

# Linking Financial Access to Women's Empowerment through Financial Literacy: Insights from Tanzania's Informal Sector

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**Abstract:** Women's empowerment and access to finance have remained key development issues, especially in relation to poverty reduction, gender equality, and inclusive growth. Despite efforts to improve financial access, women in developing economies still face structural and cultural barriers that restrict their ability to benefit from financial systems fully. This study explores the mediating role of financial literacy between financial access and women's empowerment within Tanzania's informal economy, where most women entrepreneurs operate. Using Financial Capability Theory and the Financial Literacy-Inclusion Nexus as frameworks, the research employed a quantitative cross-sectional design with 384 women entrepreneurs in Dar es Salaam. Applying Partial Least Squares Structural Equation Modelling (PLS-SEM), the results show three primary outcomes: firstly, financial accessibility significantly influences financial literacy; secondly, financial literacy has a positive impact on women's empowerment, including economic independence, decision-making, and self-confidence; and thirdly, financial literacy partly mediates the relationship between financial accessibility and empowerment. These findings emphasise that access to finance is vital but not sufficient on its own without the accompanying financial skills and knowledge. Empowerment results not just from financial access, but also from women's ability to convert that access into sustainable outcomes. The research underscores the importance of combining financial education with inclusion initiatives and advocates for dual-objective strategies that increase financial accessibility while enhancing women's financial capabilities. These findings are relevant for developing theory in financial capability research and informing policy and practice for policymakers and practitioners committed to promoting gender-sensitive financial inclusion and achieving the Sustainable Development Goals in Tanzania.

**Keywords:** Financial Accessibility, Financial literacy, Informal sector, Women's empowerment, Tanzania

## 1. INTRODUCTION

In the last few decades, financial access and women's empowerment have emerged as important global development issues in relation to the issues of poverty reduction, gender equality, and inclusive economic growth. Financial inclusion has received much attention as a facilitator for individuals, and in particular women, to gain access to credit, save safely, and better manage financial risks (Grohmann et al., 2018). However, despite an excellent understanding of this topic, many women, especially in developing economies, still experience the effects of multiple barriers to accessing and using financial services. These barriers are compounded by the underlying issues of low levels of financial literacy, limited institutional engagement, and cultural limitations to women's participation in the economy (Andriamahery & Qamruzzaman, 2022). While the international community pursues SDG targets, particularly SDG 1 (No Poverty), SDG 5 (Gender Equality) and SDG 8 (Decent Work and Economic Growth), the urgency to address gender-based barriers to financial access cannot be overstated.

There has been an increasing body of literature attesting to the theoretical link of financial literacy to access to financial services, arguing that better financial knowledge and skills can empower women to access and navigate financial systems better (Hasan et al., 2021)(Hussain et al., 2018). Financial literacy is not only knowing about saving, budgeting, and credit but also having the confidence and habits to make

financial decisions (Xiao et al., 2022a). Data worldwide shows that even if financial services are accessible either physically or digitally, women's access and competency to utilise these services effectively will remain limited in the absence of adequate literacy and proper or supportive structure of empowerment (Showkat et al., 2025a). In addition, financial capability theorists underscore the connectivity of access, knowledge and behaviour about financial wellbeing and long-term empowerment (Sherraden, 2010); (Gudmunson et al., 2016). These requirements have led researchers and development practitioners to investigate the role of women's financial literacy as a mediating factor for inclusive finance and gender empowerment.

In Tanzania, most women entrepreneurs are formally positioned in the informal sector, which includes small unregistered enterprises, little regulation, and minimal recognized enterprise support systems. The introduction of government programs and the promotion of microfinance to address issues of inclusion may not be sufficient for genuine access to finance, particularly for women, if they cannot access formal credit with insufficient collateral, documentation, and financial education (Mwangi & Cheluget, 2018); (Yanto Rukmana, 2023). The disconnect between the finance available for use and the use of available finance presents the structural impediment - inadequate financial literacy is a crucial barrier to using economic empowerment. The informal sector is certainly included in employment and capacity building, but there is very little emphasis on financial education and empowerment programs targeting women.

Financial literacy might be a significant route to improved access to finance and women's economic agency within Tanzania.

While there is research that has looked at financial literacy and access independently, there is limited research that has looked at how financial literacy mediates the relationship between access to finance and women's empowerment, particularly in the informal economies of Sub-Saharan Africa. However, existing studies have limitations as they are either dislocated from the local economic context or do not capture the intersecting realities of operating an informal micro-enterprise as a woman (Changweshwa, 2023); (Andarsari & Ningtyas, 2019). Additionally, policy responses are primarily concerned with expanding financial infrastructure, or agencies, rather than with developing educational activities that build financial literacy (Kodongo, 2018a). The lack of a comprehensive framework creates a critical gap in learning/knowledge and implementation, especially for inclusive, sustainable development. Failure to prioritise a framework that properly incorporates those factors would result in continued patterns of gender based financial exclusion, whilst limiting Tanzania's chances of fulfilling its commitments to the SDGs and national development policy requirements.

Addressing this challenge will increase gender equity for women, improve household livelihoods and national economic resilience. Empowered women will likely reinvest in health, education, and community, providing positive intergenerational externalities. However, if women's financial literacy and access are not improved, cycles of poverty, dependence on informal debts and limited formal business growth are likely to continue (Kumari, 2020); (Dharmawan Buchdadi & Sholeha, 2020). Additionally, if access mechanisms do not leverage evidence-based frameworks that encompass knowledge and access, these mechanisms are likely to perpetuate exclusionary and/or unsustainable forms of financial interventions. By coupling financial literacy with access, this study offers one process to improve access to create a more inclusive model of financial empowerment that is relevant to the lived realities of Tanzanian women entrepreneurs.

The purpose of this study is to investigate the mediating role of financial literacy on financial accessibility and women's empowerment for informal women entrepreneurs in Tanzania. In other words, the study examines how financial literacy gives realisation or limitations for women to change accessibility to finance into empowerment outcomes - a key theoretical and policy gap in the literature around financial capability, financial inclusion and gender development. The objective of the study is to provide empirical evidence to contribute to the inclusion of targeted policy intervention decisions, financial education programs, and inclusive finance initiatives. It is believed that this research is situated within and supports wider national and international objectives to achieve gender

responsive financial inclusion as part of Tanzania's development actions and the Sustainable Development Goals.

## **2. Literature Review and Hypotheses**

### **2.1 Theoretical Literature Review**

This research draws from Sherraden's (2010) Financial Capability Theory, which holds that individuals will achieve enhanced financial well-being when they have both the knowledge (financial literacy) and access (financial inclusion) to take actions. This theory incorporates financial literacy and financial inclusion as two sides of the same coin to improve socioeconomic outcomes, and relates well to this study's purpose of understanding how financial access and literacy work in tandem to empower women. The conceptualisations and extensions of the theory (Xiao et al., 2022b); (Çera et al., 2021) most recently emphasise the influences of contextual and behavioural mediators, such as dynamics of the informal sector or gendered access to finance, in shaping the financial capability outcomes. In Tanzania, with women's typical structural barriers to accessing funds in the informal sector, this theory gives meaning to examining how financial services and knowledge shape financial capability, whether constraining or enabling. In low-income gender sensitive contexts like this one, however, this theory has not been deeply explored, making this study a timely contribution.

Building upon the foundational view, Financial Literacy-Inclusion Nexus theory offers a more precise view of the pathway by which financial knowledge precedes and connects to access to finance (Grohmann et al., 2018) ; (Hasan et al., 2021). Evidence from empirical studies supports this pathway across different contexts, with the evidence showing, for example, that financial literacy is a significant factor in increasing access to formal credit (Iram et al., 2023); (Changweshwa, 2023). In the context of Tanzania, where formal financial institutions can limit or discriminate against informal sector actors (particularly women), financial literacy can be the enabling bridge across the access chasm (Thohari & Rizky, 2021). However, while the pathway proposed in the Financial Literacy-Inclusion Nexus theory makes logical sense, it is not an assumption that can be made. Evidence indicates that there are behavioural mediators, such as risk perception and financial self-efficacy, which will affect access to finance and usage (Dharmawan Buchdadi & Sholeha, 2020). For this reason, this study views financial literacy as not only knowledge, but as an enabler of transformative change - one that will influence women's choice, access to finance and their empowerment.

The objective of this study is to explore empowering women through Financial Literacy Models, supported by (Andriamahery & Qamruzzaman, 2022), (Kumari, 2020), and (Showkat et al., 2025a), who define financial literacy as an enabler for women to have ownership of resources, independence from financial reliance, and choice over decision-making. The models highlight that literacy enables empowerment, directly or indirectly, through access to digital

financial services, entrepreneurial opportunities, and resilience to financial shocks. However, a lot of the literature in this area has an urban bias/ they are not contextualized, and does not delve deeply into the informal economy, for example, in Tanzania, and much of the empirical literature treats access to finance and financial literacy as distinct predictors, rather than contextualizing them as interdependent constructs, mediated by gender norms, cultural structures and economic exclusion (Chidiogo Uzoamaka Akpuokwe et al., 2024). This study utilised these interconnections to extend the existing body of knowledge into a new context and positioned the relationships as a coherent framework, which will not only extend theory into a different context but also respond to calls for gendered and contextually grounded financial research.

## 2.2 Financial accessibility and financial literacy

Financial literacy involves budgeting, saving, investing and general debt management. Financial accessibility is the extent to which businesses or individuals can reasonably access financial services (credit, savings, insurance, etc). The extent to which financial literacy is related to financial accessibility has been investigated through a number of quantitative studies for both small and medium enterprises (SMES) as well as marginalised populations. (Grohmann et al., 2018) conducted a cross-country study that showed a significant positive relationship between financial literacy and financial inclusion, suggesting that the more improved financial understanding, the more participation in financial services. (Hussain et al., 2018) studied UK enterprises and established that financial literacy led to better access to finance opportunities, especially when paired with some form of entrepreneurial training. Overall, the cumulative evidence which highlights the relationship between financial literacy and financial accessibility supports our hypothesis that financial literacy is a significant indicator of financial accessibility for entrepreneurs and underserved populations.

Recent quantitative studies, including structured surveys and structural equation modelling (SEM), reaffirmed the relationship between financial literacy and financial access. (Changwasha, 2023) study of SMEs in South Africa utilised a quantitative design and found that entrepreneurs' increased financial literacy levels correlated with better credit facility access. (Iram et al., 2023) study of rice farmers in Pakistan employed a similar method and identified tangible financial literacy enhancements when it came to credit accessibility through regression analysis and stratified sampling. (Changwasha, 2023) quantitative design, which utilised SEM, helps affirm the establishment of frameworks to explore financial relationships in the manner established in this proposal. While the results are consistent across contexts, some limitations were nevertheless present, including geographic confinement and a variety of approaches to operationalising financial literacy. Nevertheless, there was a substantial level of evidence that largely confirms the hypothesis that financial literacy enhances financial accessibility, especially in the SME space.

Nonetheless, not all research claimed to show the strength or direction of the relationship between financial literacy and financial accessibility. For instance, (Thohari & Rizky, 2021) cited research indicating that among persons who reported having a disability, financial literacy was insufficient to enable access to financial services; however, structural barriers, such as discrimination and inadequate infrastructure, still needed to be addressed. (Babych & Grigolia, 2018) noted that as part of their research, institutional trust and regulatory frameworks mediated the relationship in transitional economies. The inconsistencies in research outcomes also suggest a lack of understanding of how contextual differences, such as urban or rural contexts or genders, could influence the access nexus of financial literacy and financial access. The majority of research in this review measured financial literacy based on pre-defined test scores or self-report using available financial literacy scales, while the financial accessibility aspect was often framed in terms of basic access to formal financial products and services. In response to these gaps, the current study, which is based on Dar es Salaam, Tanzania, introduces the following hypothesis:

***Hypothesis (H1): Financial accessibility is positively associated with financial literacy***

## 2.3 Financial Literacy and Women-Led MSMEs Empowerment

Financial literacy encompasses the knowledge, skills, and attitudes needed to make sound financial decisions. Furthermore, women-owned MSMEs gain financial empowerment when they can increase their control over resources, their sense of agency, and the ability to make decisions that can influence or enhance their financial situation. Numerous studies have examined the established and impactful relationship between financial literacy and the financial empowerment of women-owned MSMEs, particularly in developing contexts. (Andriamahery & Qamruzzaman, 2022) acknowledged that financial literacy influenced women entrepreneurs in a developing setting like Madagascar, alongside access to finance and technical skills. (Kumari, 2020) described rural women in India who, after training in financial literacy, were able to grow their income and decision-making capacity. Therefore, these two studies suggest a positive correlation between financial literacy and a women-owned MSME's capacity to achieve financial empowerment.

Concerning quantitative methodological empirical research surveys, surveys, structural equation modelling (SEM) or regression analysis, it is noted that there is a positive correlation between financial literacy and women's empowerment. In particular, a cross-sectional study performed by (Mishra & Pham, 2022) and by (Showkat et al., 2025b), which used SEM, showed financial literacy enabled women to have access to credit, manage financial uncertainty and invest for firm growth, along with the study carried out by (Arini, 2018) in which proposed that financial literacy helps build confidence and independence in women entrepreneurs through

better financial behaviour and strategic decision making. The studies mentioned in the previous paragraph measured financial literacy through formal assessments and self-reported competency scales, and measured empowerment as income increase, financial decision making and business operational performance. Given that the methodologies and variables are similar, studies from the reference papers suggest the use of quantitative tools such as PLSSEM will be fit for purpose for in this research project and for the urban African contexts under study (Dar es Salaam).

While a number of studies indicate generally positive relationships exist, some stress context limitations and discrepancies. As an example, (Thompson et al., 2018) stated that financial literacy programs did not impact women's empowerment when they are not underpinned by access to formal financial services or developing supportive policy. Similarly, (Nawaz et al., 2023) identified limits associated with financial literacy alone achieving empowerment, absent mediating mechanisms such as financial inclusion or digital literacy, advocating for multidimensional approaches. The totality of these inconsistencies suggest there are provable gaps in the literature particularly in the understanding of how the local context mediates outcomes - for example, the difference between urban versus rural, or dominance of informal vs formal sector. Although limited, few studies have emerged from Tanzania focused on developing financial capability so there is a substantial gap in knowledge that this study aims to contribute to. Hence, this study puts forward the following hypothesis:

**Hypothesis (H2): Financial Literacy has a significant positive influence on the empowerment of women-led MSMEs**

#### 2.4 Financial Accessibility, Financial Literacy and Women-Led MSMEs Empowerment

Financial accessibility is the ability for a person or business to access financial products and/or services, and financial literacy is the ability to understand and use financial information. The empowerment of women-led MSMEs can include access to decision-making and financial resources but also having a flourishing business. Recent empirical studies have increasingly pinpointed the relation between financial literacy and financial accessibility as a key factor for women entrepreneurs' empowerment. For example, (Showkat et al., 2025a) identified financial literacy as a significant positive effect on women's economic empowerment, with digital financial services mediating this relationship, implying that accessibility enables literacy to have a greater effect. Similarly, (Nawaz et al., 2023) demonstrated that financial inclusion mediated the relationship between financial literacy and empowerment. These findings provide that without financial services, there is no empowerment in financial literacy.

A number of studies have used quantitative research methodologies, such as surveys or structural equation

modelling (SEM), to explore the relationships between financial literacy, access and empowerment. (Changweshwa, 2023) based their work on cross-sectional survey data collected from SMEs in South Africa and used regression analysis to show that financial literacy was a positive predictor of financial access, which increases SME performance. (Abdallah et al., 2024) found that financial access functioned as a moderator on the financial literacy - SME growth relationship, for which they supported a mediation model. The majority of studies use self-assessment questionnaires and objective tests of financial knowledge to measure financial literacy, while financial accessibility is defined through access to credit, banking services, and digital finance opportunities. Empowerment is often based on measures of business growth, income mechanics, and decision-making opportunities. This helped provide a methodological basis for the operationalisation within this study.

Although these positive findings exist, some empirical studies report limitations associated with sample size, geographical context, and the complex nature of mediating variables. For instance, (Kodongo, 2018b) and (Mwangi & Cheluget, 2018) studies of Kenya emphasise that regulatory environments and cultural barriers inhibit the effectiveness of financial literacy and accessibility in equipping women-led MSMEs. (Twumasi et al., 2022) also identified that rural contexts may have features that dilute the effects due to less availability of financial infrastructure and similarly identify relevant areas for contextualisation in urban regions such as Dar es Salaam. The present study is filling such gaps by adopting research with a geographic urban focus on Tanzanian women-led MSMEs, where a good sample size is established and the methods will capture both direct and indirect effects comprehensively using PLS-SEM. Therefore, the following is hypothesised:

**Hypothesis (H3): Financial Literacy positively mediate the relationship between financial access and Women-led MSMEs Empowerment**

#### 2.5 Conceptual Framework

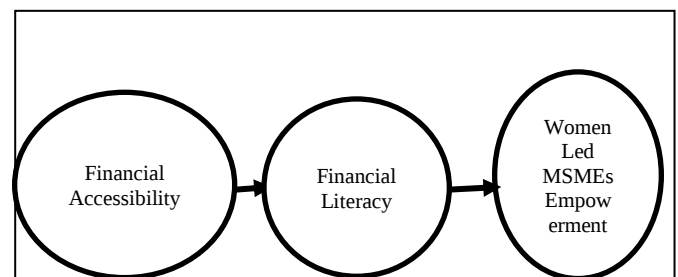


Figure 1. Conceptual Framework

The conceptual framework, in Figure 1, is outlined to represent the hypothesised relationships between financial access, financial literacy and women's empowerment in the informal sector of Tanzania. In this framework, we view financial access as a primary enabling condition that supports women's

access to financial services and engagement with economic opportunities. Financial literacy acts as a mediating factor supporting and developing women's capacity to use financial services and engage in economic decision-making. Together, these influence women's empowerment and reflect more robust economic participation, decision-making, and self-reliance. The framework acknowledges a direct relationship between financial access and empowerment, as well as an indirect relationship through financial literacy, indicating the importance of comprehensive approaches to financial inclusion.

### 3. Methods

The study took place in Dar es Salaam city, Tanzania's largest urban and economic centre. This city has a high number of women involved in informal businesses like food vending, selling clothes, operating salons, and providing mobile money services through M-Pesa. Choosing Dar es Salaam was deliberate because of its connection to Tanzania's National Financial Inclusion Framework (2018-2022) and its intricate financial landscape, which includes both formal financial institutions and informal lending. The city also provides a valuable setting for studying women's participation in the economy and their access to finance, thanks to its diverse population, relevant policies, and ongoing barriers to women's empowerment despite urban progress (Kodongo, 2018a; Changwasha, 2023). This urban environment allowed the study to investigate how access to finance and financial literacy interact to affect women's empowerment in busy economic contexts.

A quantitative cross-sectional research design assessed how financial literacy affects the relationship between financial access and women's empowerment. This method allowed for objective measurement of key concepts and hypothesis testing using Partial Least Squares Structural Equation Modelling (PLS-SEM). This technique is well-suited for predictive modelling and building theories in exploratory research (Hair & Alamer, 2022); (Sarstedt et al., 2022a). The target population included women working in selected informal sectors across Dar es Salaam City. Because there was no exact sampling frame, Cochran's formula for large populations with unknown proportions determined a minimum sample size of 384 participants. This calculation was based on a 95% confidence level, a 5% margin of error, and maximum variability ( $p=0.5$ ). To improve representativeness, stratified random sampling was used. The population was divided by business type, and participants were selected proportionally from each group.

Data collection used a structured questionnaire, which was pilot-tested to ensure reliability (Cronbach's  $\alpha > 0.7$ ). All main concepts were measured with validated multi-item scales on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Financial access was assessed through indicators like access to digital financial services, information regarding financial service, microfinance institution, diversity of financial products, financial services and affordability of financial products (Grohmann et al., 2018); (Raza et al.,

2023). Financial literacy included questions about budget creation, saving knowledge, capability to make informed financial choices, understanding credit principles, debit management and awareness of various financial product (Çera et al., 2021). Women's empowerment was measured using indicators of decision-making, access to education, economic independence, access education and skills training, social status, health well-being and income control (Sen et al., 2023a). Data analysis was performed using SmartPLS 4.0, following a two-step process. This process included assessing the measurement model (reliability, convergent, and discriminant validity) and evaluating the structural model (path coefficients,  $R^2$  values, and mediation effects). Bootstrapping with 5,000 resamples tested the significance of indirect effects, providing strong insights into the role of financial literacy in empowering women entrepreneurs in urban informal sectors.

### 4. Findings

#### 4.1 Assessment of Measurement Model

The results in Figure 2 and Table 1 showed that the concepts of Financial Accessibility, Financial Literacy, and Women's Empowerment had strong internal reliability. Cronbach's alpha values were above 0.70 for all these concepts: Financial Accessibility ( $\alpha = 0.858$ ), Financial Literacy ( $\alpha = 0.867$ ), and Women's Empowerment ( $\alpha = 0.878$ ). The rho\_A values for each concept also exceeded 0.70, providing further evidence of reliability based on consistency at the construct level. The Composite Reliability (CR) values were above 0.89 for all concepts, which indicates a high level of internal consistency. These results suggest that the measurement items accurately reflected the underlying concepts being studied.

Construct validity was confirmed through Average Variance Extracted (AVE) values, which all surpassed the recommended threshold of 0.50, supporting convergent validity. Financial Literacy had the highest AVE at 0.605, followed by Financial Accessibility at 0.585 and Women's Empowerment at 0.544. These values indicate that a significant portion of the variance in the observed indicators was explained by their latent constructs. Additionally, most factor loadings were above 0.67, showing strong relationships between the observed variables and their respective underlying concepts. These findings support the effectiveness of the measurement model in capturing the key aspects of financial literacy, financial accessibility, and empowerment. Analysis at the indicator level further validated the reliability and validity of the constructs. For example, items like "Knowledge of Savings" (loading = 0.683) and "Ability to Create a Budget" (loading = 0.774) significantly contributed to the Financial Literacy concept. Similarly, indicators like "Economic Independence" (loading = 0.806) and "Self-Confidence" (loading = 0.790) loaded strongly on the Women's Empowerment concept. Although a few items, such as "Decision-Making Power" (loading = 0.670) and "Control over Assets" (loading = 0.599), had relatively lower loadings, they were still within acceptable limits and meaningfully contributed to their constructs. Overall, the results from the measurement model provide strong evidence of reliability,

convergent validity, and accuracy of the tools used, establishing a solid base for later structural analysis.

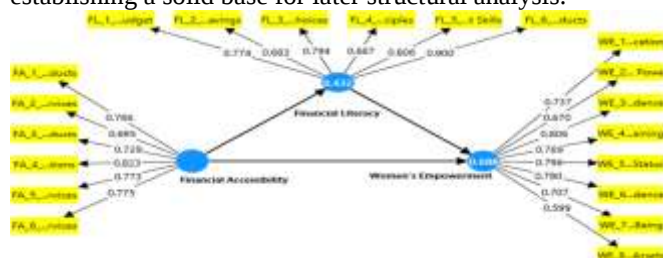


Figure 2. Measurement Model

Table 1. Measurement Model

| Construct               | Indicators                                                    | Loadings | Cronbach's $\alpha > 0.70$ | rho <sub>a</sub> > 0.70 | CR > 0.70 | AVE > 0.50 |
|-------------------------|---------------------------------------------------------------|----------|----------------------------|-------------------------|-----------|------------|
| Financial Accessibility |                                                               |          | 0.858                      | 0.865                   | 0.894     | 0.585      |
|                         | FA_1_Affordability of Financial Products                      | 0.786    |                            |                         |           |            |
|                         | FA_2_availability of financial services                       | 0.695    |                            |                         |           |            |
|                         | FA_3_Access to diversity of Financial Products                | 0.729    |                            |                         |           |            |
|                         | FA_4_Access to microfinance institutions                      | 0.823    |                            |                         |           |            |
|                         | FA_5_availability of information regarding financial services | 0.773    |                            |                         |           |            |
|                         | FA_6_access to digital financial services                     | 0.775    |                            |                         |           |            |
| Financial Literacy      |                                                               |          | 0.867                      | 0.882                   | 0.901     | 0.605      |
|                         | FL_1_Ability to Create a Budget                               | 0.774    |                            |                         |           |            |

|                     |                                                    |       |       |       |       |       |
|---------------------|----------------------------------------------------|-------|-------|-------|-------|-------|
|                     | FL_2_Knowledge of Savings                          | 0.683 |       |       |       |       |
|                     | FL_3_Capability to make informed financial choices | 0.794 |       |       |       |       |
|                     | FL_4_understanding of credit principles            | 0.687 |       |       |       |       |
|                     | FL_5_debt Management Skills                        | 0.806 |       |       |       |       |
|                     | FL_6_awareness of various financial products       | 0.9   |       |       |       |       |
| Women's Empowerment |                                                    |       | 0.878 | 0.884 | 0.904 | 0.544 |
|                     | WE_1_Access to Education                           | 0.737 |       |       |       |       |
|                     | WE_2_Decision Making Power                         | 0.67  |       |       |       |       |
|                     | WE_3_Economic Independence                         | 0.806 |       |       |       |       |
|                     | WE_4_Access to Education and Skills Training       | 0.769 |       |       |       |       |
|                     | WE_5_Social Status                                 | 0.796 |       |       |       |       |
|                     | WE_6_Self Confidence                               | 0.79  |       |       |       |       |
|                     | WE_7_Health and WellBeing                          | 0.707 |       |       |       |       |
|                     | WE_8_Contr ol over Assets                          | 0.599 |       |       |       |       |

#### 4.2 Discriminant Validity (Fornell Criterion)

Discriminant validity was evaluated using the Fornell-Larcker criterion. This method compares the square root of the Average Variance Extracted (AVE) for each construct with the correlations between constructs. The results in Table 2 showed that the square root of the AVE for each construct was higher than its correlations with all other constructs in the model. This confirms that the discriminant validity is adequate.

Specifically, the square root of the AVE for Financial Accessibility was 0.765. This is higher than its correlations with Financial Literacy (0.657) and Women's Empowerment (0.796). Financial Literacy had a square root of AVE of 0.778, which exceeds its correlations with Financial Accessibility (0.657) and Women's Empowerment (0.699). Similarly, the square root of AVE for Women's Empowerment was 0.738, surpassing its correlation coefficients with Financial Accessibility (0.796) and Financial Literacy (0.699).

These results confirm that each construct in the model is distinct, supporting the model's structure. Establishing discriminant validity is important to ensure that each latent variable measures a unique concept and that the overlap between constructs is kept within acceptable statistical limits (Fornell & Larcker, 1981).

**Table 2 Discriminant Validity**

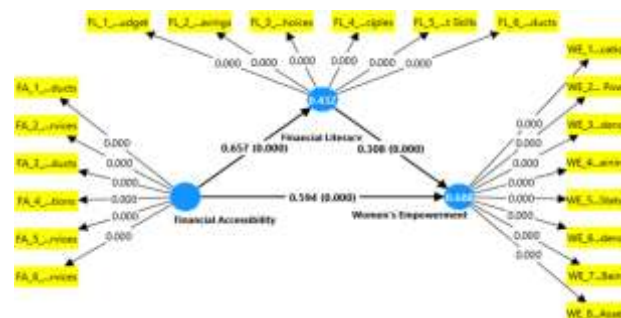
|                         | Financial Accessibility | Financial Literacy | Women's Empowerment |
|-------------------------|-------------------------|--------------------|---------------------|
| Financial Accessibility | 0.765                   |                    |                     |
| Financial Literacy      | 0.657                   | 0.778              |                     |
| Women's Empowerment     | 0.796                   | 0.699              | 0.738               |

#### 4.3 Assessment Structural Model

The results in Figure 3 and Table 3 from the assessment of the structural model provided strong support for all proposed relationships. Hypothesis 1 (H1) suggested that Financial Accessibility positively affects Financial Literacy. This was confirmed with a standardized beta coefficient ( $\beta$ ) of 0.657, a t-value of 20.516, and a p-value less than 0.001. These results indicate a significant effect, showing that better access to financial services greatly improves women's financial literacy. The coefficient of determination ( $R^2 = 0.43$ ) indicates that financial accessibility explains 43% of the differences in financial literacy. Additionally, the effect size ( $f^2 = 0.76$ ) is large, and the predictive relevance ( $Q^2 = 0.426$ ) confirms the model's strong ability to predict this relationship.

Hypothesis 2 (H2) examined the direct effect of Financial Literacy on Women's Empowerment. The results showed a standardized beta of 0.308, with a t-value of 7.326 and a p-value less than 0.001, confirming a significant and positive relationship. The  $R^2$  value of 0.686 for Women's Empowerment indicates that the model explains nearly 69% of the differences in this area. The  $f^2$  effect size of 0.174 indicates a medium effect, and the  $Q^2$  value of 0.629 demonstrates strong predictive relevance. These findings support the idea that improvements in financial literacy play a key role in empowering women in the informal sector.

Hypothesis 3 (H3) looked at the mediating role of Financial Literacy between Financial Accessibility and Women's Empowerment. The indirect effect was significant, with a standardized beta of 0.202, a t-value of 7.144, and a p-value less than 0.001. This confirms that financial literacy partially mediates the connection between financial accessibility and women's empowerment. The importance of this indirect pathway highlights how financial literacy helps turn access to financial resources into real empowerment. These findings together affirm the strength of the model and emphasise the essential role of financial literacy in boosting women's empowerment through better financial access.



**Figure 2 Structural Measurement Model**

**Table 3 Structural Measurement Model**

| Hyp | Relation                                                           | ST D<br>BE<br>TA | T<br>V<br>al<br>u<br>e | P<br>v<br>a<br>l<br>u<br>e<br>s | Fi<br>n<br>d<br>i<br>n<br>g | R <sup>2</sup> | F <sup>2</sup> | Q <sup>2</sup> |
|-----|--------------------------------------------------------------------|------------------|------------------------|---------------------------------|-----------------------------|----------------|----------------|----------------|
| H1  | Financial Accessibility > Financial Literacy                       | 0.657            | 20.516                 | 0.000                           | Supported                   | 0.43           | 0.76           | 0.426          |
| H2  | Financial Literacy > Women's Empowerment                           | 0.308            | 7.326                  | 0.000                           | Supported                   | 0.686          | 0.174          | 0.629          |
| H3  | Financial Accessibility > Financial Literacy > Women's Empowerment | 0.202            | 7.144                  | 0.000                           | Supported                   |                |                |                |

#### 5. Discussion of the Findings

The discussion of the PLS-SEM results shows strong support for the framework connecting financial accessibility, financial literacy, and women's empowerment in Tanzania's informal sector. The first hypothesis (H1) confirmed that financial accessibility positively influences financial literacy ( $\beta = 0.657$ ,  $t = 20.516$ ,  $p < 0.001$ ), showing a significant relationship. This aligns with earlier research that argues

accessible financial services are crucial for building financial literacy (Hasan et al., 2021); (Grohmann & Menkhoff, 2020). Financial accessibility increases individuals' exposure to formal financial institutions, leading to practical learning and financial awareness. This is especially important in low-resource areas like Tanzania, where limited access to financial services can greatly hinder people's ability to gain financial knowledge and skills (Yanto Rukmana, 2023). The  $R^2$  value of 0.43 for financial literacy indicates a moderate level of variance explained by financial accessibility, and the high  $f^2$  value (0.76) highlights the substantial effect size (Hair & Alamer, 2022); (Sarstedt et al., 2022b)

The second hypothesis (H2) found that financial literacy positively impacts women's empowerment ( $\beta = 0.308$ ,  $t = 7.326$ ,  $p < 0.001$ ). This result supports previous studies suggesting that financial literacy enhances women's economic decision-making, autonomy, and agency (Andriamahery & Qamruzzaman, 2022); (Mishra & Pham, 2022). As financial knowledge increases, women are better able to access financial products, manage their resources, and engage in entrepreneurial and community activities, which are all critical aspects of empowerment (Sen et al., 2023; Showkat et al., 2025b). The  $R^2$  value of 0.686 shows that a significant portion of the differences in women's empowerment can be attributed to financial literacy, and the  $f^2$  value of 0.174 supports a medium effect size. These findings reinforce the importance of targeted financial literacy programs as a tool for promoting gender equality, especially in financially disadvantaged groups (Islam et al., 2020); (Chidiogo Uzoamaka Akpuokwe et al., 2024)

The third hypothesis (H3), which tested the mediating role of financial literacy between financial accessibility and women's empowerment, was also statistically significant ( $\beta = 0.202$ ,  $t = 7.144$ ,  $p < 0.001$ ), confirming partial mediation. This suggests that financial accessibility not only directly affects women's empowerment but also indirectly does so through improving financial literacy. This mediating effect underscores how empowerment is a process; increased access to finance enables skill development, which leads to greater empowerment outcomes (Nawaz et al., 2023); (Twumasi et al., 2022). These findings support studies that stress that without the necessary literacy to effectively use financial services, the potential for financial access to empower remains limited (Lontchi et al., 2022); (Çera et al., 2021). The strong  $Q^2$  values for both constructs (0.426 for financial literacy and 0.629 for women's empowerment) highlight the model's predictive relevance (Legate et al., 2023); (Manley et al., 2024). Overall, this study validates theoretical ideas about financial capability (Xiao et al., 2022a) and provides practical evidence for policies that enhance both financial infrastructure and literacy to support women's empowerment in Tanzania's informal economy.

## 6. The study implication

The findings of this study have important implications for policy, practice, and research, especially in boosting women's empowerment in Tanzania's informal sector. The strong link between financial accessibility and financial literacy shows

the need to expand inclusive financial infrastructure, such as digital banking, mobile money services, and community-focused microfinance programs aimed at reaching underserved women (Grohmann et al., 2018); (Iram et al., 2023). The mediating effect of financial literacy emphasizes the need to include financial education in broader inclusion initiatives, showing that financial knowledge is crucial for turning access into real empowerment outcomes (Çera et al., 2021); (Sen et al., 2023b). For policymakers, this means that improving women's financial independence requires a two-part strategy: increasing access to financial services while also building women's financial skills (Andarsari & Ningtyas, 2019); (Hair & Alamer, 2022). The findings also extend previous theoretical views about the role of financial capability in women's empowerment, especially in informal and low-income settings, and provide a practical framework for similar economies (Maniragaba Nyandera Olivier, 2024); (Legate et al., 2023).

## 7. Conclusion

This study concludes that financial accessibility greatly enhances women's empowerment both directly and indirectly through financial literacy. The mediating role of financial literacy confirms that just improving access is not enough; women also need the knowledge and skills to manage financial resources effectively. This integrated approach highlights the need for a comprehensive strategy for women's economic empowerment in Tanzania's informal sector. Therefore, it is recommended that policymakers and development practitioners prioritise dual-focused interventions—expanding accessible financial services while integrating relevant financial literacy programs. These programs should be designed to reflect the social and cultural realities of women in the informal economy, ensuring inclusivity and sustainability. Future research should explore long-term effects and apply the model to other regions and demographic groups to improve its generalizability and relevance to policy.

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