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The Nexus of Psychographics, Socio-economic Characteristics, and Financial Inclusion in Tanzania

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ABSTRACT

Financial inclusion is one of the essential aspects of the financial system in the present scenario for socioeconomic growth. Understanding financial inclusion drivers is essential in policymaking and formulating an evidence-based strategy for sustainable improvements in financial inclusion. The objective of this paper is to investigate individuals' psychographic and socioeconomic characteristics as drivers of financial inclusion in Tanzania. A survey approach is applied to collect data and the probit and multivariate probit models are applied for data analysis. The findings show that about 68% of the respondents surveyed have reported access to financial services in Tanzania. There is a significant correlation between individuals' psychographics and socioeconomic characteristics with financial inclusion. The marginal effect results show that being more educated, older, male, or richer has a positive and significant impact on financial inclusion, and mobile money is found to be a key indicator of financial inclusion in Tanzania. The study supports the argument that particular demographic groups, such as women and young age, should be the focus of strategies in promoting financial inclusion in Tanzania.

INTRODUCTION

Financial inclusion has been recognized as a crucial tool for economic empowerment and development around the world (Yadav et al., 2021). Financial inclusion is one of the essential aspects of the financial system in the present scenario for socioeconomic growth and development and it has become an important study area at the national and international level with regulators, financial institutions, and the government (Mhlanga and Dunga, 2020; Amoah et al., 2020). The presence of financial inclusion has been recognized by most countries as one of the financial system challenges on their agenda (Wentzel et al., 2016). Financial inclusion is one of the main goals set by the United Nations (UN) as the Millennium Development Goals (MDG) to achieve sustainable development and improve world welfare (Kusuma, 2020). In many countries, the significance of financial inclusion is well recognized in the financial system and become a financial policy priority. Financial inclusion plays an important role in building a

strong foundation financial system of a country, which in turn will facilitate the country's economic growth (Kusuma, 2020). Financial inclusion is one of the tools for poverty reduction and the promotion of financial prosperity in most countries. Easy access to and availability of financial services will assist the society living in a lower-income area, to save their money safely and assist in preventing the economic power from being concentrated to a few individuals, hence minimizing the risks the poor could face during the period of economic shocks (Singhal and Arora, 2018).

In Tanzania, financial inclusion is a relatively new socio-economic concept that aims to change this dynamic by enhancing access to financial services in society at affordable costs to the underprivileged, who might not otherwise be able to afford these services. In this regard, financial inclusion services have been recognized as a prerequisite to economic development. In the context of Tanzania, the financial system reforms of the 1990s led to significant developments in the financial sector. Despite the increase in financial services, the country's level of financial inclusion remains low, and many individual households in Tanzania are excluded from accessing financial services. The study of financial inclusion indicated that 65% of Tanzanian adults are financially included, the study shows that out of this 16.7% are using formal bank services, 48.6% are not directly using bank services but rather are using other formal financial services, and 28.0% are completely excluded from the financial services (FinScope, 2017).

Understanding financial inclusion drivers is essential in policymaking and formulating an evidence-based strategy for sustainable improvements in financial inclusion. The studies of the determinants of financial inclusion are extensively presented in the literature in developed and other developing countries such as (Zins and Weill, 2016) examined the factors influencing financial inclusion. Nonetheless, empirical studies of financial inclusion in Tanzania are in their infancy, but emerging. There is a lack of a broader perspective on financial inclusion in the majority of the existing prior studies, such as (Lotto, 2018).

However, the current study has noted how both psychographics and socio-economic individual characteristics affect financial inclusion thus, this study provides a wider viewpoint on financial inclusion in Tanzania. As a result, the author performed this research to examine the factors that impact the level of financial inclusion in Tanzania to provide a framework against which policy can be established and implemented to boost it. The primary objective of this study is to use the probit and multivariate probit models to investigate the impact of individuals' psychographics and socioeconomic characteristics on financial inclusion in Tanzania. to close the research gap that has been identified in the literature. Therefore, it is anticipated that this research will help in identifying the elements that will lead economic policymakers and practitioners toward policies and program formulation aimed at promoting and improving access to financial services in Tanzania.

The structure of this study is as follows: The review of the literature is in section 2. In section 3, the methodology and data sources are presented. The findings and discussion in section 4 and conclusions in section 5

2. LITERATURE REVIEW

2.1 The theoretical framework

The capability theory is a fundamental framework that shapes the phenomenon of financial inclusion understanding. Demand-side factors, according to the theory, impact financial inclusion. The theory's foundation is based on the World Bank's (2013) financial capability conceptual framework. The theory connects resources to financial behaviour and financial capability, with societal and environmental factors mediating the relationship. The approach is insightful because it employs all of these factors, and financial resources are the underlying basis of financial inclusion (Nkuna et al., 2021).

Access to financial resources generates demand for information on how to use and hold those resources and needs for skills, knowledge, risk attitudes, and overall financial behaviour phenomenon (World Bank, 2013). The demand for financial information influences people's financial abilities and capabilities. Demographic, environmental, and socioeconomic factors, on the other hand, play a role in

mediating the relationship. The ease of access to finance and the norms that govern such access in the development of the formal financial system stage and the institution that protects consumers from unfair financial practices are all important environmental factors. Similarly, demand-side factors like societal norms may act as a moderator of individual decision-makers' financial capability (Nkuna et al*.,* 2021).

Social norms, for example, can both limit and encourage financial risk-taking behaviour. As a result of financial capability, several financial outcomes are expected. To begin with, financial aptitude can lead to financial inclusion. Decision-makers can choose between short-term and long-term financial savings and investments and other financial products if they are familiar with the available financial products. If decision-makers are familiar with the available financial products, they can choose a variety of short-, medium-, and long-term financial services (Nkuna et al*.,* 2021).

2.2 Empirical literature review

One of the objectives of financial system restructuring and reforming is to improve the financial inclusion level. However, the extent of access to financial services is lower in less developed countries compared to developed countries. Some specific groups of society still lack financial services access in less developed countries (Beck *et al*., 2008). Several previous studies measured the effect of individuals of socioeconomic characteristics on financial inclusion (Nandru et al., 2021).

Dar and Ahmed (2020) examined the determinants of financial inclusion in India by employing the database of Global Findex of the year 2017 and revealed that income, age, and gender drove financial services access in India. Gebrehiwot *et al.,* (2019) used 27 African countries to examine the drivers of financial inclusion using the GMM panel data. The findings revealed that mobile infrastructure and Gross Domestic Product (GDP) per capita positively influence access to financial services. In their study of 37 African countries utilizing the World Bank's Global Findex database.

Mhlanga and Dunga (2020) examined the access to financial services among small farmers in Zimbabwe and the findings showed that financial literacy, income, distance, education, and age of the society significantly influenced the financial inclusion among the smallholders. Ozili, (2022) found that financial inclusion affects and is influenced by financial innovation, level of poverty, financial sector stability, financial literacy, economic conditions, and regulatory factors. Dakhlia *et al.*, (2021) investigated the relationship between ethnic development and financial inclusion by examining eleven ethnic groups in Senegal and Nigeria and found a strong positive relationship between local economic prosperity and ethnic financial inclusion.

Despite the growing empirical literature in developing countries, much more needs to be done to improve the understanding of why selectivity exists in the use of various types of financial services. Numerous studies have been done on the issue of financial inclusion and the factors that influence successful financial inclusion. The importance of financial inclusion is considerable, but the factors that would make it successful are as crucial. Many of these factors have been discovered in earlier research, but these investigations have always been constrained by certain demographic or geographic bounds (Nkuna *et al.,* 2021). Therefore, this study adds to the literature by examining the relationship between financial inclusion and both Psychographics and socioeconomic characteristics of emerging economies evidence from Tanzania.
Given the literature reviewed above, the following two groups of hypotheses have been formulated and tested to assess their influence on financial inclusion:

$H_{1:}$ *Psychographic factors have a significant influence on financial inclusion*

H_2*: Socioeconomic factors have a significant influence on financial inclusion*

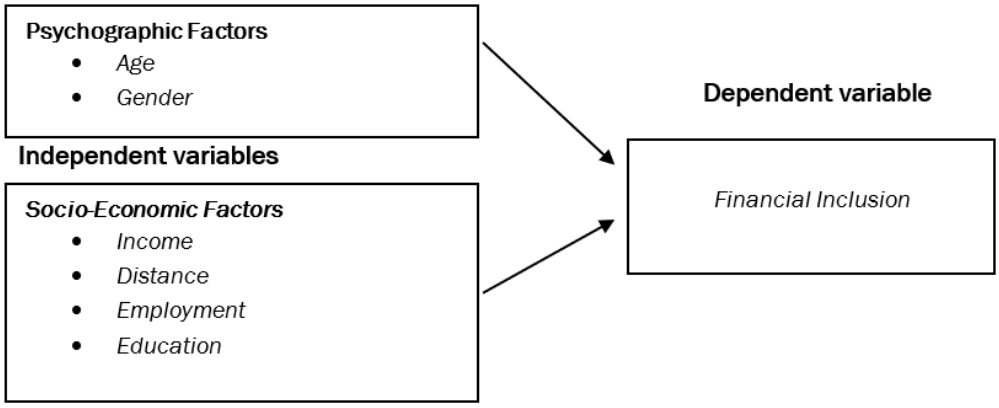
2.3 Conceptual framework

The conceptual framework of the study was based on the discussed literature above and the modified framework developed by the World Bank, (2013) to incorporate demographic and socioeconomic

factors which directly affect financial inclusion. Socioeconomic factors include education, income, employment, and distance (independent variables). These factors directly affect access to financial services, for resistance, income may encourage society to need financial services or the distance directly links the financial inclusion. The study's framework has been generated based on the research hypotheses to investigate the elements influencing financial inclusion in Tanzania, as shown in Figure 1.

A large number of earlier studies conducted in Tanzania focused on the significance of financial inclusion with little attention paid to the factors that influence the uptake of financial inclusion. In several ways, this study adds to the body of knowledge already in existence. This study examines how psychographic and socioeconomic factors such as gender, age, education, employment, distance, and income relate to and have an impact on the adoption of financial inclusion.

Figure 1. Conceptual framework



Source: own

The previous number of studies on the determinants of financial inclusion generally support the financial inclusion framework. Zins and Weill, (2016) revealed that being more educated, richer, older and a man favours financial inclusion with a higher influence on the level of income and education. The conceptual framework supports the above findings.

3. METHODOLOGY

3.1 Measurement instrument

The questionnaires were used in this study to collect data. The relevant questions with close-ended question types were asked in the questionnaire to achieve the study objective. The questions in the questionnaire were developed after consulting previous literature and experts in the area. A final questionnaire with 35 items was created for the study after several rounds of revisions and suggestions. There were two parts to the questionnaire. The first section of the survey contained inquiries on the respondents' demographics, while the second part addressed questions about the factors that influence financial inclusion. Each item was rated by respondents according to how much they agreed or disagreed with the corresponding statement. A five-point Likert Scale was employed and measured by a 5-point Likert scale format ranging from strongly disagree (1) to strongly agree (5). The method was used in this study because is simple to understand for survey administrators and respondents and takes less time and effort to complete than higher point scales (Hussaini and Chibuzo, 2018). The questionnaire was put through a pilot test to validate the measurement tool. After obtaining satisfactory results that met the study's objectives, the research continued with the data collection process.

3.2 Data collection

The study objective is to investigate demographic and socio-economic characteristics as drivers of financial inclusion in Tanzania. This study used data generated by FinScope (2017), the data provided by this survey is deemed complete, sufficient, and reliable. However, the survey was not conducted specifically to evaluate the factors influencing financial inclusion rather it gives an overview of Tanzanian individuals' financial behavior in terms of how they generate their income as well as handle their finances. This study takes the opportunity of the wider coverage of issues in the data survey. Data from the 2022 *Tanzanian Population* and Housing *Census* and anticipated population figures acquired from the Tanzania National Bureau of Statistics (TNBS) were used in the study. Each region was divided into enumeration areas using the TNBS sample frame. The target population of the study includes selected, bank institutions, mobile phone providers, SACCOS, youth and women groups, and the community. These groups are targeted by this study because is the segment of financial services access in Tanzania identified by the national framework of Financial Inclusion (Tanzania National Council for Financial Inclusion, 2014).

Tanzania comprises 31 regions, and the present study was conducted in four regions which included Arusha, Dar es Salaam, Dodoma, and Mwanza. These four regions were strategically selected because they are the most important cities in Tanzania where a large number of financial institutions have been established to provide financial services compared to other regions in the country, in addition, the number of mobile phone service providers and individuals owning mobile phones is higher compared to other regions (BoT, 2021). These selected regions are *the largest commercial cities in the country and the cities are the hub of financial services, and industries and* have tremendous socioeconomic potential for industrial growth.

Financial institutions have a wide range of customer bases to serve as a result of the establishment of numerous large and small size enterprises as well as brand-new sectors and startups. This creates a critical requirement for delivering adequate financial services to these areas as well, which necessitates proper strategies. Therefore, these financial institutions could greatly benefit from having a thorough understanding of the financial inclusion situation and its drivers so that they can develop their policies and offerings accordingly. According to Tanzanian latest population and housing census from a demographic point of view, the total population of four regions is 14,525,480 which represents 23.5% of the total population of the country (TNBS, 2022).

Nunnally (1967) recommended making at least 10 observations for each variable or item being tested. This recommendation led to the determination that a sample size of 350 to 450 is appropriate for the study. Then a sample of 384 individuals was used from the Arusha region. Dar es Salaam region, Dodoma region, and Mwanza. Since income level is a key factor in selecting respondents for this study, the judgmental sampling technique is used to measure the factors that influence financial inclusion in the target demographic regions. The judgmental sampling strategy is the most practical to apply (Vaid et al., 2020). Through in-person field interviews conducted over four months, the data is obtained

3.3 Model specification

The probit model along with multivariate probit is applied to estimate the drivers of financial inclusion. The models are used to quantify the relationship between the categorical target variable and one or more independent factors. The approach is helpful when a target variable's result can only take one of two possible forms, or when it is binary (Nkuna et al., 2021). To predict the target variable classes, binary logistic regression classifiers use one or more predictor variables that may be continuous or categorical.

The model is the best choice for analysis because the dependent variable in this study is a binary answer with only two possible values. The dependent variable was the probability of access to financial service (i.e. Financial inclusion) which lies between 0 and 1 such that, 0=if not accessed financial credit; and, 1= if accessed financial credit).

Following Nkuna et al. (2021) and Clamara et al. (2014), the study assumed that the decision to have financial services is impacted by an unobservable y^* variable that is explained by explanatory drivers x'

$$y_i^{¿} = x_i^{'}\beta_i + \mu_i \qquad \mu \quad N(0,1) \qquad (1)$$

In the model, it is observed only y such that

$$y_i = 1 \; if \; y_i^{¿} > 0 \; y_i = 0 \; if \; y_i^{¿} \leq 0 \qquad (2)$$

Where i denotes the respondents' individual, β is a parameters' vector estimated, while, μ_i is the error term with the normal distribution and mean equal to zero with variance equal to one. As a result, a probability of an event, owning a financial service in this case is given by.

$$P(y_i = 1 \vee x) = P(y_i^{¿} > 0)$$
$$¿ \; P(x_i^{'}\beta_i + \mu_i > 0)$$
$$¿ \; P(\mu_i > -x_i^{'}\beta_i) \qquad (3)$$

Using the unit normal distribution if errors are distributed at random, $\mu \quad N(0,1)$ then

$$P(y_i = 1 \vee x) = F(x_i^{'}\beta) \qquad (4)$$

The normal variable's distribution function is denoted by F.

However, a multivariate probit was used to analyze the connection between individual characteristics and the likelihood of utilizing particular financial services/ products. The method was chosen under the presumption that the responses of binary about the individual's ownership of specific products might be associated. The multivariate probit model is the best approximation relative to the multinomial logit to the true underlying probabilities outcome (Young *et al.* 2009). The study assumes the following model

$$Y_{ij}^{¿} = X_i^{'}\beta_j + \mu_{ij} \mu \quad (0,1) \qquad (5)$$

$$P(y_i = 1 | x) = F(x_i^{'}\beta_i) for \; (j = 1 - J) \qquad (6)$$

$$P ¿ \qquad (7)$$

$$Where: \sum is \; the \; conariaance ¿$$

3.4 Measurement and descriptions of the variables

Financial inclusion is defined by the dummy variable and the individual access with access to financial services is given 1 value and a value of 0 otherwise (Ozili, 2022. Nkuna *et al.,* 2021) The dummy variable is used in this study to measure financial inclusion and presented by three indicators namely credit accounts, saving accounts, and mobile money as financial products. Two groups of explanatory factors are used in this study: psychographic factors and socioeconomic characteristics (Table 1). The descriptions and expected signs are presented in Table 1

Table 1. Operationalization of psychographic and socioeconomic variables

Variable	*Descriptions*	Sign
Income-Q1 (poorest)	A dummy variable that has a value of 1 for the first quintile of income and 0 otherwise.	-
Income-Q2	A dummy variable that has a value of 1 for the second quintile of income and 0 for otherwise	+
Income-Q3	A dummy variable that has a value of 1 for the third quintile of income and 0 otherwise	+
Income-Q4	A dummy variable that has a value of 1 for the fourth quintile of income and 0	+

	otherwise	
Income-Q5 (richest)	A dummy variable that has a value of 1 for the fifth quintile of income and 0 otherwise	+
Age (16-24 years)	number of years of individual household	+/-
Age (25-34 years)	number of years of individual household	+/-
Age (35-44 years)	number of years of individual household	+/-
Age (above 45)	number of years of individual household	+/-
Distance	Walking distance/time to the closest financial centre	-
Employment status	The dummy variable with a value of 1 if waged/self-employed and 0 for unemployed	+
Primary education	The dummy variable is set to 1 if the person has only completed primary school and 0 otherwise.	-
Secondary education	The dummy variable is set to 1 if the person has only completed secondary school and 0 otherwise.	-
Vocational education	The dummy variable is set to 1 if the person has only completed vocational training and 0 otherwise.	+
Graduate	The dummy variable is set to 1 if the person has only completed one degree and above otherwise 0	+
Gender	The dummy variable is set to 1 if the person is female and 0 if the person is male	-

Source: Authors and literature reviewed

4. ANALYSIS AND FINDINGS

Data from various psychographic and socioeconomic segments of society are used in the analysis, which involves 274 respondents. The study reveals a wide range of responders, from the poor to the wealthy and from the highly educated to the illiterate. To arrive at conclusions and demonstrate the situation clearly, their opinions are analyzed.

4.1 Demographic characteristics of respondents

Table 2 shows the summary results of demographic characteristics; the results indicate that all the demographics are properly mixed into the sample. It accurately depicts the region's population demography: Dar es Salaam (38.3%), Mwanza (24.5%), Dodoma (21.1%), and Arusha (16.1%). The majority of respondents are between the ages of 25-34 with 47.9% which is a positive and healthy response from the perspective of a company and the minority beyond the age of 45 with 3.0%. The majority of respondents are wage-employed 59.1% the second-highest group is unemployed. The majority of the respondents are literate, and only 8.4% of the samples were illiterate, indicating that most of society can read, write, and understand, which is encouraging for the financial sector and the economy. The group has a 24.8% unemployment rate, which is not a healthy indicator for the country. The respondents' occupations are evenly distributed, and the majority are wage-employed with 59.1% which is once again encouraging for the financial system's requirement for cash.

Table 2. Demographic Characteristics

Variable	*Category*	*Frequency*	*%*
Gender	Male	198	72
	Female	76	28
Age-wise	16-24	74	27
	25-34	132	47.9
	35-44	61	22.1
	Above 45	7	3
Income	Income-Q1 (poorest)	16	6.4
	Income-Q2	34	12.2
	Income-Q3	51	18.2

	Income-Q4	45	16.4
	Income-Q5 (richest)	128	46.8
Employment	wage-employed	162	59.1
	Self-employed	44	16.1
	Unemployed	68	24.8
	No formal education	23	8.4
	Primary education	27	9.6
Education	Secondary education	47	16.8
	Vocational education	168	61.3
	Graduate and above	9	3.9
Location (regions)	Arusha	44	16.1
	Dar es Salaam	105	38.3
	Dodoma	58	21.1
	Mwanza	67	24.5

Source: Author computations

4.2 Financial inclusion status

The summary results of the relationship between psychographic, socioeconomic factors, and financial inclusion of respondents are presented in Table 3. The findings indicate that 68.2% of the respondents surveyed use financial services. Out of this composition, around 44% of males and 24. % of females are included in financial services This is different from the findings of the FinScope (2017) which indicated that 65% of respondents use financial services. The findings indicated that access to finance is impacted by the respondents aged between 25 to 34 years at 29.4%, followed by the aged between 16 and 24 at 17.6%. Very few (0.3%), mostly elderly respondents, have access to financial services. Regarding education, most of the respondents who accessed financial services have a vocational education (58%). Likewise, very few respondents have not attended any formal education (10.2%).

The findings indicate that when compared to the other income groups, the fifth quintile income (richest) is the most inclusive (54.6%). This implies that the likelihood of receiving higher income is financially included. In the location distribution, a high percentage of the included is Dar es Salaam region (58.4%) followed by the Arusha region (52.8%). The main reason for a high proportion of the included major business activities and financial services in the region is concentrated in these two regions

The regions with low levels of financial inclusion are the Mwanza region (36.8%) and the Dodoma region (28.9%). The results show the poor status of financial inclusion in Dodoma and Mwanza regions, particularly regarding the exclusion of weaker and more vulnerable groups of the population, such as women and members of certain groups.

Table 3. Summary Results of Financial Inclusion by Category

Variable	*Category*	*Financial included (%)*	*Financial Excluded (%)*
Gender	Male	43.8	28.7
	Female	24.4	3.1
Age-wise	16-24	17.6	9.4
	25-34	29.4	18.5
	35-44	10.6	11.5
	Above 45	0.3	2.7
Income	Income-Q1 (poorest)	10.8	89.2

	Income-Q2	21.4	78.6
	Income-Q3	24.8	75.2
	Income-Q4	38.6	61.4
	Income-Q5 (richest)	54.6	45.4
Employment	wage-employed	62.4	37.6
	Self-employed	38.6	61.4
	Unemployed	24.6	75.4
Education	No formal education	10.2	89.8
	Primary education	28.2	71.8
	Secondary education	32.6	67.4
	Vocational education	58.4	41.6
	Graduate and above	36.3	63.7
Location (Districts)	Arusha	52.8	47.2
	Dar es Salaam	58.4	41.6
	Dodoma	28.9	71.1
	Mwanza	36.8	63.2

Source: Author's compilation

4.3 Findings and discussions

The results and marginal effects of the estimate of three probit models are shown in Table 4. Model 1 analyzes the effect of psychographic factors, while Model 2 includes both the effect of psychographic and socioeconomic characteristics on financial inclusion and Model 3 further takes locational considerations into account. The findings of all models are not different in terms of sign and significance. In this case, the study focuses on the results of Model 3. Using multivariate probit, the study further investigated the correlation between the characteristics of individuals and the probability that individuals use various financial services/products. The majority of the variables are statistically at a 5% level of significance, according to estimated results. All categories of age except older persons (age above 45 years) have a positive and significant impact on financial inclusion with a substantial coefficient. It observed that financial inclusion increases with age but after a certain age, this likelihood decreases this is captured with the negative sign of the coefficient (see age > 45 years: $\beta = -0.382$ and $p < 0.05$). The finding is consistent with those of Nkuna *et al.,* (2021). The findings between financial inclusion and gender revealed a significant relationship, however, gender has a negative impact on financial inclusion ($\beta = -0.1348$ and $p < 0.05$). This implies that financial inclusion declined as far as females are concerned. This finding is consistent with the concept that men are the family head in most family setups in Tanzania. The finding supports the findings by Sanderson *et al.,* (2018) and Mhlanga and Dunga (2020) found that the gender variable was the only factor negatively influencing financial inclusion. The level of income among the respondents is a significant variable at 95% of the actors of financial inclusion (p-value <0.05) as is expected by the study, as the level of income increases it is expected that access to financial services will increase too.

The highest marginal impact on financial inclusion comes from the income quintile. 5 ($\beta = 0.238$, and $p < 0.05$). The high-income level individuals have specifically raised the probability of financial inclusion by 23.8%. This finding is similar to the findings of Dar et al., (2020), Zins and Weill (2016), and Mhlanga and Dunga, (2020) found a positive and significant relationship between income and financial inclusion. The finding has shown that the distance and barriers of the respondents in the society have a negative and significant impact on access to financial services in financial centres ($\beta = -0.068$ and $p < 0.05$). This study hypothesized that people living close to financial centres have better chances of being financially included. Similar to Mhlanga and Dunga, (2020) found that distance is the significant variable in influencing financial inclusion among smallholder farmers in Zimbabwe and Ghosh (2020) found that distance primarily dampens the use of financial services. For the case of employment, the respondents

are classified as wage-employed /self-employed, the two classes are developed to assess whether either of the statuses could influence the community toward access to financial services. Based on this concern, analysis of responses revealed the level of employment has a positive and significant impact on financial inclusion ($\beta = 0.157$ and $p < 0.05$). The increase in the level of employment by 1% raised the chance of financial inclusion by 15.7%. The finding is in line with the findings by Wokabi and Fatoki (2019) found employment positively and statistically significantly related to financial inclusion. Further, the findings indicate that the level of education, secondary and vocational levels, in particular, plays a significant role in access to financial services ($\beta = 0.382$ and $p < 0.05$). ($\beta = 0.418$ and $p < 0.05$) and is similar to Clamara *et. al* (2014). From secondary to vocational education, the likelihood of being included in financial inclusion rises; accordingly, secondary and vocational education levels raised the chance of financial inclusion by 38.2% and 41.8% respectively. The findings support most studies including Clamara et al., (2014). For locational factors, the findings indicate that the individuals' person living in Dar es Salaam and Arusha regions have a higher likelihood of being included with 23.6% and 12.8% respectively. The reason is that financial services centres are mostly located in these two cities, making it possible for individuals residing in these areas to access and utilize financial services/ products.

Table 4. The Marginal Effects Results of Probit Models

Variables	*Model 1*	*Model 2*	*Model 3*
Age: 16-24 years	*0.0324***	*0.0632***	*0.0458***
	(0.003)	*(0.002)*	*(0.000)*
Age: 25-34 years	*0.0624***	*0.0341***	*0.0556***
	(0.001)	*(0.000)*	*(0.001)*
Age: 35-44 years	*0.342***	*0.126***	*0.183***
	(0.488)	*(0.365)*	*(0.485)*
Age: above 45	*−0.128***	*−0.132***	*−0.146***
	(0.001)	*(0.000)*	*(0.000)*
Gender	*−0.0621***	*−0.1232***	*−0.1348***
	(0.003)	*(0.002)*	*(0.001)*
Income-Q1 (poorest)		*−0.214***	*−0.308***
		(0.004)	*(0.002)*
Income-Q2		*0.008***	*0.036***
		(0.004)	*(0.006)*
Income-Q3		*0.058***	*0.062***
		0.004	*0.001*
Income-Q4		*0.0781***	*0.081***
		(0.006)	*(0.003)*
Income-Q5 (richest)		*0.226***	*0.238***
		(0.003)	*(0.000)*
Distance		*-0.045***	*-0.068***
		(0.006)	*(0.003)*
Employment status		*0.124***	*0.157***
		(0.006)	*(0.004)*
Primary education		*0.136***	*0.134***
		(0.0264)	*(0.0266)*
Secondary education		*0.268***	*0.382***
		(0.002)	*(0.000)*
Vocational education		*0.621***	*0.418***
		(0.014)	*(0.006)*
Graduate		*0.0786***	*0.0734***

	(0.0431)	*(0.0424)*
Dar es Salaam		*0.2368***
		(0.004)
Arusha		*0.1282**
		(0.006)
Mwanza		*0.0342**
		(0.6882)
Dodoma		*0.0236**
		(0.674)

Source: Authors estimation, * represents a 1% level of significance; ** 5% level of significance (Parenthesis repre sent the Robust Standard Errors)

4.4. The results of determinants of individual financial products

The results of multivariate probit estimates for the key financial inclusion indicators are shown in Table 5 for each indicator. The dependent variables are credit accounts, saving accounts, and mobile money. Assuming that the individual binary responses are correlated. The null hypothesis is rejected and the binary responses are independent and arrive at the conclusion that the responses of these particular products are correlated with a probability chi-squared of (0.000). The results indicate that there is a significant relationship between all individual characteristics and financial inclusion.

Age has a relationship with each of the three financial inclusion indicators of the study and the result shows a positive significance for all young ages and a negative significance for older (age above 45 years: $\beta = -0.0486$ and $p < 0.05$)). Older persons have a better chance to be financially included, but after a certain age, this likelihood decreases. Being a female greatly lowers the likelihood of having use of a credit account, saving accounts, and mobile money. All three financial indicators used have strongly negative dummy variables for income, except for higher quintile dummy coefficients suggesting more income.

All financial inclusion indicators are positively correlated with educational level. For all three measures of financial inclusion, the study found statistically significant positive coefficients for all education levels, with higher coefficients for vocational education level. The study's findings support earlier hypotheses and previous studies which showed that education and age have a significant impact on financial inclusion (Ozili, 2022; Barik and Sharma).

Table 5. Results on Financial Products Usage (The Multivariate Probit Model)

Variables	*Saving accounts*	*Credit Account*	*Mobile money*
Age: 16-24 years	*0.0428**	*0.0223**	*0.645**
	(0.0461)	*(0.0431)*	*(0.000)*
Age: 25-34 years	*0.0842***	*0.0286***	*0.758***
	(0.023)	*(0.0421)*	*(0.000)*
Age: 35-44 years	*0.263***	*0.216***	*0.886***
	(0.368)	*(0.221)*	*(0.485)*
Age: above 45	*−0.0231***	*−0.0642***	*−0.0486***
	(0.021)	*(0.012)*	*(0.000)*
Gender	*−0.0863***	*−0.0386***	*−0.0088***
	(0.002)	*(0.028)*	*(0.001)*
Income-Q1 (poorest)	*−0.282***	*−0.326***	*−0.218***
	(0.0241)	*(0.0421)*	*(0.003)*
Income-Q2	*−0.276***	*−0.236***	*−0.238***
	(0.023)	*(0.0132)*	*(0.002)*

Income-Q3	*−0.268***	*−0.268***	*−0.046***
	0.013	*(0.0132)*	*0.000*
Income-Q4	*−0.0678***	*−0.0682***	*−0.032***
	(0.004)	*(0.023)*	*(0.001)*
Income-Q5 (richest)	*0.268***	*0.236***	*0.785***
	(0.000)	*(0.0431)*	*(0.000)*
Employment status	*0.374***	*0.236***	*0.876***
	(0.001)	*(0.023)*	*(0.001)*
Primary Level Education	*0.265***	*0.2678***	*0.234***
	(0.0286)	*(0.0381)*	*(0.0238)*
Secondary Level Education	*0.236***	*0.348***	*0.786***
	(0.000)	*(0.032)*	*(0.001)*
Vocational Education	*0.568***	*0.437***	*0.889***
	(0.023)	*(0.038)*	*(0.00)*
Graduate	*0.0886***	*0.0358***	*0.734***
	(0.0368)	*(0.0286)*	*(0.0031)*

Source: Author's computations: χ^2= (13) = 380.87 *Prob* > χ^2 = 0.0000, * represents a 1% level of significance; ** 5% level of significance (Parenthesis represent the Robust Standard Errors)

CONCLUSION AND POLICY IMPLICATIONS

The objective of this paper is to investigate the effect of psychographics and socio-economic factors on financial inclusion in Tanzania by employing probit and multivariate models. Three indicators—saving accounts, credit accounts, and mobile money are used in the study to assess financial inclusion on individuals' characteristics. The findings indicate that 68.2% of the respondents surveyed use banks and other financial institutions. The findings show that there is a significant relationship between individuals' psychographics and socioeconomic characteristics with financial inclusion in terms of age, gender, income, distance, education, and employment. The marginal effect shows that being richer, male, older to a certain age, and more educated influences financial inclusion. The results of the marginal of multivariate probit indicate mobile money is the most preferred indicator for all individuals' characteristics.

What policy implications can we draw from this study? Based on the results of this study. first financial institutions and policymakers must develop a broad strategy to promote financial inclusion for all given the strong correlation between psychographics and socioeconomic individuals characteristics of individuals and the use of financial services. Second, the study supports the argument that particular demographic groups, such as females and young age, should be the focus of strategies promoting financial inclusion in Tanzania. Finally, mobile money seems to be a significant indicator of financial inclusion, and increasing the use of mobile money in Tanzania might enhance financial inclusion.

The limitation of this study first is geographic scope was restricted, to produce a more generalized conclusion on the national level, a comparative study can be carried out with a bigger sample size that considers more regions than only four regions. The second prospect for future study could be to focus on digital financial inclusion

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