dynamics is key for inclusive economic development by devising targeted policies and interventions that could narrow the gender gap in access to and uptake of financial services.

1.1 Research Objectives

This study was conducted to achieve the following specific objectives:

- i. To examine the influence of digital platforms' usage on the potential of financial inclusion of women entrepreneurs.
- ii. To measure the roles of mobile money services on the potential of financial inclusion of women entrepreneurs.
- iii. To analyse the effect of the agency banking model on women entrepreneurs' financial inclusion potential.

II. LITERATURE REVIEW

2.1 Theoretical Review

This paper employs the Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM) to explore how women entrepreneurs adopt digitalised banking services as a new technology based on the perceived usefulness in enhancing financial inclusion. TRA, pioneered by psychologists Martin Fishbein and Icek Ajzen in 1975, is a psychological model that explains how a person's behaviour is influenced by their intentions, which are shaped by their beliefs, attitudes, and social pressures. Accordingly, a person's behaviour depends on their intention to act, which is determined by their attitude toward the behaviour and the subjective norms they experience (Fishbein & Ajzen, 1975). In this paper, *attitudes* reflect how women entrepreneurs view financial inclusion as valuable. If they believe that access to digitalised financial services enhances business growth, stability, and independence, they can form positive intentions to adopt digital banking services.

Subjective norms refer to the perceived social pressure from important people in a person's life, such as family, community leaders, and peers (Fishbein & Ajzen, 1975). When women entrepreneurs notice that their peers or business associates value or use digital banking services, they are more likely to adopt them, leading to improved financial inclusion (Davis, 1986). In African cultures, women's financial decisions are often influenced by their spouses, parents, or societal expectations, which can prevent them from engaging with formal financial systems. For example, a husband might view his wife's pursuit of a loan as a strategy to challenge his authority. Additionally, when women entrepreneurs feel confident in their skills and knowledge to effectively use digitalised banking services, they are more inclined to adopt them. This improves their access to financial resources and promotes financial inclusion.

The Technology Acceptance Model (TAM), advocated by Fred Davis and Richard Bagozzi in 1986, explains how women entrepreneurs decide to accept and use new technology based on two key factors: *Perceived Usefulness (PU)* and *Perceived Ease of Use (PEOU)*. PU explains how much women entrepreneurs believe that digital banking services enhance their financial activities or improve the performance of business ventures. PEOU reflects how much women entrepreneurs think digital banking usage is easy and requires less effort (Davis, 1986). These perceptions shape their intentions to adopt digital financial tools, such as mobile banking apps, online lending platforms, or digital payment systems. The adoption integrates unbanked or underbanked groups, such as smallholder farmers, youth, and women, into the mainstream financial system and widens financial inclusion (Bank of Tanzania, 2024).

2.2 Empirical Reviews

Several local and international studies have empirically linked the digitalisation of banking services to improved financial inclusion for women entrepreneurs. For example, Aziz *et al.* (2022) found a strong correlation between gender and the use of financial services, suggesting that gender disparities can significantly impact financial inclusion in South Asian countries. Specifically, unequal access to bank accounts has excluded many women from mainstream financial systems. The study concluded that in countries where religious norms discourage women from working, women are significantly less likely than men to own a bank account. Similarly, Kim (2021) reported that while mobile money services did not fully address the structural causes of financial inequality, they played a significant role in enhancing women's financial inclusion in Kenya. As women began using banking services and increasing their financial activities, they experienced greater financial and economic independence from their husbands, enabling them to manage their finances and invest independently.

In studying financial inclusion among women entrepreneurs, Rani and Kumar (2024) found that 72% of women entrepreneurs had limited access to formal financial services, primarily due to the distance to banking institutions and a lack of awareness. Additionally, 58% of women entrepreneurs relied on informal credit sources, highlighting a significant gap in formal financial engagement. Similarly, Melubo and Musau (2020) reported that digital banking services significantly influenced the financial inclusion of women-owned enterprises in Kenya. Specifically, agency banking, mobile banking, online banking, and automated teller machine (ATM) services played a significant role in improving access to and usage of banking services among locally based women entrepreneurs. However, the adoption of online banking remained limited due to low literacy levels, limited computer proficiency, and inadequate internet access.

In Tanzania, Isaga (2025) discovered that gender, age, financial knowledge, education level, awareness of financial institutions, and the intention to seek entrepreneurial loans as key determinants of young financial inclusion. Interestingly, female entrepreneurs had greater access to banking facilities than their male counterparts, perhaps due to the overrepresentation of women in the study sample. Mganyizi (2023) found that mobile payments, mobile savings, and mobile credit services had a significant impact on the financial inclusion of micro-entrepreneurs, accounting for 52.3% of the variation in financial inclusion. However, when examined separately, only mobile payments and mobile savings had a significant influence ($p < 0.05$). The study urged banks to collaborate with telecommunications companies to enhance entrepreneurs' awareness and usage of mobile money to improve financial inclusion.

In assessing the determinants of financial inclusion among female petty traders in Dodoma City, Ugulumu *et al.* (2023) found that age, years of schooling, household size, marital status, lack of required documentation, the cost of financial services, and income levels significantly influenced financial inclusion. Moreover, many women petty traders relied on mobile money accounts and informal saving mechanisms, such as keeping money at home, participating in Village Community Banks (VICOBA), or entrusting savings to individuals outside the home. Churk *et al.* (2023) examined the relationship between mobile money services and income generation among female second-hand clothing entrepreneurs in Dodoma City. The study found a significant positive relationship between mobile money savings and income-earning capacity. However, it was discovered that due to the challenges associated with using mobile money services for income-related activities, many women entrepreneurs turned to informal support groups for borrowing and relied on bank services for transactions as coping strategies.

Despite the growing body of empirical evidence linking the digitalisation of banking services to improved financial inclusion for women entrepreneurs, several research gaps remain. *First*, existing studies focus on general correlations, overlooking the underlying mechanisms through which digital financial tools empower women entrepreneurs. *Second*, while mobile money services are widely recognized as enablers of financial inclusion, limited research investigates their long-term impact on women's entrepreneurial growth, especially in developing countries. *Third*, previous empirical studies highlight contextual disparities such as cultural norms, digital literacy, and infrastructural limitations, but limited attention is paid to them in the Tanzanian context. Based on the theoretical and empirical review, this paper hypothesizes that:

H_{01} : Usage of digital finance platforms does not significantly influence the financial inclusion of women entrepreneurs in Dodoma Municipality.

H_{02} : Mobile money services do not significantly promote the financial inclusion of women entrepreneurs in Dodoma Municipality.

H_{03} : The agency banking model does not significantly enhance the financial inclusion of women entrepreneurs in Dodoma Municipality.

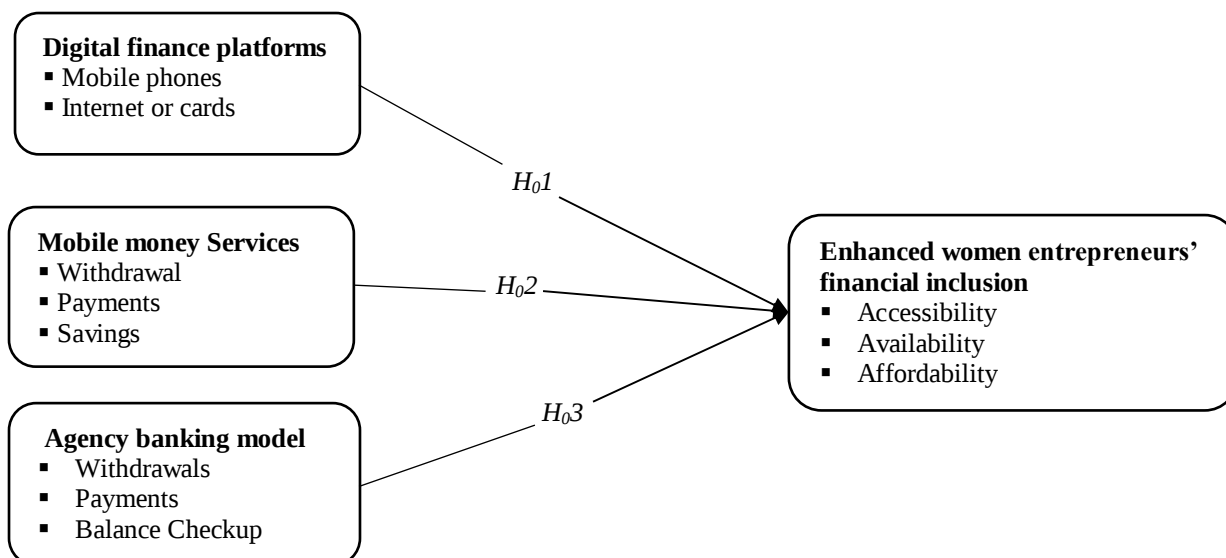


Figure 1
Variable Conceptualization

III. METHODOLOGY

The study was conducted in Dodoma City Council, the fifth-largest city in Tanzania after Dar es Salaam, Mwanza, Arusha, and Mbeya. Dodoma is located at a Latitude of -6.161184 and a Longitude of 35.74542. The area was selected due to its growing business opportunities for women entrepreneurs, largely driven by government operations and public servants' relocation from Dar es Salaam to Dodoma. Specifically, the study was conducted at the Machinga Complex Market, one of the largest markets in the city and a key driver of the local economy. The market was projected to accommodate 2,930 out of the 3,500 small-scale traders in Dodoma, equivalent to 80% of the city's total small traders (Mwananchi, 2022). However, by the time of data collection, the market had 537 registered petty traders of whom 184 were women entrepreneurs.

A cross-sectional research design using a quantitative methodology was used, where data were collected once. The design was chosen as it fits studies with multiple variables trying to test their inter-relationship through mathematical models, theories, and hypotheses (Creswell, 2014). The design allows concurrent data collection from various sources for simultaneous analysis. The participants were selected based on the inclusion criteria of being a female entrepreneur engaged in business activities. Specifically, it involved 184 registered women entrepreneurs at the Machinga Complex Market in Dodoma City Council. Yamane's (1967) formula was used to estimate sample size based on the required statistical power, the ability to access respondents, and the desired degree of precision (Taherdoost, 2017).

The formula was chosen since registered women entrepreneurs engaged in business activities were known before data collection. The sample size $(n) = \frac{N}{1+N(e)^2}$ (1)

Whereby;

n = Sample size,

N = Total population,

(e) = The margin of error (5%).

Plugging the figures into equation (1)

$$\text{Sample size } (n) = \frac{184}{1+184(0.05)^2} = 126.027 \approx 126 \text{ respondents.}$$

A structured questionnaire was personally administered to women entrepreneurs in the study area. A five-point Likert scale format was designed to collect their views on digital finance platforms, digital money, and agency banking.

The collected data were analyzed using descriptive and inferential statistical methods. Both constructs and items were tested for reliability and validity using Cronbach's Alpha (α) as the metric for internal consistency.

Table 1*Construct Reliability Analysis*

Construct	Number of Items	Cronbach's Alpha	Remarks
Digital finance platforms	12	0.742	Acceptable reliability
Mobile money services	5	0.729	Acceptable reliability
Agency banking model	4	0.770	Good reliability
Financial inclusion	9	0.616	Unacceptable reliability

Table 1 indicates that, except for the financial inclusion construct, all other constructs had Cronbach's Alpha values above the recommended threshold ($\alpha \geq 0.7$), ranging from 0.742 to 0.770 (Hair *et al.*, 2019). This suggests that the constructs and their respective items were moderately reliable in measuring the same underlying concepts. Although $\alpha \geq 0.70$ is recommended reliability (Hair *et al.*, 2019), values below this threshold may be acceptable when measuring attitudes rather than abilities (Field, 2008). Since this study examined the perceived financial inclusion through digital banking services, $\alpha = 0.616$ for the financial inclusion construct was deemed acceptable and retained for further analysis.

A multiple linear regression was used to examine the influence of digitalizing banking services on women entrepreneurs' financial inclusion. Consistent with Ozili (2022), the model is acceptable if the R-squared value is at least 0.1 (or 10%), provided that some or many predictors were statistically significant. The adjusted R-squared values ranged from 12.2% to 50.6%, indicating that the model attained minimal requirements for use in social science research (Ozili, 2022). The regression coefficients were used to determine the extent to which each independent variable predicts the dependent variable (Pallant, 2020). The following multiple regression model was used:

$$\hat{Y} = b_0 + b_1X_1 + b_2X_2 + \dots + b_pX_p \dots \dots \dots (2)$$

Whereby:

$\hat{Y}$ = Predicted dependent variable: improved financial inclusion of women entrepreneurs;

$X_1 - X_p$ = Independent variables: digital finance platforms, mobile money, and agency banking model;

b_0 = The value of $\hat{Y}$ when all of the independent variables (X_1 through X_p) are equal to zero;

$b_1 - b_p$ = The estimated regression coefficients.

IV. FINDINGS & DISCUSSION

4.1 Respondents' Descriptive Statistics

The descriptive statistics of the women entrepreneurs' demographic information covered their age, sex, education level, marital status, and business experience.

Table 2*Descriptive Statistics of Women Entrepreneurs*

Variable	Category	Frequency (N)	Percent (%)
Age	Below 20	6	5.1
	21 – 30	38	32.5
	31 – 40	39	33.3
	41 – 50	25	21.4
	Above 51	9	7.7
Marital status	Single	34	29.1
	Married	59	50.4
	Divorced	19	16.2
	Widow/widower	5	4.3
Education level	No formal education	5	4.3
	Primary Education	25	21.4
	Secondary education	71	60.7
	University/college	16	13.7
Business experience	3 Months	3	2.6
	6 Months	34	29.1
	9 Months	41	35.0
	More than a Year	39	33.3

About 65.8% of the respondents were youths aged between 21 and 40 years, suggesting many women entrepreneurs fall in the economically active years. This age category often participates in formal and informal sector activities (Rumanyika *et al.*, 2019). Moreover, about half of the respondents (50.4%) were married, while 29.1% were single. This may imply that family responsibilities push their engagement in business ventures. Many respondents (60.7%) had a secondary education, primary education (21.4%), and tertiary education (13.7%). This reflects a moderate level of formal education among the women entrepreneurs in developing countries (Rumanyika *et al.*, 2019). Lastly, 64.1% of respondents reported having prior experience in running business activities. This suggests that many women entrepreneurs had adequate experience and capacity to sustain their business activities.

4.2 Diagnostic tests

Before conducting inferential analysis, the basic assumptions for multiple linear regression were tested. Specifically, Variance Inflation Factor (VIF) and Tolerance values were used to assess the multicollinearity assumption.

Table 3

Multicollinearity Test Assumptions

		Coefficients ^a	
		Collinearity Statistics	
	Model	Tolerance	VIF
1	Digital finance platforms	0.886	1.129
	Mobile money services	0.747	1.339
	Agency banking model	0.721	1.387

a. Dependent Variable: Improved financial inclusion

Table 3 assesses whether digital finance platforms, mobile money, and agency banking exhibit multicollinearity. Multicollinearity occurs when predictor variables are highly correlated with one another, potentially distorting the regression results. All tolerance values ranged between 0.721 and 0.886, exceeding the minimum acceptable threshold of 0.1 (Pallant, 2020). Similarly, all Variance Inflation Factor (VIF) values fell within the range of 1.129 to 1.387, which is well below the accepted maximum threshold of 5 (Pallant, 2020). Implicitly, each independent variable provides distinct and non-redundant information to the regression model, leading to stable and reliable parameter estimates (Hair *et al.*, 2019; Pallant, 2020).

Furthermore, we used a scatterplot to evaluate the relationship between financial inclusion and the regression standardized residuals. The scatterplot displays a random dispersion of residuals around zero, with no visible patterns. This indicates the attainment of linearity and homoscedasticity assumptions. If patterns such as curves or clusters exist, the assumptions could be violated, indicating a non-linearity or heteroscedasticity potential.

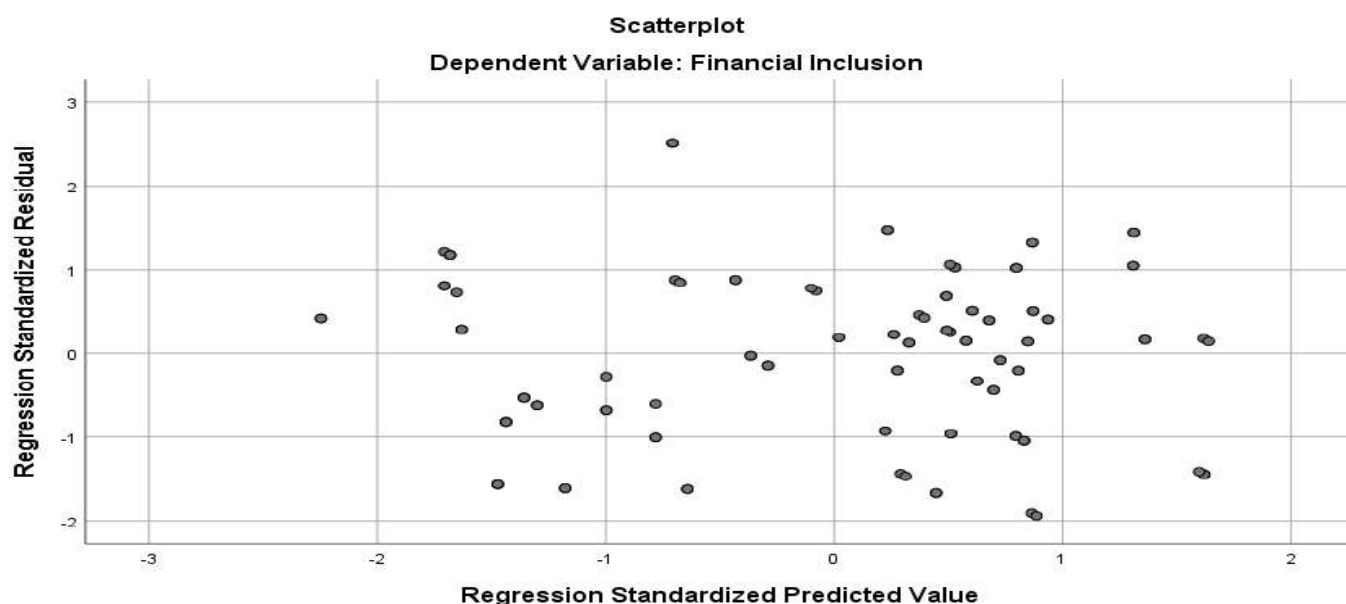


Figure 2

Scatter Plot for the Homoscedasticity Test

The Normal P-P Plot of the regression standardized residuals (Figure 3) is used to assess whether the residuals follow a normal distribution, a key assumption in linear regression. The plot shows that most data points lie close to the 45-degree diagonal line. This indicates that the residuals are approximately normally distributed.

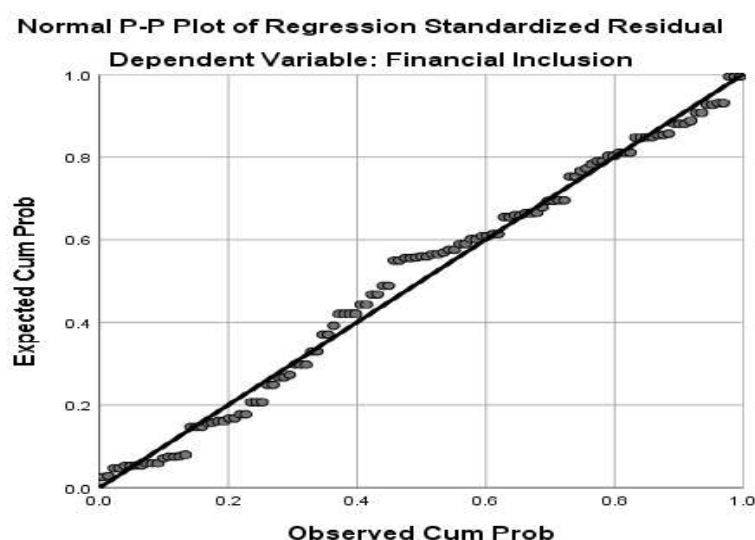


Figure 3
Probability Plot of the Residual

4.3 Descriptive Statistics on Digital Technologies Usage

First, the paper sought to establish the frequency with which women entrepreneurs in Dodoma municipality use digital technology to access financial services. Figure 4 presents the descriptive statistics on digital technology platforms' usage and women entrepreneurs' potential to access financial services.

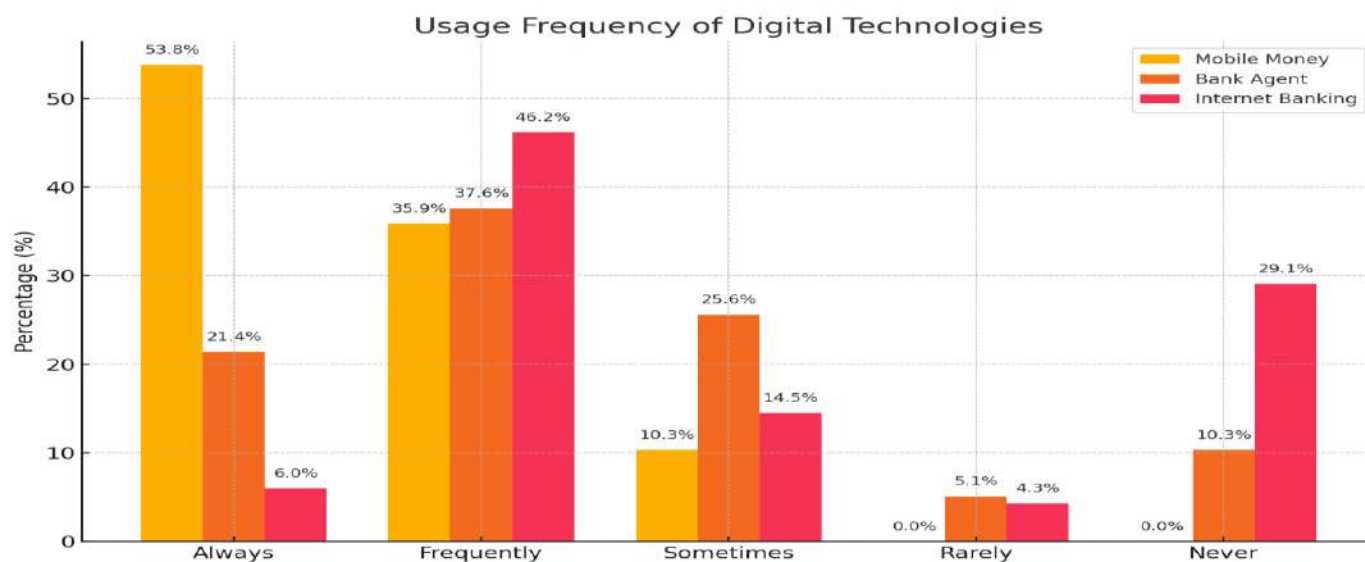


Figure 4
Usage Frequency of Digital Technologies

Figure 4 shows that mobile money is the most widely used and accessible digital financial service, with over 89% of respondents always or frequently using it. This highlights its reliability and role in promoting financial inclusion among women entrepreneurs (Alom *et al.*, 2025). Bank agents had moderate usage (59%), serving as a critical intermediary for users requiring physical access to financial services but residing far from formal commercial banks. Internet banking lags in adoption, with nearly 30% of respondents never engaging with it, reflecting challenges in accessibility, digital infrastructure, and user trust (Were *et al.*, 2021). These patterns suggest that, despite digital financial services expansion (Ugulumu *et al.*, 2023), concerted efforts are needed to enhance internet connectivity, digital literacy, and trust in online platforms, thereby advancing inclusive and reliable financial service delivery.

4.3.1 Digital Technologies Usage and Access to Financial Services

The outline of digital technologies (mobile money, bank agents, and internet banking) usage allowed the examination of their influence on access, availability, affordability, and usage of financial services as dimensions. Using a 5-point Likert scale, the mean (M) and standard deviation (SD) for each statement were computed to capture central tendencies and variability.

Table 4

Descriptive Statistics on Digital Technologies and Access to Financial Services

Statement	Strongly Disagree		Disagree		Agree		Strongly Agree		Mean (M)	Standard Dev. (SD)
	F	%	F	%	F	%	F	%		
Mobile money enhances access to financial services.	3	2.6	7	6.0	68	58.1	25	21.4	3.90	.894
Mobile money widens financial services availability.	3	2.6	2	1.7	57	48.7	41	35.0	4.12	.873
Mobile money makes financial services affordable.	-	-	-	-	66	56.4	35	29.9	4.16	.643
Mobile money increases financial services usage.	-	-	2	1.7	73	62.4	27	23.1	4.07	.653
Bank agents widen financial services accessibility.	-	-	7	6.0	63	53.8	26	22.2	3.92	.800
Bank agents widen the availability of financial services.	-	-	3	2.6	65	55.6	28	23.9	4.01	.725
Bank agents increase the affordability of financial services.	-	-	5	4.3	63	53.8	29	24.8	3.99	.771
Bank agents increase financial services usage.	-	-	3	2.6	67	57.3	22	18.8	3.92	.709
Internet banking improves access to financial services.	-	-	2	1.7	52	44.4	21	17.9	3.79	.752
Internet banking increases the availability of financial services.	-	-	2	1.7	46	39.3	31	26.5	3.91	.809
Internet banking makes financial services affordable.	-	-	-	-	7	48.7	26	22.2	3.93	.716
Internet banking increases financial services usage.	4	3.4	2	1.7	53	45.3	24	20.5	3.78	.911

Table 4 shows high agreement that digital technologies enhance access to financial services. Specifically, 79.5% of respondents agree that mobile money enhances access to financial services ($M = 3.90$, $SD = 0.894$), 83.7% agree that it widens availability ($M = 4.12$, $SD = 0.873$), 86.3% agree on affordability ($M = 4.16$, $SD = 0.643$), and 85.5% agree on widening usage ($M = 4.07$, $SD = 0.653$), with minimal to no disagreement across the items. About 76.0% of respondents agree that bank agents enhance accessibility ($M = 3.92$, $SD = 0.800$), 79.5% on availability ($M = 4.01$, $SD = 0.725$), 78.6% on affordability ($M = 3.99$, $SD = 0.771$), and 76.1% on usage of financial services ($M = 3.92$, $SD = 0.709$), with limited disagreement. Lastly, 62.3% of respondents agree that Internet banking improves access to financial services ($M = 3.79$, $SD = 0.752$), 65.8% agree on availability ($M = 3.91$, $SD = 0.809$), 70.9% on affordability ($M = 3.93$, $SD = 0.716$), and 65.8% on usage ($M = 3.78$, $SD = 0.911$), with modest levels of disagreement (up to 5.1%).

Mobile money and bank agents are highly effective and widely accepted platforms for promoting financial inclusion that enhance accessibility, affordability, and usage of financial services (Saurabh, 2017). They are intermediaries that extend financial services to underserved and rural populations, given their broad reach and user-friendly nature. This contrasts with the findings of Kapinga *et al.* (2019), who reported limited mobile money usage among women entrepreneurs in the Iringa Municipality. However, they support Melubo and Musau (2020) and Churk *et al.* (2023), who observed significant improvements in financial access and usage through mobile money and bank agents among women entrepreneurs. Despite its potential, internet banking remains underutilized, perhaps due to limited digital literacy, infrastructure, and low trust in digital platforms (Myamba, 2023; Churk *et al.*, 2023).

These findings suggest the need for policymakers and commercial banks to strengthen digital infrastructure, increase financial and digital literacy, and foster public trust in internet banking usage. Continued support and concerted efforts to expand mobile money and agent banking models could advance inclusive finance. Furthermore, a multiple regression analysis model was used to establish the relationship, if any, between digital finance platforms' usage and financial inclusion potential among women entrepreneurs. Table 5 presents the results of a regression analysis covering model summary, analysis of variance (ANOVA), and coefficient information.

Table 5*Regression Results for Digital Finance Platforms and Financial Inclusion*

Model Summary ^b						
	Model	R	R-Square	Adjusted R Square	Std. Error of the Estimate	
	1	.714 ^a	0.510	0.506	0.244	
ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.099	1	7.099	119.85	.000 ^b
	Residual	6.812	115	0.059		
	Total	13.911	116			
Coefficients ^a						
Model		β	Std. Error	Standardized Coefficients	t	Sig.
1	(Constant)	0.626	0.242		2.586	0.011
	Digital finance	0.726	0.066	0.714	10.948	0.000

^a. **Dependent Variable:** Financial Inclusion^b. **Predictors:** (Constant), Digital Finance

Table 5 suggests that digital finance usage significantly enhances financial inclusion among women entrepreneurs [$F(1, 115) = 119.85, p < 0.05$]. The explanatory power ($R^2 = 0.51$) suggests that digital financial platforms account for over 50% of the variation in financial inclusion outcomes. The correlation coefficient ($R = 0.714$) and the standardized beta ($\beta = 0.714$) show a moderately strong relationship between digital finance usage and financial inclusion. Implicitly, efforts to increase digital finance usage are likely to yield measurable improvements in financial inclusion among women entrepreneurs. A unit increase in digital finance usage can lead to a 0.726 unit increase in financial inclusion, highlighting its practical impact ($t = 10.948, p < 0.05$). Based on the findings, the study failed to reject the null hypothesis, H_01 . Impliedly, digitalisation of banking services has a positive and significant influence on the financial inclusion of women entrepreneurs in Dodoma municipality.

The findings underscore the role of promoting digital finance as a strategy for empowering women entrepreneurs and advancing inclusive economic development. This supports the development and scaling of digital finance initiatives to support inclusive financial systems for women entrepreneurs who remain underserved by traditional financial institutions. The findings correspond to those of Mganyizi (2023), who reported that digital finance significantly influenced micro-entrepreneurs' financial inclusion, accounting for 52.3% of the variation. Access and availability of financial services are critical drivers of financial inclusion (Saurabh 2017). Financial inclusion is driven by accessibility, affordability, and availability (Saurabh 2017). This contradicts Ugulumu *et al.* (2023), who reported that many women petty traders used mobile money accounts and informal savings rather than other digital platforms.

4.3.2 Mobile Money Services and Financial Inclusion

The second objective was to examine the influence of mobile money services usage on women entrepreneurs' financial inclusion. First, respondents were asked to indicate whether mobile money usage enhances access to financial services.

Table 6*Descriptive Statistics on Mobile Money Services and Access to Financial Services*

Statement	Strongly Disagree		Disagree		Agree		Strongly Agree		Mean (M)	Standard Deviation
	F	%	F	%	F	%	F	%		
My mobile phone helps me to access financial services regardless of my income status.	2	1.7	7	6.0	80	68.4	22	18.8	3.97	0.798
Mobile money provides access to financial services.	2	1.7	12	10.3	45	38.5	58	49.6	4.19	0.88
Mobile money is fairly cheap and affordable for low-income earners.	3	2.6	4	3.4	59	50.4	45	38.5	4.10	0.87
Mobile money is convenient and easy to use.	3	2.6	4	3.4	65	55.6	37	31.6	3.85	1.06
Mobile money enhances the financial inclusion of women entrepreneurs.	4	3.4	9	7.7	68	58.1	27	23.1	2.26	1.18

The findings in Table 6 show that many respondents expressed a high level of agreement that mobile money services make financial services accessible, affordable, and convenient, which in turn, widens their financial inclusion. Specifically, 87.2% agree that mobile phone usage improves access to financial services ($M = 3.97$, $SD = 0.798$). Similarly, 88.1% agreed that mobile money widens access to financial services ($M = 4.19$, $SD = 0.88$), and 88.9% perceive it to be affordable for low-income earners ($M = 4.10$, $SD = 0.87$). Additionally, 87.2% agree that mobile money is convenient and easy to use ($M = 3.85$, $SD = 1.06$). Generally, many respondents (81.2%) agree that mobile money enhances financial inclusion. However, the lower mean score suggests mixed perceptions and higher variability regarding the specific impact of mobile money on the financial inclusion of women entrepreneurs.

Although mobile money significantly contributes to financial inclusion among low-income individuals (Rani & Kumar, 2024), more targeted efforts are needed to support women entrepreneurs in Tanzania. Specifically, some existing customary practices restrict women from owning property, which could limit their ability to access not only financial services but also conduct business to improve their livelihood. The findings correspond with those of Kapinga *et al.* (2019), who reported low mobile money usage among women entrepreneurs in the Iringa municipality. Similar to Ugulumu *et al.* (2023), women petty traders often use mobile money accounts and informal savings to save their money. In this regard, policymakers and commercial banks should develop mobile money products and services tailored to the needs of women entrepreneurs to ensure they fully benefit.

To supplement the descriptive statistics, we used multiple regression analysis to examine the relationship between mobile money services usage and women entrepreneurs' financial inclusion. Table 7 presents the regression analysis results covering model summary, analysis of variance (ANOVA), and coefficient information.

Table 7
Regression Results for Mobile Money Services and Financial Inclusion

	Model Summary ^b					
	Model	R	R-Square	Adjusted R Square	Std. Error of the Estimate	
	1	.608 ^a	0.370	0.364	0.27607	
ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.147	1	5.147	67.528	.000 ^b
	Residual	8.765	115	0.076		
	Total	13.911	116			
Coefficients ^a						
Model				Standardized Coefficients	t	Sig.
		<i>β</i>	Std. Error	Beta		
1	(Constant)	1.826	0.177		10.311	0.000
	Mobile Money	0.608	0.074	0.608	8.218	0.000

^a. **Dependent Variable:** financial inclusion

^b. **Predictors:** (Constant), mobile money services

The findings in Table 7 present the relationship between mobile money services and the financial inclusion of women entrepreneurs. The findings reveal a moderate positive correlation ($R = 0.608$), implying a corresponding increase in mobile money usage with financial inclusion. Mobile money services usage and financial inclusion are statistically significant [$F(1, 115) = 67.528$, $p < 0.05$], with mobile money services explaining 37% of the variance in financial inclusion. Although mobile money significantly predicts financial inclusion, other unmeasured factors play a significant role. The coefficient ($\beta = 0.608$) indicates that for each one-unit increase in the usage of mobile money services, financial inclusion increases by 0.608 units. The positive sign indicates a direct relationship between mobile money services usage and financial inclusion. The coefficient of mobile money service usage is significant ($t = 8.218$, $p < 0.05$), indicating its potential to predict women entrepreneurs' financial inclusion.

Based on the findings, the study failed to reject the null hypothesis, H_02 . The results confirm that mobile money services have a moderate but statistically significant positive impact on the financial inclusion of women entrepreneurs. Impliedly, the increase in mobile money usage significantly enhances financial inclusion outcomes (Ugulumu *et al.*, 2023). Similarly, the findings correspond to Mganyizi's (2023) conclusions that mobile money usage through mobile payment, mobile savings, and mobile credits significantly influences financial inclusion, accounting for 52.3% of the variance. The findings reveal that mobile banking significantly influenced women's entrepreneurship (Alom *et al.*, 2025). However, low levels of mobile phone ownership limit women entrepreneurs' financial inclusion (Myamba, 2023).

4.3.3 Agency Banking Model and Financial Inclusion Potential

The third and last objective was to examine the effect of the agency banking model on financial inclusion. At first, descriptive statistics were conducted to establish whether women entrepreneurs own bank accounts and, if not, establish alternative saving mechanisms used. Figure 5 presents bank account ownership status and saving mechanisms for non-account holders.

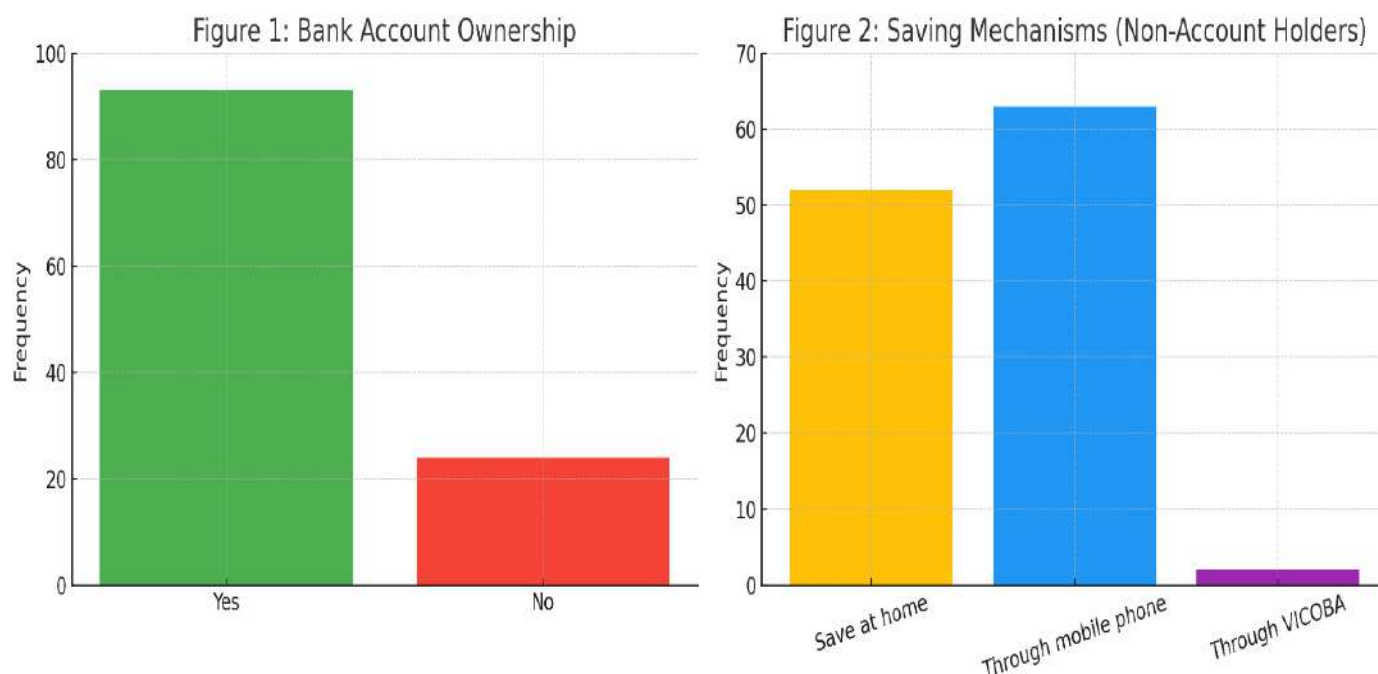


Figure 5
Bank Accounts Ownership and Saving Mechanisms for Non-Account Holders

Figure 5 reveals that while many respondents (79.5%) owned bank accounts, 20.5% remained unbanked. The high percentage of bank account ownership confirms a significant expansion of formal financial inclusion in Tanzania (FinScope, 2023) and Dodoma municipality in particular (Ugulumu *et al.*, 2023). However, the one-fifth without bank accounts indicates that many still face barriers to formal banking, such as distance to banking services, documentation requirements, or lack of trust in formal institutions (Were *et al.*, 2021; Melubo & Musau, 2020). Among the unbanked, over half (53.8%) use mobile phones to save, while 44.4% save informally at home, and only 1.7% save through Village Community Banks (VICOBA). This suggests that mobile money remains a key financial tool for the unbanked in Tanzania.

The over-reliance on mobile phones for saving among the unbanked indicates the potential of digital financial services to drive inclusivity in financial services. About 44.4% of women entrepreneurs still save informally at home (Ugulumu *et al.*, 2023), which may expose them to theft, loss, or misuse and deny some benefits, such as interest or credit history. The low usage of VICOBA suggests either a lack of awareness, limited access, or low confidence in community-based financial institutions. Furthermore, descriptive statistics on the perceived role of bank agents in financial inclusion among women entrepreneurs.

Table 8
Descriptive Statistics on Bank Agents and Access to Financial Services

Statement	Strongly Disagree		Disagree		Agree		Strongly Agree		Mean (M)	Stand. Dev.
	F	%	F	%	N	%	N	%		
Bank agents enhance access to financial services.	4	3.4	-	-	75	64.1	12	10.3	3.78	0.767
Bank agents widen financial services availability.	2	1.7	-	-	69	59.0	22	18.8	3.95	0.680
Bank agents help women to afford financial services.	2	1.7	2	1.7	61	52.1	26	22.2	3.91	0.816
Bank agents increase financial services usage.	-	-	2	1.7	65	55.6	22	18.8	3.91	0.702

Table 8 indicates a strong overall agreement among respondents regarding the role of bank agents in enhancing women entrepreneurs' access to financial services. Specifically, 74.4% of respondents agreed that bank agents enhance access to financial services ($M = 3.78$; $SD = 0.767$) while 77.8% agreed that they facilitate financial services ($M = 3.95$; $SD = .680$). About 74.3% agreed that bank agents enhance affordability ($M = 3.91$; $SD = .816$), and 74.3% perceived that bank agents enhance financial services usage ($M = 3.91$; $SD = 0.702$). These findings suggest that bank agents effectively facilitate access, availability, affordability, and use of financial services as critical dimensions of financial inclusion (Aziz *et al.*, 2022).

Besides descriptive results, multiple regression was further used to establish the relationship between bank agents' usage and the financial inclusion potential of women entrepreneurs.

Table 9

Regression Results for the Agency Banking Model and Financial Inclusion

Model Summary ^b						
	Model	R	R-Square	Adjusted R Square	Std. Error of the Estimate	
	1	.360 ^a	0.130	0.122	0.32444	
ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.806	1	1.806	17.157	.000 ^b
	Residual	12.105	115	0.105		
	Total	13.911	116			
Coefficients ^a						
Model		β	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.279	0.240		9.500	0.000
	Agency Banking	0.421	0.102	0.360	4.142	0.000

^a. **Dependent Variable:** Financial Inclusion

^b. **Predictors:** (Constant), Agency Banking Model

The findings in Table 9 show that there is a statistically significant relationship between agency banking and financial inclusion [$F(1, 115) = 17.157$, $p < 0.05$], with the model explaining 12.2% of the variance in women entrepreneurs' financial inclusion. The standardized Beta ($\beta = 0.360$) further supports a moderate positive effect of the agency banking model on financial inclusion. Despite a modest percentage, it suggests that bank agents have a notable impact on the financial inclusion of women entrepreneurs, though other unmeasured factors account for the remaining variability. The coefficient for the agency banking model of 0.421 indicates that for every unit increase in agency banking, financial inclusion increases by 0.421 units and is statistically significant ($t = 4.142$, $p < 0.05$). Based on the findings, the paper failed to reject the null hypothesis H_0 . This implies that agent banks significantly enhance women entrepreneurs' financial inclusion potential in the Dodoma municipality.

The findings underscore the role of agent banks in facilitating access to financial services among women entrepreneurs. However, several other factors not captured in this model account for the financial inclusion of women entrepreneurs. The findings support the growing body of empirical research that highlights the roles of agency banking in enhancing access to financial services, especially in underserved areas (Rani & Kumar, 2024; Melubo & Musau, 2020). The findings complement Alom *et al.* (2025), who reported that bank agents positively and significantly correlated with women entrepreneurs' financial inclusion. However, the findings contradict Myamba (2023), who found that the absence of bank agents and poor network coverage limited women entrepreneurs' financial inclusion.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study concludes that the digitalisation of banking services holds significant potential for enhancing financial inclusion among women entrepreneurs in Tanzania. Specifically, it concludes that mobile money is the most accessible and widely adopted digital tool, explaining 37% of the variance in women entrepreneurs' financial inclusion, followed by digital finance platforms (over 50%) and agency banking (12.2%). The findings complement the Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA), which highlight the perceived usefulness, ease of use, and social influences as key drivers for adopting digitalised banking services. Despite notable progress, limited digital literacy, inadequate infrastructure, and gender-specific barriers, such as restrictive social norms,

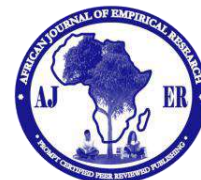
continue and still discourage the adoption of the internet banking model. The findings imply that digitalisation of banking services offers a viable pathway to bridge financial exclusion gaps in developing economies. Digitalisation of banking services can potentially empower women entrepreneurs to fully pursue entrepreneurial activities to contribute to household income, reduce poverty levels, and enhance sustainable development to support the African Union Agenda 2030. However, the modest explanatory power of the agency banking model and the underutilization of internet banking call for additional factors and targeted interventions to maximize women entrepreneurs' inclusion potential.

5.2 Recommendations

The paper calls for targeted recommendations to enhance financial inclusion among women entrepreneurs in Tanzania. **To the bank officials:** *First*, collaborate with telecommunications companies to develop affordable, women-centric mobile money products that address barriers such as lack of collateral and low income. *Second*, expand bank agent networks in rural areas to leverage their 74.3% perceived effectiveness in reaching 20.5% of unbanked women. *Third*, invest in reliable internet infrastructure while promoting user-friendly internet banking platforms to reduce the 30% non-usage rate. **To women entrepreneurs:** *First*, adopt mobile money and agency banking to access financial resources for business growth and independence. *Second*, participate in financial and digital literacy programs to overcome barriers such as low literacy that limit internet banking adoption. *Third*, use peer and community support to navigate restrictive social norms. **To academic scholars:** *First*, conduct longitudinal studies to evaluate the long-term impact of mobile money on entrepreneurial growth beyond the 37% variance explained. *Second*, investigate further specific cultural norms, digital literacy, and infrastructure for tailored financial inclusion models. *Third*, integrate qualitative research to explore subjective barriers like trust in digital platforms, enriching insights beyond the 50.6% adjusted R-squared. This could harness the potential of digitalising banking services to empower women entrepreneurs and advance inclusive economic development across the country.

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