

Who Saves Where? Determinants of Savings Channel Choice among Tanzanians: A Multinomial Logistic Regression Analysis.

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Abstract

Savings are important for resilience, consumption smoothing, and economic growth, but the factors behind the selection between alternative saving channels have not been studied. In this study, the factors affecting the selection of different savings channels by individuals in Tanzania are examined using data from the nationally representative FinScope Tanzania 2023 survey (N=4,041 active savers). The study uses multinomial logistic regression to test for selection between four different saving channels including formal savings, digital/mobile money, SACCOs, and informal saving channels. Findings indicate that possession of a mobile phone, level of institutional trust, and financial education positively affect the probability of using formal and digital saving channels compared to informal savings. The female gender is found to be more associated with using digital savings channels than formal savings channels, illustrating the equalizing power of mobile phones. Living in rural areas positively affects the probability of formal savings but has little influence on digital savings. The research is very informative and insightful in showing significant substitution relationships through bypassing the usual dichotomy of “to save or not to save.” It provides crucial suggestions for policymakers on how to increase financial inclusion within Tanzania as well as other developing nations that have adopted mobile money in Sub-Saharan Africa.

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1.0 Introduction

The role of savings is critical in fostering household well-being, consumption smoothing, and long-run investment and economic growth (Abbas, 2025). Savings are critical in developing countries to improve resilience to income shocks, health crises, and economic uncertainty (Jalili et al., 2025; Kadir et al., 2025). Savings help in the reduction of poverty and improvement of standards of living by providing a financial safety net during difficult economic times (Alsubaie, 2025; Simonse et al., 2024). Despite the importance of savings, access to secure and reliable instruments for saving is not equitable, especially in poor countries where financial systems are still evolving (Luthfiar Ramiady, 2025).

Financial inclusion expansion has profoundly changed the savings environment by providing access to a wide range of financial services (Nguyen, 2021). Individuals have the opportunity to save through formal systems, which include financial institutions such as banks and microfinance organizations, semi-formal systems that include Savings and Credit Cooperative Organizations (SACCO), and even informal systems that include rotating savings societies and home savings (Adeola et al., 2022; Phil-Ugochukwu, 2024). More recently, digital financial services, particularly mobile money, have also emerged as another important alternative, offering savings opportunities that are convenient and cost-effective (Batista & Vicente, 2025). These different channels have different levels of accessibility, costs, and safety, as well as user experience, which makes individuals choose between the different channels depending on their preferences (Almaiah et al., 2022; Hunter et al., 2025; Wahbi & Musshoff, 2024).

In Tanzania, tremendous progress has been made in improving financial inclusion in the past ten years, primarily driven by the rapid growth in mobile money services and improvements in the financial sector (Lotto, 2025; Were et al., 2021). For example, evidence from the FinScope Tanzania 2023 survey indicates that financial inclusion in Tanzania increased from 65% in 2017 to 76% in 2023, implying significant improvements in financial inclusion (Finscope Tanzania, 2023). However, disparities still exist in financial inclusion in rural and urban areas, with financial inclusion in urban areas significantly higher at 87% compared to 68.3% in rural areas (Finscope Tanzania, 2023). For example, substantial distance to financial institutions, high transaction costs, documentation, and financial literacy are still barriers to accessing financial services in Tanzania (Kamugisha et al., 2025; Ngonyani, 2022; Were et al., 2021). As a result, individuals in Tanzania still rely on a variety of formal, informal, and digital saving instruments to address their financial needs (Robert & Muwanga, 2025).

A large body of empirical research has established different factors that affect savings behaviour. Socio-economic factors, including income, educational level, age, and gender, have been established as factors that affect the willingness and capacity to save (Lotto, 2025; Mazengiye et al., 2022; Rezaei, 2022). Higher income levels have been established to increase the capacity to save, while educational levels have been seen to improve knowledge and decision-making capacity (Amari et al., 2020). Demographic factors, including age and gender, also shape saving patterns and preferences across different population groups (Lotto, 2025). Moreover, access-related factors, including proximity to financial institutions and having mobile financial accounts, are significant in predicting savings outcomes (Emara & Kasa, 2021; Khalek & Chakraborty, 2025). Individuals who have greater access to financial services tend to save more and make use of formal channels for saving (Adera & Abdisa, 2023).

In addition to socioeconomic and access-related factors, attitudinal and behavioural factors have also been identified as important determinants of saving behaviour. For example, trust in financial institutions, perceptions of financial security, and levels of financial literacy have all been found to have an impact on individuals' engagement with formal and digital financial systems (Adhikari et al., 2024; Hasan, 2024; Prihandini, 2025; Sarwar et al., 2024). On the other

hand, saving discipline, planning, and precautionary motivations also play a role in the differences in saving behaviour (Mpaata et al., 2023; Strömbäck et al., 2020) as individuals who save for the future or unexpected events are more likely to maintain a disciplined approach. Those (Fialová, 2026). This demonstrates the need to examine savings behaviour from both economic and psychological perspectives.

Despite the extensive literature on savings behaviour, relatively little attention has been given to the specific channels through which individuals choose to save. Most existing studies focus on whether individuals save or not, often employing binary analytical frameworks that do not capture the diversity of available saving options (Adhikari et al., 2024; Amari et al., 2020; Lotto, 2025; Mpaata et al., 2023; Sarwar et al., 2024). This type of approach fails to take into account that people save in a complex financial system in which several savings options are available, each having specific features (Dimoso, 2025; Mori, 2019). Empirical research that investigates the factors that influence the choice of savings channel is scarce, especially in the case of developing countries and Tanzania in particular. This is an interesting research gap, especially in the era of dynamic changes in the financial system and the development of digital financial services (Ally, 2025).

This study aims to fill this gap by investigating the factors influencing the choice of savings channels among individuals in Tanzania, using the FinScope 2023 Individual Survey. This study is different from existing ones in its application of multinomial logistic regression to analyse factors influencing the choice of savings channels, including formal institutions, digital channels, SACCOs, and informal channels. By incorporating supply-side, socioeconomic, attitudinal, and behavioural factors, this study offers a comprehensive analysis of savings channels within a single framework. This study contributes to the existing body of research on financial inclusion and has important policy implications for improving access to effective savings channels in Tanzania, especially for disadvantaged groups such as women, rural dwellers, and agricultural communities.

2. Theoretical Framework and Empirical Literature Review

2.1. Theoretical Framework

The savings behaviour and channels of saving in developing economies depend on the relationship between precautionary motivations, transactions costs, risk perceptions, and financial literacy in a highly uncertain environment. The theoretical basis of the research is based on the buffer stock theory of precautionary savings developed by Deaton (1991), further elaborated upon by Paxson (1992) and Carroll (1997). The theory holds that in situations characterized by unstable income, limited access to credit facilities, and poor social security programs, as is the case in most rural agricultural communities in Tanzania, savings in liquid form are made mainly for self-protection purposes, not lifecycle smoothing. With the desired wealth threshold in place, the households then determine the appropriate savings avenues according to liquidity, safety, returns, and accessibility.

This model is complemented by Transaction Cost Economics (TCE), which was introduced by Coase (1937) and later made applicable by Williamson, (1985), according to the theory people select their preferred type of finance transactions by measuring the Implicit cost of these transactions. The reason for such selection is the necessity to minimize market friction or transaction costs associated with a selected governance structure. Although digital transactions might be superior compared to traditional alternatives, they may not be chosen because of excessively high fixed costs, lack of information, and other issues making digital solutions inefficient (Hong et al., 2022; Van Dongen et al., 2022). Mobile phone use and access to financial infrastructure tend to decrease effective costs, thus encouraging households to switch to more formal methods of saving. Risk perception and institutional trust can moderate channel choice because reluctance or distrust towards formal institutions results in the preference for the use of informal channels, while psychological security is a pre-requisite for participation in formal and digital channels (Guiso et al., 2008).

In addition, the perspective on financial capabilities assumes that more educated and literate people find it easier to deal with complexities of formal and digital channels. Lifecycle concerns imply that individuals will save differently

depending on their age and income level because their consumption needs change and their risks change too (Modigliani, 1986). Barriers specific to gender can affect mechanisms described above making digital channels less costly and convenient than others for women.

2.2 Hypotheses

Drawing on the theoretical framework, this study tests the following hypotheses.

H₁ (Transaction Costs and Access): Mobile phone ownership and rural location positively influence the likelihood of choosing formal and digital savings channels relative to informal channels by reducing transaction costs.

H₂ (Institutional Trust): Greater comfort with banks and prior use of bank services increase the likelihood of selecting formal and digital channels, as institutional trust reduces perceived risk.

H₃ (Financial Capability): Higher education and numeracy increase the probability of choosing formal and digital channels by lowering cognitive costs.

H₄ (Demographic Factors): Women are less likely to choose formal channels but more likely to choose digital channels due to mobility and documentation barriers.

H₅ (Precautionary Motives): Financial stress decreases the use of structured channels (formal, digital, or SACCO), while financial education and precautionary motives increase it.

2.3. Empirical Literature Review

There is considerable empirical support for the mechanisms discussed in the theoretical framework. Socio-economic determinants like income, education, age, and gender have been found to influence savings behaviour. Income alleviates liquidity problems, whereas education enhances money management skills and future planning (Amari et al., 2020; Lotto, 2025). The impact of gender on savings is complex, as women tend to have more precautionary motivation but find it more challenging to access conventional services because of mobility issues, paperwork, and cultural practices, leading to less engagement with traditional savings methods (Adera & Abdisa, 2023; Emara & Kasa, 2021). Proximity and mobile phone use promote the adoption of formal and technological approaches by minimizing transaction costs (Khalek & Chakraborty, 2025; Nguyen The et al., 2025; Yao et al., 2022).

The attitudes and behavioural aspects have become increasingly prominent in the literature. The level of trust in financial organizations and perceived safety can significantly influence participation in the formal system and digitization initiatives (Adhikari et al., 2024; Hasan, 2024; Prihandini, 2025; Sarwar et al., 2024). Financial awareness encourages disciplined saving behaviour, while financial distress discourages such behaviour (Fialová, 2026; Mpaata et al., 2023; Strömbäck et al., 2020). In Tanzania, FinScope Tanzania (2023) shows formal financial inclusion rising from 65% in 2017 to 76% in 2023, driven largely by mobile money, with the gender gap narrowing and rural-urban disparities decreasing, though women and rural residents remain less served. Persistent barriers include distance, costs, documentation, and low financial literacy, particularly in rural areas (Kamugisha et al., 2025; Ngonyani, 2022; Were et al., 2021).

Despite these developments, current empirical research has remained limited to a binary approach of save or not save, which fails to acknowledge the range of available instruments and associated trade-offs between them (Adhikari et al., 2024; Amari et al., 2020; Lotto, 2025; Mpaata et al., 2023; Sarwar et al., 2024). Only some contemporary studies have started exploring the concept of multiple instrument saving or confidence in different service providers in the context of East Africa (Charles et al., 2025). However, there is a dearth of multinomial research examining all four saving instruments together, considering various factors including access from the supply side, socioeconomic variables, and behavioural aspects.

Tanzania presents a unique case in filling this gap owing to the fast growth of mobile money services coupled with the existence of informal and semiformal modes of transaction. The situation provides a clear ground for evaluating the impact of technology and institutions on financial channel selection and household well-being. Using the data obtained from Fin Scope 2023 and utilizing the hypotheses formulated based on the theory, the current paper contributes to debates on digital innovation and its connection to structural inequalities, and its implications for households' livelihoods and investments.

3. Data and Methodology

3.1. Data Source

The data used for this paper is from the Fin Scope Tanzania 2023 Individual Survey, which is a household-level survey that is nationally representative of Tanzania, including the 26 regions of mainland Tanzania and Zanzibar. This survey was conducted among individuals who are aged 16 years and above. It was administered using face-to-face structured interviews that generated demographic, livelihood, asset holdings, financial behaviour, saving, borrowing, payments, insurance, mobile money, and financial attitude data.

This analysis only includes individuals that report having saved money during the last 12 months, resulting in a subsample of 4,622 (46.6%) active savers. Removing those who reported saving but did not report their main savings channel leaves a subsample of 4,041 respondents for the estimation exercise. The rationale for imposing such a condition is that this study focuses on channel choice conditional on the saving decision and not on the joint saving and channel decision. However, this imposes the limitation that the findings might not be generalizable to the entire population since non-savers are inherently poorer, less educated, and have low access to finance.

3.2 Study Variables

3.2.1 Dependent Variable

The dependent variable is savings channel which represents a nominal variable having four categories as per the following survey question: "Which of these do you feel most confident to save with?" The respondents categorized into the following groups:

Formal (1) = Banks and Microfinance Institutions.

Digital (2) = Mobile savings wallets or regular mobile money.

SACCO (3) = SACCOs.

Informal (4) = Savings Groups, Cash in hand, Employer, Church/Community Groups, Family Members, Money guards, or Productive Asset Purchases. Informal savings is used as the reference category.

3.2.3 Independent Variables

According to the theoretical framework proposed in section two, explanatory variables have been grouped into four categories:

Supply Side Access; It is measured by possession of mobile phones, internet access, rural or urban location, and Zanzibar/Mainland region

Demand side trust and attitudes

It is measured by comfort entering a bank and actual use of bank, SACCO, and mobile money services.

Socioeconomic profile; Encompasses socioeconomic variables such as gender, age and its square, educational attainment, employment status, agricultural status, marital status, and possession of National Identity.

Financial behaviour and literacy; Financial behaviour and literacy variables such as budgeting, expenditure recording, financial education, emergency saving behaviour, financial stress. See appendix 1 for detailed variable definitions

3.3 Econometric Approach

A multinomial logistic regression model is employed to investigate the decision on the savings channels. The technique is appropriate where the dependent variable has more than two unordered categorical outcomes (McFadden, 1974). Assuming that j takes a value of either (1, 2, 3, 4); where $j=4$ indicates the informal channel as the reference category. For individual i , the multinomial logistic model specifies:

$$\Pr(y_i = j \mid X_i) = \frac{\exp(X_i\beta_j)}{1 + \sum_{k=1}^3 \exp(X_i\beta_k)} , \quad \text{for } j = 1, 2, 3$$

where X_i denotes a set of explanatory variables, and β_j denotes the vectors of coefficients associated with each specific channel. Using the informal savings channel as the reference group, the logit model for each channel gives the likelihood of preferring that channel compared to informal savings. The relative risk ratios (RRRs), calculated as $\exp(\beta)$, are presented in all tables, since their multiplicative interpretation is much more straightforward than log-odds.

Estimation is conducted using four hierarchical models that allow measuring the marginal contributions of each block of the theory (access, trust, socio-economic, and behaviour related factors). The process of model choice is based on the application of the Akaike information criterion and Likelihood ratio tests. Average marginal effects are obtained for the full model.

3.4 Robustness Check

The robustness test includes verifying the breach of the Independence of Irrelevant Alternatives (IIA) assumption using the Hausman-McFadden and Small-Hsiao tests, grouping the dependent variable into regulated, which is further classified into formal and SACCO digital, digital informal, and non-digital types. Also, the multicollinearity test was conducted using variance inflation factor.

4. Results and Discussion

4.1. Descriptive Statistics

The summary statistics of the savings channel preferences of individuals in Tanzania are presented in Table 1. The most preferred savings channel is the formal channel, which is used by the majority of the population 2,774 individuals, followed by the informal channel 719 and digital channels 514, while the use of SACCOs is minimal 34. This is consistent with the significant progress made in financial inclusion in Tanzania, as revealed in the FinScope Tanzania 2023 survey.

There are clear differences in demographic, socioeconomic, and access variables. 46.5% of formal savers are female, a significantly higher proportion of 72.0% of digital savers are female. This shows that a greater proportion of female savers use digital savings options compared to formal ones. Contrary a greater proportion of males use formal savings options compared to digital ones. With regard to geographic distribution, also only 34.5% of formal savers are from rural areas, and 20.6% of digital savers are from rural areas. A majority of informal savers are from urban areas 85%.

Differences in access to technology are another dimension through which these groups are differentiated, with a higher percentage of formal savers, 94.8%, having access to mobile phones compared to their counterparts, 80.5%, who are informal savers. The difference in internet usage is similar, with 44.7% of formal savers having access to the internet, while this figure drops to 25.7% for their counterparts. The differences in financial capability are significant, with formal savers having a higher average numeracy level of 3.39 and a higher percentage having attained tertiary education 29.5%.

The chi-square tests performed on gender, location, education, and mobile phone usage indicate significant differences at a 1% level of significance, confirming these factors as determinants of choice of savings channels, as highlighted in the literature.

Table 1. Descriptive Statistics by Preferred Savings Channel (Active Savers, FinScope Tanzania 2023)

Variable	Formal (n = 2,774)	Digital (n = 514)	SACCO (n = 34)	Informal (n = 719)	Total (n = 4,041)
Panel A: Continuous variables					
Age (mean, SD)	37.6 (14.1)	40.6 (13.9)	46.7 (16.1)	38.1 (16.5)	38.1 (14.6)
Numeracy score (mean, SD)	3.39 (0.93)	3.04 (1.09)	3.24 (1.23)	2.94 (1.13)	3.26 (1.05)
Panel B: Binary variables (% = Yes)					
Female	46.5	72.0	58.8	59.9	52.2
Rural location	34.5	20.6	17.6	15.0	29.1
Has mobile phone	94.8	91.2	97.1	80.5	91.8
Has internet access	44.7	32.9	50.0	25.7	39.8
Comfortable in bank	80.1	69.6	76.5	48.1	73.1
Uses bank services	-	-	-	-	-
Uses SACCO services	-	-	-	-	-
Uses mobile money	-	-	-	-	-
Received financial education	27.5	22.6	35.3	9.5	23.7
Prepares a budget	66.9	61.5	82.4	54.7	64.1
Tracks spending accurately	-	-	-	-	-
Has National ID	46.3	47.1	64.7	36.2	44.7
Agricultural household	64.4	78.8	82.4	77.2	69.2
Financial stress	76.7	79.4	70.6	71.8	75.8
Has own money	-	-	-	-	-
Emergency savings kept	84.6	-	-	-	-
Currently married	63.9	-	-	-	-
Zanzibar resident	-	-	-	-	-
Panel C: Education (%)					
None/adult literacy	16.3	22.4	8.8	34.9	20.3
Primary	44.7	50.4	58.8	42.7	45.2
Secondary	8.5	10.5	8.8	10.2	9.1
Tertiary	29.5	16.5	23.5	12.1	24.7
Panel D: Chi-square tests					
χ^2 (gender)	134.60***				
χ^2 (rural/urban)	128.26***				
χ^2 (education)	203.12***				
χ^2 (mobile phone)	155.53***				

Note. n = 4,041 observations with non-missing savings channel responses. Continuous variables reported as mean (standard deviation). Binary variables reported as percentage of respondents in each channel group (%). Distributions within each channel are computed among respondents in that channel. χ^2 statistics test the null hypothesis of no association between channel and the respective variable across all four channels. *** p < .001.

4.2. Determinants of Savings Channel Choice

To analyse the determinants of choice among four unordered alternatives of savings channels (formal institutions, digital/mobile money, SACCOs, and informal channels), a multinomial logistic regression is employed with informal

savings as a base category as shown in table 3. To correct for possible heteroscedasticity in the data, robust standard errors are employed. The results in table 2 show a significant improvement in the model as the pseudo-R² increases from 0.048 in the baseline model to 0.177 in the fully specified model. The results of the likelihood ratio test show that all the explanatory variables are jointly significant at the 1 percent level, where the chi-square value is 903.04 and the p-value is less than 0.001.

Table 2. Nested Model Fit Statistics

Model	N	Log-likelihood	Pseudo R ²	df	AIC
Model 1: Access variables only	4,038	-3,338.16	0.048	15	6,706.33
Model 2: + Trust and attitudes	4,038	-3,028.19	0.136	27	6,110.37
Model 3: + Socioeconomic profile	4,038	-2,895.84	0.174	89	5,969.68
Model 4: Full model	4,038	-2,886.65	0.177	92	5,957.29
LR test: Model 1 vs. Model 4		$\chi^2(78) = 903.04, p < .001$			

Note. Pseudo R² is McFadden's R². AIC = Akaike Information Criterion. LR test compares

Table 3. Multinomial Logistic Regression Results: Relative Risk Ratios (Base Category = Informal Savings)

Predictor	Formal RRR	Digital RRR	SACCO RRR
Block 1: Supply side access			
Mobile phone	1.815***	1.777**	3.438
Internet	1.163	1.129	1.979
Rural location	1.674***	1.101	1.162
Zanzibar	0.341***	0.491***	0.428
Block 2: Trust and attitudes			
Bank comfort	2.352***	1.898***	1.478
Uses bank	5.081***	1.556	0.274
Uses SACCO	2.006	3.507	1121.39***
Uses mobile money	2.392***	1.300†	0.533
Block 3: Socioeconomic profile			
Female	0.748**	2.121***	1.722
Age	1.026	1.106***	1.072
Age ²	0.9997	0.999***	1.0002
Education: Primary	1.230†	1.525**	8.018**
Education: Secondary	1.432†	2.530***	13.270*
Education: Tertiary+	1.653**	2.167***	8.526**
Income: Self-employed	0.906	0.97	0.232†
Income: Farm/casual	0.945	1.162	0.469
Income: Dependent	0.559	0.944	0.717
Income: Other	0.714	0.788	0.365
Agricultural household	0.770*	1.364†	1.983
Currently married	0.974	1.085	2.131
Block 4: Financial behaviour			
Budgets	1.184	1.017	1.832
Tracks spending	1.288†	1.149	2559035***
Financial education	1.238	1.827***	1.024
Emergency savings	1.239†	1.013	0.332†
Financial stress	0.891	1.072	0.331*
Has National ID	1.131	1.16	0.725
Numeracy score	0.999	0.886†	0.738
Has own money	0.802†	1.093	0.886

Observations	4,038
Pseudo R ²	0.177
Log-likelihood	-2,886.65
AIC	5,957.29

Note. Relative Risk Ratios (RRR = $\exp[\beta]$) from multinomial logistic regression. Base outcome category is informal savings (savings group, cash at home, family/friend). Robust standard errors used throughout. Education base category = None/adult literacy. Income base category = Salaried employment. SACCO equation note: the tracks spending coefficient in the SACCO equation is anomalously large due to near-perfect prediction arising from the small SACCO cell (n = 34) and should be interpreted with caution. *** p < .001; ** p < .01; * p < .05; † p < .10.

Findings indicate the importance of access to technology. The ownership of mobile phones is positively associated with the use of formal savings and digital savings channels when compared with informal savings, and the relative risks are 1.815 and 1.777, and statistical significances are $p < 0.001$ and $p < 0.01$, respectively. These findings confirm recent research showing that mobile phones lower costs of transactions and increase financial inclusion both formally and digitally in East Africa (Adera & Abdisa, 2023; Emara & Kasa, 2021).

From the findings, location effects are found to be complex. In particular, residing in a rural area raises the risk ratio of using formal savings by 1.674 at a level of significance of $p < 0.001$ but exhibits no significant relationship with digital savings. This means while residing in a rural area still helps traditional banks remain popular, the lack of rural advantage in digital savings means there are other limitations preventing mobile money from gaining popularity among farmers and rural residents. This finding is consistent with previous findings that rural areas benefit from proximity to bank branches but other obstacles hinder usage of mobile money, per Nguyen (2021) and Kamugisha et al. (2025).

Perception of trustworthiness and familiarity with formal institutions plays a vital role in the choice of channels. Being confident about going into a bank makes individuals more inclined towards choosing formal and digital channels with relative risk ratios of 2.352 and 1.898 and significance values of $p < 0.001$. The prior use of banks in saving transactions creates a much higher propensity towards using formal institutions in savings with a relative risk ratio of 5.081 and a significance value of $p < 0.001$. This aligns well with the findings from behavioural literature that highlights trust in institutions as the most critical factor in making households leave informal institutions, as found by Guiso et al., 2008, Adhikari et al., 2024, and Hasan, 2024.

Differences based on gender are also evident. The odds of women using formal financial institutions are significantly lower than those for men, with a relative risk ratio of 0.748 and $p < 0.01$. Conversely, women are much more inclined to use digital platforms, with a relative risk ratio of 2.121 and $p < 0.001$. This finding is consistent with the findings of earlier studies, which have demonstrated that digital financial services could provide inclusive options for women, addressing issues related to mobility, social conventions, and lack of documentation (Adera & Abdisa, 2023; Emara & Kasa, 2021).

Other determinants include socio-economic and behavioural traits. With a high level of education, there will be a higher likelihood of the use of formal and electronic savings, considering that according to studies, financial literacy is one determinant of the type of saving mechanism used, as argued by Amari et al. (2020) and Rezaei (2022). Age exhibits a non-linear association with the use of digital savings. Higher financial literacy makes it easier for individuals to use electronic savings channels, which have a risk ratio of 1.827 and p -value < 0.001 ; however, financial stress leads to a lower likelihood of formal saving, as argued by Mpaata et al. (2023) and Strömbäck et al. (2020).

4.3 Average Marginal Effects

These marginal effects in Table 4 further help to explain the practical impact of these variables. As shown below, utilizing banking services boosts the likelihood of formal saving by 25.1 percentage points but cuts down the likelihood of digital saving by 7.6 percentage points. Additionally, the marginal effect shows that gender plays an

important role since being female raises the likelihood of digital saving by 9.9 percentage points but decreases the likelihood of formal saving.

Table. Average Marginal Effects: Probability of Formal and Digital Savings Channel Preference

Predictor	Formal channel dy/dx	Digital channel dy/dx	SACCO channel dy/dx
Block 1: Supply-side access			
Mobile phone	0.055*	0.013	-
Internet	0.015	0.000	-
Rural location	0.081***	-0.029*	-
Zanzibar	-0.129***	0.009	-
Block 2: Trust and attitudes			
Bank comfort	0.098***	0.001	-
Uses bank	0.251***	-0.076***	-
Uses SACCO	0.002	0.069	-
Uses mobile money	0.132***	-0.038**	-
Block 3: Socioeconomic profile			
Female	-0.109***	0.099***	-
Age	-0.003	0.008***	-
Education: Primary	0.002	0.025†	-
Education: Secondary	-0.017	0.070**	-
Education: Tertiary	0.024	0.039†	-
Agricultural household	-0.071***	0.051***	-
Currently married	-0.013	0.010	-
Block 4: Financial behavior			
Budgets	0.025	-0.012	-
Tracks spending	-0.016	-0.021	-
Financial education	-0.009	0.046***	-
Emergency savings	0.040*	-0.014	-
Financial stress	-0.021	0.017	-
Has National ID	0.011	0.006	-
Numeracy score	0.01	-0.012*	-
Has own money	-0.044*	0.026†	-

Note. Average marginal effects (AMEs) computed from the full multinomial logistic model (Model 4). dy/dx for binary variables represents the discrete change in predicted probability when the variable changes from 0 to 1. AMEs for the SACCO equation are suppressed due to near-perfect prediction issues; full results are available from the authors upon request. Standard errors computed using the delta method. *** p < .001; ** p < .01; * p < .05; † p < .10.

Overall, the empirical results indicate that savings channel choice in Tanzania is influenced by access, trust, barriers specific to women, and financial literacy as posited by the integrated framework in Section 2. Digital channels seem to serve a complementary and somewhat equalizing purpose especially for women, but the low utilization of SACCOs as well as their non-effect on the adoption of digital means suggests that there may still be issues with respect to product development, reach, and security of semi-formal institutions. The findings not only add to the existing literature by analysing savings channels rather than just participation, but also conform to those documented in FinScope Tanzania 2023 and other East African cases.

As far as the policy recommendations are concerned, the programs for increasing financial inclusion through savings in Tanzania and other mobile money enabled countries in Sub-Saharan Africa need to focus on measures related to improving literacy levels and trustworthiness of institutions among women and rural households, as well as making SACCOs more accessible and appealing.

5.0 Conclusion

Savings play a key role in improving the wellbeing of the household, consumption smoothing, building resilience to shocks and supporting long term inclusive growth. Among developing countries, savings inclusion is especially essential due to the limited formal safety nets. Research has not sufficiently covered what factors affect savings

participation. Most of the previous literature treated savings participation as a dummy variable. The factors influencing the savings channel choice in Tanzania were examined in the study. The study employs the FinScope 2023 Individual Research that we analyse the choice of savings channel with a multinomial logistic regression-based framework. Moreover, the study does not restrict the choice to formal and informal only but analyse choice among four mutually exclusive categories including formal institutions, digital, SACCOs, and informal mechanisms. It simultaneously incorporates supply-side, socio-economic, attitudinal, and behavioural variables.

The findings show that the choice of channels is driven by a mix of factors. The likelihood of using formal and digital channels, as opposed to informal channels, is significantly increased by having a mobile phone and trusting financial institutions. Living in a rural area boosts traditional savings but has no significant effect on digital channels, suggesting that physical accessibility is not enough to drive digital channels. Gender differences are significant, with women avoiding formal channels but showing a strong likelihood of using digital channels, suggesting that mobile money offers a key opportunity to overcome traditional barriers. Education, financial literacy, and lower levels of financial pressure increase participation through more formalized channels, while SACCO usage remains significantly low

This study contributes to the body of previous research by showing that there is substitutability between different saving channels. Digital financial services are shown to act as a complement in helping to equalize participation, particularly for women. However, rural challenges and semi-formal arrangements hinder the full potential of these services. The results are consistent with national trends from FinScope Tanzania 2023, showing that overall financial inclusion has increased, though urban-rural and gender differences persist in terms of depth of financial engagement.

From a policy viewpoint, achieving a more profound and inclusive financial system in Tanzania calls for a multidimensional approach. It should encompass initiatives such as the development of digital infrastructure and literacy, especially in rural and agricultural environments; trust development through targeted outreach and consumer protection; development of women-friendly digital and financial products; and development of semi-formal institutions such as SACCOs to serve the underserved. The relevance of such strategies is not limited to Tanzania but can also be applied in other countries that have successfully implemented mobile money in their economies, such as other countries in Sub-Saharan Africa.

Nonetheless, this research has its limitations. Firstly, despite its contributions, this research is limited in its ability to establish causality, which is a common limitation of cross-sectional studies. Future studies can incorporate a different method, such as a longitudinal or experimental design, to establish causality, examine dynamic channel switching, and include other variables.

To conclude, a critical analysis of various determinants affecting savings channel choice is inevitable in widening financial inclusion. By addressing barriers related to access, trust, financial capability, and socioeconomic inequalities, policymakers and practitioners can ensure more effective, resilient, and inclusive savings systems that ultimately support poverty reduction and sustainable development in Tanzania and beyond.

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References

- Abbas, N. A. (2025). The Impact of Savings on Economic Growth: A Case Study. In A. M. A. Musleh Al-Sartawi, A. I. Nour, & I. Abdeljawad (Eds), *Business Resilience and Business Innovation for Sustainability* (Vol. 587, pp. 671–681). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-87584-7_46
- Adeola, O., Adeleye, I., Muhammed, G., Olajubu, B. J., Oji, C., & Ibelegbu, O. (2022). Savings Groups in Nigeria. In D. T. Redford & G. Verhoef (Eds), *Transforming Africa* (pp. 193–216). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-80262-053-520221015>
- Adera, A., & Abdisa, L. T. (2023). Financial inclusion and women's economic empowerment: Evidence from Ethiopia. *Cogent Economics & Finance*, 11(2), 2244864. <https://doi.org/10.1080/23322039.2023.2244864>
- Adhikari, M., Ghimire, D. M., & Lama, A. D. (2024). FinTech and Financial Inclusion: Exploring the Mediating Role of Digital Financial Literacy in Enhancing Access to Financial Services. *Journal of Emerging Management Studies*, 1(2), 117–136. <https://doi.org/10.3126/jems.v1i2.71512>
- Ally, Z. (2025). Evaluating the Efficiency and Sustainability of Domestic and Foreign Banks in Tanzania: Insights From the Digital Transformation Era. *Business Strategy & Development*, 8(2), e70092. <https://doi.org/10.1002/bsd2.70092>
- Almaiah, M. A., Al-Rahmi, A., Alturise, F., Hassan, L., Lutfi, A., Alrawad, M., Alkhalaf, S., Al-Rahmi, W. M., Al-sharaie, S., & Aldhyani, T. H. H. (2022). Investigating the Effect of Perceived Security, Perceived Trust, and Information Quality on Mobile Payment Usage through Near-Field Communication (NFC) in Saudi Arabia. *Electronics*, 11(23), 3926. <https://doi.org/10.3390/electronics11233926>
- Alsubaie, A. (2025). Domestic Savings as a Pillar of Long-Term Stability Amid Socioeconomic Challenges: Key Determinants in Oil-Rich Developing Economies. *SocioEconomic Challenges*, 9(1), 175–187. [https://doi.org/10.61093/sec.9\(1\).175-187.2025](https://doi.org/10.61093/sec.9(1).175-187.2025)
- Amari, M., Salhi, B., & Jarboui, A. (2020). Evaluating the effects of sociodemographic characteristics and financial education on saving behavior. *International Journal of Sociology and Social Policy*, 40(11/12), 1423–1438. <https://doi.org/10.1108/IJSSP-03-2020-0048>
- Batista, C., & Vicente, P. C. (2025). Is Mobile Money Changing Rural Africa? Evidence from a Field Experiment. *Review of Economics and Statistics*, 107(3), 835–844. https://doi.org/10.1162/rest_a_01333
- Charles, G., Kanani, R., & Mori, N. (2025). Assessing household confidence in saving with banks and MNO-led mobile money: Evidence from the household survey in Tanzania. *Cogent Economics & Finance*, 13(1), 2535488. <https://doi.org/10.1080/23322039.2025.2535488>
- Coase, R. H. (1937). The Nature of the Firm. *Economica*, 4(16), 386–405. <https://doi.org/10.1111/j.1468-0335.1937.tb00002.x>
- Dimoso, R. (2025). Analyzing Socio-Economic Determinants of Household Savings in Semi-Urban Tanzania: A Microeconomic Modeling Approach. *Journal of Policy and Development Studies*, 18(2), 205–221. <https://doi.org/10.4314/jpds.v18i2.14>
- Emara, N., & Kasa, H. (2021). The non-linear relationship between financial access and domestic savings: The case of emerging markets. *Applied Economics*, 53(3), 345–363. <https://doi.org/10.1080/00036846.2020.1808174>
- Fialová, K. (2026). Understanding precautionary savings behaviour: Insights from Czechia. *The Social Science Journal*, 63(1), 136–158. <https://doi.org/10.1080/03623319.2024.2424639>
- Finscope Tanzania. (2023). *FinScope Tanzania 2023 Report Key Insights*. Financial Sector Deepening Trust. <https://www.fsd.or.tz/wp-content/uploads/2023/07/Finscope-Tanzania-2023-Report-Key-Insights-One-Pager.pdf>

- Hasan, Z. (2024). Impact Of Digital Financial Literacy on Consumer Protection, Investor Security, and Financial Transactions in Indonesia. *International Journal of Islamic Economics and Finance Research*, 7(2 December), 55–77. <https://doi.org/10.53840/ijiefer165>
- Hong, P. Y. P., Wathen, M. V., Shin, A. J., Yoon, I., & Park, J. H. (2022). Psychological Self-Sufficiency and Financial Literacy among Low-Income Participants: An Empowerment-Based Approach to Financial Capability. *Journal of Family and Economic Issues*, 43(4), 690–702. <https://doi.org/10.1007/s10834-022-09865-w>
- Hunter, S., Pham, C., Kim, K., Trinh, L. Q., Chai, A., Deshpande, S., Johl, S., Morgan, P. J., & Obucina, M. (2025). Factors influencing digital financial services adoption in low- and medium-income countries: A systematic literature review. *International Journal of Bank Marketing*, 43(9), 1884–1909. <https://doi.org/10.1108/IJBM-09-2024-0580>
- Jalili, R., Gilani, N., Najafi, B., Gordeev, V. S., & Doshmangir, L. (2025). Health financial resilience in individuals and households: A scoping review of components, strategies and outcomes. *BMC Public Health*, 25(1), 3021. <https://doi.org/10.1186/s12889-025-24467-5>
- Kadir, R. D., Tri Wahyudi, S., Maski, G., & Devia Sagita Sumantri, V. (2025). The role of financial inclusion in reducing household poverty: Insights from Eastern Indonesia. *Cogent Economics & Finance*, 13(1), 2588925. <https://doi.org/10.1080/23322039.2025.2588925>
- Kamugisha, R. B., Sarwatt, A. C., Yusuf, O. M., & Charles, A. M. (2025). Navigating Financial Barriers: Examining Agricultural Credit Accessibility for Smallholder Paddy Farmers in Mvomero District, Tanzania. *Research Journal of Business and Finance*, 4(1), 15–25. <https://doi.org/10.58721/rjbf.v4i1.900>
- Khalek, S. A., & Chakraborty, A. (2025). From Ownership to Access: Resistance Towards Shared Consumption. *International Journal of Consumer Studies*, 49(3), e70073. <https://doi.org/10.1111/ijcs.70073>
- Lotto, J. (2025). Analyzing Gender Disparity Through a Financial Inclusion Lens in Tanzania: Is Government Gender-based Policy Intervention Helpful? *Journal of Economics and Business*, 8(2). <https://doi.org/10.31014/aior.1992.08.02.666>
- Luthfiar Ramiady. (2025). FINANCIAL LITERACY AND HOUSEHOLD SAVING BEHAVIOR: A COMPARATIVE STUDY OF URBAN AND RURAL COMMUNITIES IN INDONESIA. *Sumber Informasi Manajemen Bisnis Dan Akuntansi (SIMBAN)*, 2(2), 69–75. <https://doi.org/10.65788/simban.v2i2.40>
- Mazengiya, M. N., Seraw, G., Melesse, B., & Belete, T. (2022). “Determinants of rural household saving participation: A case study of Libokemkem District, North-west Ethiopia”. *Cogent Economics & Finance*, 10(1), 2127219. <https://doi.org/10.1080/23322039.2022.2127219>
- McFadden, D. (1974). *Conditional Logit Analysis of Qualitative Choice Behavior*. *Frontiers in Econometrics*. <https://www.scrip.org/reference/referencespapers?referenceid=2068948>
- Mori, N. (2019). Determinants of individual savings among Tanzanians. *Review of Behavioral Finance*, 11(3), 352–370. <https://doi.org/10.1108/RBF-05-2018-0045>
- Mpaata, E., Koske, N., & Saina, E. (2023). Does self-control moderate financial literacy and savings behavior relationship? A case of micro and small enterprise owners. *Current Psychology*, 42(12), 10063–10076. <https://doi.org/10.1007/s12144-021-02176-7>
- Ngonyani, D. (2022). Financial Inclusion: Cost and Implications in Developing Countries: A Review of the Existing Literature. *Journal of Economics Education and Entrepreneurship*, 3(2), 123. <https://doi.org/10.20527/jee.v3i2.5173>
- Nguyen, T. T. H. (2021). Measuring financial inclusion: A composite FI index for the developing countries. *Journal of Economics and Development*, 23(1), 77–99. <https://doi.org/10.1108/JED-03-2020-0027>
- Nguyen The, B., Oanh, T. T. K., Le, Q. D., & Nguyen, T. H. H. (2025). Nonlinear impact of financial inclusion on tax revenue: Evidence from the Monte-Carlo simulation algorithm under the Bayesian approach. *Journal of Economic Studies*, 52(2), 393–411. <https://doi.org/10.1108/JES-01-2024-0010>

- Phil-Ugochukwu, A. I. (2024). Informal financial savings practices to facilitate formal financial inclusion. *World Journal of Advanced Research and Reviews*, 24(3), 1970–1979. <https://doi.org/10.30574/wjarr.2024.24.3.3779>
- Prihandini, W. (2025). Digital Financial Literacy and Financial Inclusion in Indonesia's Digital Economy. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 9(3). <https://doi.org/10.29040/ijebar.v9i3.18500>
- Rezaei, E. (2022). Demographic changes and savings behavior: The experience of a developing country. *Journal of Economic Studies*, 49(4), 603–622. <https://doi.org/10.1108/JES-01-2021-0021>
- Robert, K. S., & Muwanga, G. S. (2025). *Household Determinants of Multi-Saving Behaviour in East Africa: Evidence from Uganda, Kenya, and Tanzania*. In Review. <https://doi.org/10.21203/rs.3.rs-8179754/v1>
- Sarwar, U., Bint-e-Naeem, N., Fahmeed, L., & Atif, M. (2024). Role of Perceived Security and Financial Attitude in Shaping Behavioral Intention under the Moderation of Financial Literacy. *Journal of Asian Development Studies*, 13(3), 1380–1395. <https://doi.org/10.62345/jads.2024.13.3.112>
- Simonse, O., Van Dijk, W. W., Van Dillen, L. F., & Van Dijk, E. (2024). Economic predictors of the subjective experience of financial stress. *Journal of Behavioral and Experimental Finance*, 42, 100933. <https://doi.org/10.1016/j.jbef.2024.100933>
- Strömbäck, C., Skagerlund, K., Västfjäll, D., & Tinghög, G. (2020). Subjective self-control but not objective measures of executive functions predicts financial behavior and well-being. *Journal of Behavioral and Experimental Finance*, 27, 100339. <https://doi.org/10.1016/j.jbef.2020.100339>
- Van Dongen, E., Ahmad, S., Lensink, R., & Mueller, A. (2022). Trapped by the Lack of Control Over Savings: Evidence From Pakistan. *Frontiers in Psychology*, 13, 867841. <https://doi.org/10.3389/fpsyg.2022.867841>
- Wahbi, A., & Musshoff, O. (2024). Unlocking rural resilience: Exploring innovative digital saving solutions for farming households in Mali. *Journal of Agricultural Economics*, 75(3), 931–954. <https://doi.org/10.1111/1477-9552.12609>
- Were, M., Odongo, M., Israel, C., & UNU-WIDER. (2021). *Gender disparities in financial inclusion in Tanzania* (WIDER Working Paper No. 2021; WIDER Working Paper, Vol. 2021). UNU-WIDER. <https://doi.org/10.35188/UNU-WIDER/2021/037-5>
- Williamson. (1985). *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*. By Oliver E. Williamson. (New York: Free Press, 1985. Pp. 450. \$27.95.). *American Political Science Review*, 80(4), 1424–1425. <https://doi.org/10.2307/1960952>
- Yao, F. K., Jiang, K., Combs, D. R., & Chang, S. (2022). Informal institutions and absorptive capacity: A cross-country meta-analytic study. *Journal of International Business Studies*, 53(6), 1091–1109. <https://doi.org/10.1057/s41267-020-00361-7>

Appendix 1 Variable Definitions

Variable	Survey Item	Definition / Construction
Outcome variable		
savings_channel	f_3_2_2	Categorical: 1=Formal (bank/MFI/Postbank); 2=Digital (mobile wallet/MM balance); 3=SACCO; 4=Informal (savings group, home, family) [base]
Block 1: Supply-side access		
mobile_phone	c23__1	1 if respondent has access to a mobile phone, 0 otherwise
internet	c23__2	1 if respondent has internet access, 0 otherwise
rural	RU	1 if respondent lives in rural area, 0 if urban/Dar es Salaam
zanzibar	MZ	1 if respondent is from Zanzibar, 0 if Mainland Tanzania
Block 2: Trust and attitudes		
bank_comfort	e_5_1	1 if respondent feels comfortable entering a bank or financial institution
uses_bank	serv1_1_	1 if respondent currently uses bank services
uses_sacco	serv1_12	1 if respondent currently uses SACCO services
uses_mm	serv1_13	1 if respondent currently uses mobile money agent services
Block 3: Socioeconomic profile		
female	c9	1 if female respondent, 0 if male
age	c8c	Age of respondent in years (continuous)
age_sq	_	Age squared; captures non-linear age effects
education	c11	Recoded: 1=None/literacy; 2=Primary; 3=Secondary; 4=Tertiary+ [base=None]
income5	IncomeMa	Recoded: 1=Salary; 2=Self-employed/traders; 3=Farming/casual; 4=Dependent; 5=Other [base=Salary]
agric_hh	c14	1 if household engaged in agriculture or fishing
married	c10	1 if respondent currently married
has_id	c27__1	1 if respondent has a National Identification document
Block 4: Financial behavior and literacy		
budgets	e_4	1 if respondent normally prepares a household budget
tracks_spending	e_4n	1 if respondent tracks income and spending accurately
fin_education	e_5_2	1 if respondent has received financial education during their lifetime
emergency_sav	e_7_n_3	1 if respondent regularly kept money aside for emergencies in past year
fin_stress	e_7	1 if respondent always or often struggles to meet regular expenses
own_money	e_1_1	1 if respondent has money of their own to use as they wish
numeracy	k_2_1–k_2_4	Sum of correct answers to four financial arithmetic questions (range 0–4)

Note. Variable names correspond to those used in the FinScope Tanzania 2023 dataset. All binary variables are coded 1 = Yes / condition met, 0 = No / condition not met.