

Empirical Investigation into Demand-Side Determinants of Financial Inclusion in Tanzania

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Abstract

The overall objective of this study is to examine empirically the demand side determinants of financial inclusion in Tanzania. Using the Tanzania FinScope survey of 2017 that comprised of a sample of 9,459 adults (individuals of 16 years and above), the study employed a probit model to analyse the determinants of financial inclusion in Tanzania. The findings revealed that being a male, middle aged, living in the urban, being formally employed, having more income and more educated to a certain extent foster financial inclusion in Tanzania with a higher influence of formal employment, income and education. Moreover, descriptive analysis established lack of sufficient money and unawareness of the financial services were the most common barriers to financial inclusion in Tanzania. The findings of the study points to direction and factors for improving financial inclusion in Tanzania.

Key words: Financial services, Financial inclusion, Poverty reduction

JEL Classification Codes: C13, C25, G21

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1. Introduction

Financial inclusion, which is conveniently defined in this paper as uptake and use of savings, credit, insurance, and money transfer services offered by formal and quasi-formal financial institutions at affordable cost and time, has featured prominently in poverty reduction policies and programmes implemented in less developed countries (LDCs) since 1990s.¹ The basis is a view in development economics that “finance matters”, that is, access to formal financial services is a prerequisite for poverty reduction. For example, Bruhn and Love (2014) argues that financial inclusion has economic benefits: it favours the disadvantaged group and the poor by allowing them to earn more and increase their probability of securing a job. As also argued, financial inclusion offer to poor and disadvantaged groups opportunities to invest in education, ability to become entrepreneurs able to up-take income generation projects that would make them economically empowered and able to break away from poverty traps (Bruhn and Love, 2014; Demirgüç-Kunt *et al.*, 2012; Swamy, 2014). It is in this context that the World Bank set an objective of achieving globally universal financial access by 2020. On the same basis, in 2014 the Government of the United Republic of Tanzania (URT), implemented a National Financial Inclusion Framework (NFIF) during the period 2014 – 2017 that targeted to achieve by 2017 financial inclusion of 80% of the adult population, and 70% of the population living within 5 kilometres near formal outlet of financial services.

FinScope (2009, 2013, 2017) surveys on Tanzania showed dramatic increase in financial inclusion in Tanzania since early 2000. While FinScope (2007) survey established that only 45% of the total adult population in Tanzania had access to formal and informal financial services, FinScope (2017) survey showed access had rose to about 44% in 2009 and about 73% in 2017. Implicitly, only about 27% of the adult population in Tanzania was financially excluded by 2017 (FinScope Tanzania, 2017).

The purpose of this paper is to investigate empirically factors that drives financial inclusion and conversely financial exclusion in Tanzania. The analysis undertaken is timely in view of endeavour of the government in Tanzania to foster financial inclusion in the country since the launch of financial sector reforms in early 1990s. The study also adds value in the existing literature on the links between finance, output, and poverty reduction in Tanzania. The empirical evidence from the analysis suggests income, education, formal employment, are the most important factors that explains the “success story” of financial inclusion and, conversely, increase in financial deepening in Tanzania since the 1990s.

The rest of this paper is organized as follows. Section 2 presents an overview of the financial sector and financial inclusion in Tanzania. Section 3 reviews theoretical and empirical literature on financial inclusion, its determinants and impact on poverty. Section 4 presents methodology of the study; and, Section 5 present and discusses the empirical results. A summary of key findings, their policy implications and areas for further research are presented in Section 6.

¹ The financial structure in most developing countries is quite dualistic. On the one hand, is the formal financial sector (FFS) which is usually characterized by a central bank at the apex of other formal financial institutions including commercial banks, finance and insurance companies, etc. On the other hand, is an informal financial sector (IFS), which comprises moneylenders, Rotating Savings and Credit Associations (RoSCAs), landlords, friends, relatives and neighbours (Hyuha, Ndanshau, Kipokola, 1993).

2. Financial Sector and Financial Inclusion in Tanzania: An Overview

The government of the United Republic of Tanzania (URT) since the 1990s has been implementing policies and strategies targeted to improve the legal, regulatory and supervisory framework of the formal financial sector in order to enhance its contribution to economic growth and development. Led by this hypothesis the government implemented a three year (June 1986 - June 1989) IMF (International Monetary Fund) and World Bank supported Economic Recovery programme (ERP) supported Economic Recovery Programme (ERP) that, among others, included liberalisation of the financial sector to provide for development of vibrant financial markets that would serve mobilisation of savings for the finance of private sector investment designated as an engine of economic growth (Kimei, 1993).

On the one hand, liberalisation of the financial sector by Government enactment of a Banking and Financial Institutions Act (BFIA) in 1991 paved way to a licencing of local and foreign financial banks and non-bank financial intermediaries. By June 1996, the number of the licensed commercial banks had rose from two in 1991 to eight; and the licensed private NBFIs were five, from none in 1991. On the other hand, the liberalisation of the financial sector initially engendered development or enhancement of financial exclusion in the country for two main reasons. First, Government commitment to provide for a level playing field in the financial sector led to liquidation and/or closure of its loss making banks and branches that reduced access to formal financial services in the rural and urban areas (Ndanshau, 1995). Second, as would be expected the licensed banks and NBFIs targeted the low risk and high return urban based corporate clientele (Ndanshau, 1995). Obviously, therefore, potentials for financial deepening and inclusion after liberalisation of the financial sector was low.

Indeed, the Government of the United Republic of Tanzania (URT) realized that while the principles that underlay the financial sector were to remain a basis for sound financial sector development, expansion of access to financial services to micro-level clients was required (NMFP, 2000). This was approached by two complementary policies, *viz*, National Micro-Finance Policy (NMFP) and Cooperatives Development Policy of 1997 that targeted financial inclusion. On the one hand, the NMFP (2000) provided for development of quasi-formal non-bank financial intermediaries for the supply of financial services to potential clientele not serviced by the FFIs. On the other hand, the CDP (1997) led to enactment of the Cooperatives Societies Act 2003, among others, provided for legal recognition of SACCOS as MFIs for the supply of financial services to both firms and individuals in the rural and urban areas.

The Cooperative Societies Act (1991) de-linked cooperative from government controls as it allowed voluntary association of members in, among others, saving and credit cooperatives. Cooperative Development Policy of 1997 that, aside AMCOs, called for more attention to be directed to rural financial services (RFS) led to amendment of the Cooperative Act of 1991 in 2003 allowed registration of SACCOS and micro-finance companies as NBFIs whose primary activity is to furnish secured or unsecured loans to individuals, smallholder producers and small and micro-enterprises of rural and urban sectors” (p. 9).

The reforms in the financial sector unleashed several outcomes, hereafter referred to as financial innovations. Among others, the number of banks and NBFIs increased. By 2013

the banking sector had 52 banks with 609 branches, compared to 4 banks in 1991. Similarly, institutions in the insurance sector had rose from one 1 (one) National Insurance Company (NIC) in 1991 to 27 private insurance companies, 2 re-insurance companies, 72 brokers and 520 agents in 2013. Also, during the same period the number of public pension funds increased from 1 in 1991 to 5 that largely covered the formal working population. Also, some markets hitherto non-existent became established, among others, capital markets, including establishment of the Dar es Salaam Stock Exchange (DSE) in 1998. Moreover, on account of the BoT Act 1995 and Cooperative Societies Act 2003 several formal and quasi-formal NBFIs became operational since 1991. The number of SACCOS rose 606 in 1999 to 4,524 in 2007 and 5,559 in June 2013. During the same period there were 170 credit only Non-Government Organizations (NGOs) and companies became operational. It is also noteworthy that as a result of technological innovations and innovation of mobile money and agency banking, there have been a tremendous increase in the access to financial services by a larger proportion of the population in Tanzania.

The increase in the number of players in the financial sector led to an expanded menu of financial products offered in the formal financial sector constituted of both financial institutions licensed and regulated by the Bank of Tanzania (BoT) and the so-called micro-finance companies and Non-Government Organisations (NGO) that are indirectly licensed and or supervised by the BoT or are licensed by the government.

It is worth noting that financial services offered by banks and other formal financial institutions directly or indirectly licensed by the central bank in Tanzania largely remain concentrated in the urban areas, partly due to formality of such institutions, for example, requirement for fulfilment of the so-called KYC(Know Your Client); and, partly, due to existing poor transport and communication infrastructure and likely high cost of securing finance, specifically “cash money” on transfer to the rural areas. While, the costs for the supply of basic financial services (deposits, money transfer, withdrawals) to the rural areas are known to have decreased and led to increase in financial inclusion, access to financial services is still limited, individuals and firm’s access to credit is still a challenge, financial infrastructure continues to lag and market development is extremely low.

FinScope (2017) established that almost 65 percent of the adult population in Tanzania was financially included in terms of using formal financial services mostly through the mobile money services. The remaining 35 percent of the financially excluded adult population constituted 6.7 percent of users of informal financial services and about 28 percent on non-users of formal and informal financial services (FinScope Tanzania, 2017). A glimpse on FinScope surveys (2009, 2013, 2017) on Tanzania reveals a tremendous increase in the percentage of the adult population that is financially included. In particular, the results of the FinScope surveys reveal financial inclusion rose from about 44 percent in 2009 to about 72 percent in 2017 (FinScope Tanzania, 2017); and, the increase in financial inclusion, by and large, was occasioned by mobile money services that are linked to formal financial services of banks and NBFIs. The anecdotal evidence that is available suggests, therefore, that only about 28 percent of the adult population in Tanzania has no access to formal financial services. Nonetheless, the largest proportion of the financially excluded adult population in Tanzania is constituted of poor, women, youth, and small-scale farmers in the rural areas.

3. Literature Review

3.1 Theoretical literature

According to modern development theory financial services are crucially important for the attainment of economic growth and development. The access to financial services can provide to individuals and firms opportunities to unleash their entrepreneurship skills, undertake and sustain productive investments, and/or smoothen consumption over time. It is in this context that it is maintained in the literature that financial development is a necessary condition for achieving economic growth and poverty reduction; and, that lack of financial access may lead to income inequalities and stunted economic growth and development (Hoff and Stiglitz, 2001; Patrick, 1966; Spears, 1992).

Following Fille (2013), the effect of financial development on economic growth is dual: first, presence of financial intermediaries facilitates capital formation which allows the growth of investment in various sector and increase marginal productivity of capital that eventually leads to economic growth. Second, financial intermediaries provide to individuals minimal risk and high return avenues for saving that that increase savings for investment.

Financial intermediation theories show how financial institutions plays their role in providing required financial services through linking the deficit and the surplus units in an economy. Where income inequality and poor growth result when the deficit and surplus spending units are poorly coordinated. That is, while it is extremely difficult for an individual or firm with a need to borrow a certain amount from another individual or firm with exactly the specific surplus needed and willing to lend out that amount, it is through financial intermediation where the two individuals or firms can both benefit and meet their requirements at a low transaction cost with minimum risks. Financial intermediaries reduces information asymmetries and transaction costs which increases savings rate and efficiently leads to capital accumulation, thus increasing investment rates and catalysing long-run economic growth (King and Levine, 1993).

Galor and Joseph (1993), argued that the lack of financial intermediation limit the poor to invest in their education, despite their high marginal productivity. Also Abhijit and Andrew (1993) is for an argument that with no financial intermediation an individual's occupational choice is limited by his/her initial endowments, that is, the choice of whether one becomes an entrepreneur or remain a wage-earner determines how much he/she can save and the amount of risk he/she can bear, with the long-run implications for growth and income distribution. Basically, the models shows that lack of financial intermediation can be a pressing mechanism for poverty traps generation and income inequalities, as well as stunted growth.

Through well-functioning financial intermediaries easy accessibility of all banking services at an affordable cost and reasonable timing, financial resources can be redistributed efficiently and positively influence economic growth (Bodie, 1995). According to Boyd and Prescott (1986) a well-developed financial system leads to low transaction costs and efficient capital allocation, through acquiring information and mobilizing savings from surplus units (savers) and making funds available to deficit spending units, that is, investors in need. Hence, presence of financial intermediaries accepting savings and lending loans reduces the cost to produce information on financial investment activities. Jovanovic and Greenwood (1990), like Boyd and Prescott (1986), argues that financial intermediaries generates relevant information with low transaction costs and increases efficiency in

financial resource allocation, which stimulates economic growth. Jovanovic and Greenwood (1990) also argued that financial intermediaries enhances the ability of the financial sector to provide reliable information and hence improving the efficiency of capital allocation.

Financial intermediation is far more important in the less developed countries. Through financial intermediaries resources are been transferred from the less productive sectors to the more productive sectors. Hyuha (1982) argues that financial intermediation reduces output from the traditional sector (less productive sectors) and increases output in the modern sector (more productive sectors), of which the net effect of the financial intermediation is positive, since the increase of the output in the modern sector will be greater than the decrease of output in the tradition sector.

Given the importance of finance and financial sector in the process of economic growth and development, both financial deepening and widen are equally important for economic growth. On one hand, financial deepening, which is the increasing provision of financial services and better access for different socioeconomic groups, lead to the increase access to financial services by the deficit and surplus spending units. On the other hand, financial widening, which is the increase of the choices of financial services, increases the range of financial products that are available to both surplus and deficit spending units. It follows therefore, both financial deepening and widening are important for economic growth by providing for an existence of financial inclusion that could be defined as provision of access to an adequate range of safe, convenient and affordable financial services to the surplus and deficit spending units in our economy, particularly the disadvantaged group.

In developing countries, financial inclusion creates conditions for the weak and low income group to timely access adequate credit and other financial services at an affordable cost. Financial inclusion can lead to poverty reduction through two channels: First, the individual and firms with limited income (deficit spending units) can have access to credit that can enable them to smoothen consumption and increase productivity by investing in various economic activities and thus boosting their income, which eventually leads to poverty reduction and economic growth. Second, the individuals and firms with extra credit (surplus spending units) are provided with a platform to save, whereas the savings are mobilized to accumulate capital that can be invested and hence leading to economic growth and poverty reduction in the developing economies.

With limited or no financial support, individuals have to depend on their meagre savings to acquire consumption goods and invest in their health, education and become entrepreneurs. In the case of firms these will have to rely on their limited earnings to pursue promising business opportunities, of which this can contribute to persistent income inequality and slower economic growth.

The availability of financial intermediaries with strong diversity are crucial for development and expansionary activities. Without financial services each individual or firm's investment will be limited to its savings. But with access to financial services the individual or firm's investment can exceed its savings. With this benefit the economic agents can facilitate growth, development, investment, and employment generation, which is well established in the literature (Ford and Poret, 1991; Brunetti *et al.*, 1997; Feldstein and Horioka, 1980; Hartog and Oosterbeek, 1993).

3.2 Empirical literature

There are several empirical studies on determinants of financial inclusion in and outside developing countries.² By using the World Bank Global Findex (2012) Data base of a sample of 148 countries, Allen *et al.* (2016) established older, richer, more educated, urban, employed and the married or separated couples were more likely to have an account with a formal financial institution.

Study by Pravat and Laha (2011) that covered selected districts of West Bengal in India and used a binary probit regression model established financial inclusion was determined by degree of awareness on basic banking services, diversification of rural non-farm sector, literacy and expansion of household assets. Moreover, study on India by Chithra and Selvan (2013) that was based on secondary data revealed the level of financial inclusion was positively and significantly associated with high income, high literacy rate, and low population. Furthermore, by using panel data from 29 major states in India Kumar (2013) establishes regional socio-economic and environmental setup were essential in enhancing the banking habits of individuals over the sample period that spanned from 1995 to 2008.

A study by Demirgüç-Kunt, Klapper, and Dorothe (2013), which used the 2012 global Findex on 98 developing countries, found that being a woman increased the possibility of financial exclusion, mainly due to legal discrimination among women and gender norms. In addition, the study found Muslims were less likely to own formal bank accounts than non-Muslims in sub-Saharan Africa (SSA).

Noelia, Ximena, and David (2014) used National Household Budget Survey (NHBS) data of 26,456 households to investigate determinants of financial inclusion in Peru. Results of the estimated probit models suggested women, people living in the rural areas, and the young had difficulties in accessing formal financial services. The study also revealed age, gender, education and income level as factors that affected explained uptake of formal financial services.

A study on Mexico by Ximena, Carmen and David (2014), which was based on National Financial Inclusion Survey (NFIS) in Mexico, which was carried out in 2012 and comprised a sample of 7,000 rural and urban households, revealed income, education and gender were important determinants of financial inclusion. A study by David *et al.* (2015) used World Bank Global Findex (2012) data base to estimate a probit model found financial inclusion in Argentina was determined by of education, income and age. The same factors were found to constitute explain involuntary financial exclusion of the individuals in the sample of households in the survey data used the study.

Fungáčová and Laurent (2015) used the World Bank Global Findex (2011) data base to analyse financial inclusion in China. The study also found that the older, richer and more educated were more likely to be financially included; and, income was a major determinant of financial inclusion. The study also found educated people considered costs and trust of the banking system as the barriers to access formal financial services. Moreover, the study found the elderly were more concerned about the distance, lack of money and cultural beliefs. The main barriers reported by women were lack of proper documents and the fact that their spouse already had an account in a formal financial institution.

² There several studies on developed economies that have not been reviewed in order to serve space. Among others, see Delvin (2009).

Kostov *et al.* (2015) used logistic regression technique to analyse access to financial services in South Africa by using FinScope data set for 2007. The result revealed that financial literacy was an important determinant of financial inclusion in South Africa. A study by Zins and Weill (2016) applied probit regression method to World Bank Global Findex data base of 37 African countries in order to investigate the relationship between socio-economic characteristics and financial inclusion. The study found that being a male, rich, older and more educated favoured financial inclusion in the sampled countries in Africa. As regards barriers to financial inclusion, Zins and Weill (2016) found being a woman in Africa was a barrier to financial inclusion; and, the same factor decreased formal savings in favour of informal saving.

Akudugu (2013) used data for 1,000 individuals to estimate a logit model on determinants of financial inclusion in Ghana. The results suggested financial inclusion in Ghana was determined by age, literacy levels, distance to financial institutions, wealth class, lack of proper documentation, poverty, lack of trust for formal financial institutions and social networks.

Furthermore, Issouf, Fulbert and Thierry (2016) investigated determinants of financial inclusion in Central and West Africa by using data base of World Bank Global Financial Inclusion. The results revealed financial inclusion was driven by individual characteristics, including age, income, employment status, residence area, education, gender, household size, and the degree of trust in financial institutions. The analysis also revealed being male and married couples were positively correlated to financial inclusion in both Central and West Africa. Noteworthy, the study, however, found the household size had a negative impact in West Africa but not in Central Africa; and, employment status and income were significant characteristics had positive effects on financial inclusion in both Central and West Africa regions.

A study by Lukman, Olufemi, and Babatunde (2017) used Pool Mean Group (PMG) method of panel Autoregressive Distributed Lag (ARDL) to investigate determinants of financial inclusion in SSA countries. The study found financial inclusion was influenced by level of income and literacy on the demand side; and, on the supply side, it was influenced by interest rates and the bank innovation proxied by usage of Automated Teller Machines (ATM).

In the case of Tanzania, Intermedia (2012) conducted a study on determinants and barriers to the use of mobile phone financial services by 2,000 respondents sampled during the period between 2011 and 2012. The study found use of mobile financial services was positively related to education, wealth, gender and urban residence. That finding was consistent with that obtained by other studies, among others, Jack *et al.* (2009) and Mbiti and Weil (2011). Intermedia (2012) also found illiteracy, rural residence, poverty and gender inequality (in favour of males) were major barriers to the use of mobile phone services by the sampled respondents.

Generally, the survey of theoretical and empirical literature reveal financial inclusion is determined by several factors, among others, age, gender, income, financial literacy, religion, marital status, and level of education. The relevance of such factors in explaining financial inclusion and, therefore, financial exclusion in Tanzania is investigate empirically hereafter.

4. Methodology

4.1 Data type and sources

This study is based on FinScope (2017) survey data. The data is considered comprehensive, adequate and reliable for addressing the principal objective of this study: it was generated by a nationally representative sample survey which captured an overview of the financial behaviour of Tanzanian adults in terms of how they generate income and manage their finances; it covered all the administrative regions of the country; and, it included individuals that were of the age 16 years and above, which was about 54% of the total projected population of 51,598,357 people in Tanzania.³ Moreover, error margin of the targeted sample of 10,000 respondents was very small: the margin of error was estimated at 5% and the confidence interval was 95% (FinScope, 2017).

In sum, therefore, the FinScope (2017) data used in the analysis was generated from a sample of 9,459 individuals that were successfully interviewed during the survey. On account of the weighting used to select the sample, the 9,459 individuals translates to a sample population of 27,864,302 individuals that were covered by the FinScope (2017) survey in Tanzania.

4.2 Econometric model

This study is on the effects of socio-economic and demographic factors on uptake of financial services by individuals in Tanzania. The analysis is based on the following equation:

$$FI_i = \beta_0 + \beta_1 y_i + \beta_2 Ag_i + \beta_3 Ag_i^2 + \beta_4 Ge_i + \beta_5 Ed_i + \beta_6 Em_i + \beta_7 MS_i + \beta_7 Res_i + \varepsilon_i \quad (1)$$

where FI_i is financial inclusion, Ge_i is gender, Ag_i is age of the individual head, y_i is income, Ed_i is education, Em_i is formal employment, MS_i is marital status, and PR_i residence place; and, i is individual number, and ε_i is a stochastic error term.

In theory, the individual income (y) is expected to impact positively on financial inclusion, implying individuals with high income are more likely to own an account in a formal financial institution, and vice versa. Gender (Ge) inequality in LDCs bear influence on financial inclusion; and, accordingly, female in the sample are expected to be more financial excluded by formal financial services than male. Age (Ag) of an individual or individual head is expected to impacts positively on use of financial services; and, on the basis of the Life-Cycle Hypothesis (LCH) middle aged individuals or individual heads are more likely to access financial services because are at the peak of their levels of productivity (Ando and Modigliani, 1963). Also in the context of the “hump savings” argument in the LCH, which is proxied in the analysis by Ag^2 , use of financial services decrease at advanced age of the individual head/individual.

The effect of education (Ed) on financial inclusion is expected to be positive. The underlying argument, which also is supported by some empirical studies on Africa, is that education provides one with insights to understand the importance of financial services (Zins and Weill, 2016). Moreover, formal employment (Em) status (in government or

³ See www.nbs.go.tz.

private institutions) of the individuals or individual heads in the sample is expected to bear a positive effect on financial inclusion. The rationale is, as a matter of rules and regulations governing salary and wage employment in the country, salaries and other benefits or remunerations due to individuals formally employed either by the government, licensed private institutions or businesses must be paid through formal financial institutions. Furthermore, marital status (*MS*) has several dimensions: married couples are expected to be more likely to access financial services. The argument is that marriage status acts as a guarantor for formal loans, on the one hand, because of presumed family cohesion that render an argument that marital status of marriage exert demand for saving for individual expenditure in the lean months in future.

4.3 Definition and measurement of variables

Financial inclusion, that simply refers to use of formal financial services, is represented by four dummy variables based on types of financial institutions used by the respondents covered by the FinScope (2017) survey. One (D_1), is stands for banks and agents of banks (commonly known as *wakala*); second, is D_2 for users of formal financial services other than that of banks, specifically that provided by NBFIs, micro-finance institutions (including NGOs and SACCOS), mobile money agents, insurance and pension service agencies or institutions; third is D_3 for users of informal financial services (savings groups, mostly Village Community Banks (VICOBA) and Savings and Credit Associations (SACAs)); and fourth is category of non-users of formal and informal financial services, that is totally financially excluded individuals, which is the reference category in the analysis.⁴

The definition and measurement of the independent variables is thus: income (y) is the nominal amount of money earned annually and reported by the respondents. For the purpose of analysis STATA code was used to generate five quantiles of categories of income sizes: 1st quantile of 20 percent of the respondents categorised as poorest; 5th quantile of the respondents categorised as the richest in the sample. In between the richest and poorest categories are three categories (2nd, 3rd and 4th quantiles) of income sizes of which each represent 20% of the sampled individuals. As regards gender (Ge), a dummy variable is used, where 1 is assigned for male and 0 for female. The age (Ag) is measured by the number of years of individual or head or individual; and, (Ag^2) capture possible non-linearity between use of financial services and the age of an individual.

Education (Ed) is measured by a dummy variables that represent four levels of education: a 0 for no formal education (reference category); 1 for primary education, 2 for secondary education; and, 3 for higher levels of education. The place of residence is defined as a dummy variable where 1 is for rural and 2 is for urban residence. Moreover, formal employment (Em) is also measured by a dummy variable: 1 for formal employment and 0 for other forms of employment, for example, self-employment or unemployment. The marital status (MS) is also measured by a dummy variable of four categories: 1 for respondents that were married or living together; 2 for divorced or separated respondents, 3 for widowed respondents; and, 4 for single or never married respondents. Single or never married is considered as the reference category.

⁴ Note that the codes are merely labels and do not present any level of preference of the four categories.

Since the preferred model has a categorical independent variable it has been estimated by probit (MNP) model which assumes that the error term has a standard normal distribution and is independently distributed (Wooldridge, 2010).⁵ STATA (Vers. 10), rather than any other software package, was used due to its capability to manipulate data and generate charts, ease to produce tabulated reports, trends, and conduct complicated statistical analyses.

5. Empirical Results and Discussions

5.1 Socio-economic profile of the respondents

Analysis of the survey data revealed the age of individual in the sample ranged from 16 to 100 years, which is a band of adult population expected to use financial services. The average age of the sampled individuals was 38 years. The statistics shows that the sample used in the analysis was constituted of about 43 percent male and 57 percent female individuals. The data also show about 72 percent of individual in the sample resided in the rural areas, implying that only about 28 percent of the sampled respondents resided in the urban areas.

The mean nominal income of the respondents in the sample was about TShs. 2.3 million, which is rather high. According to the FinScope (2017) survey data only 4.6 percent of the individual in the sample was employed in the formal sector. Since payment of private and public sector employees is made through banks, it is implicit that only a small proportion of the respondents in the sample had a bank account at the period of the survey. Moreover, about 64 percent of the respondents were married; and, while only about 16 percent were single, about 10 percent were either divorced or widowed. Furthermore, about 64 percent of the sampled individuals had achieved primary school education, a typical case in most developing countries. The respondents in the sample with secondary school level of education were about 17 percent; and, about 3 percent had tertiary level of education. Notable, 17 percent of the sample of respondents had no formal education.

5.2 Status of financial inclusion

As Table 1 shows only about 17 percent of the sample was clientele of banks; and, 49 percent of the sample was using other formal financial services other than that of banks. Table 2 shows that only 16.72 percent of individuals covered in the survey were using banking services. In addition, 48.6 percent were using formal financial services supplied by NBFIs, mainly formally registered SACCOS and micro-finance institutions. Table 1 also shows that about 6.7 percent of the individuals covered by the survey was using informal financial services.

The findings suggests that about 28 percent of individual covered by the FinScope (2017) survey was totally financially excluded by the formal financial services. Given the established use of informal financial services by about 6.7 percent of the respondents, the number of financially excluded respondents in the sample was about 35 percent. This imply about 65 percent of individuals in the sample of respondents covered by the FinScope (2017) was financially included (Table 1). The relatively high proportion of financially included individuals in the sample could be attributed to several institutional non-institutional factors: a) government initiatives to promote use of non-bank based rural

⁵ The probit model was preferred to multinomial logit model (MNL) whose use is limited by its assumption of independence of irrelevant alternatives (IIA) on the choices, which is hardly attainable in practice. Therefore, to do away with the unrealistic assumption of IIA.

financial services; b) spread of mobile money services; and, c) factors specific to the individuals and areas covered by the FinScope (2017) survey.

Table 1: Status of Financial Inclusion

Use of Financial Services	Number of Individuals	Percent in the Sample
Banked	4659101	16.72
Other formal	13541712	48.60
Formally included	18200813	65.32
Informal	1,874,780	6.73
Non users of financial services	7,788,709	27.95
Financially excluded	9,663,489	34.68
Total	27,864,302	100.00

Source: Based on FinScope (2017) survey data.

On the one hand, Table 2 reveals there were several factors that accounted for none use of banks by the individuals in the sample. A majority (43 percent) of the individuals in the sample reported lack or inadequacy of money income as the main factor for not having a bank account (Table 2). About 20 percent reported inability to maintain the required minimum balance as barrier to having a bank account; and, while 7 percent reported high bank charges was a barrier, another 7 percent reported long distance from banks was a barrier to use of banks (Table 2). Other least important barriers reported included ignorance of the banking system and mistrust of banks. Generally, therefore, income is the most important barrier to the use of banks by the sampled individuals covered by the FinScope (2017) survey.

Table 2: Barriers to the Use of Banks

The barriers	Number	Percent
Indifferent (None)	1,046	11.06
Does not need it - Insufficient or no money.	4,070	43.03
Cannot maintain the minimum balance	1,943	20.54
Bank service charges are too high.	696	7.36
Banks are too far away	748	7.91
Banking hours are not convenient	15	0.16
Does not have the documentation required	97	1.03
Does not know how to open a bank account	321	3.39
Does not understand benefits of having a bank account	131	1.38
Does not trust banks	49	0.52
Banks do not provide the products or services I need	15	0.16
Can get the same services elsewhere in the community	42	0.44
Need permission of someone else to open it	39	0.41
Feel intimidated by the bank environment/Does not feel comfortable	23	0.24
Bank products are complicated	72	0.76
Other	152	1.61
Total	9,459	100.0

On the other hand, Table 4 shows that about 34 percent of the individuals sampled was not aware of existence of SACCOS in the country; and, 11 percent were not aware of the SACCOS that exists in their community. For those aware of SACCOS, about 20 percent claimed to lack ability to pay for the requisite minimum shares and fees. Moreover, despite the fact that SACCOS are formed by village or community members that, by and large, are known to each other, about 15 percent of the respondents reported to mistrust them.

Table 3: Barriers to Use of SACCOS

Banking Barriers.	Number	Percent
None	133	1.41
Don't know SACCOS	3,204	33.87
Don't know of SACCOS in my community	1,056	11.16
Don't have the joining/membership fee	1,981	20.94
They don't offer me any benefits	250	2.64
Don't trust them	1,465	15.49
I can get the services they offer elsewhere	183	1.93
No specific reason	964	10.19
Other	223	2.36
Total	9,459	100.00

5.4 Econometric results

Table 4 presents the marginal effects of the probit model based on equation 1. *A priori*, the results suggest the estimation model is a good fit and is well specified: the Wald $\chi^2(45) = 1785.713$ is statistically significant, which implies that the probit model is a good fit. The results in table 4 shows that age per se is statistically significant and positively related to financial inclusion. This finding implies that the probability of one being financially included increases with age. The results shows that the likelihood of one being financially included increases by less than one percent with a unit increase of age. This is because as one grows older, they are more likely have more responsibilities, which leads to becoming more financially conscious. This and preceding findings are consistent with that obtained by Fungáčová and Laurent (2015) in a study on China.

The results suggest that being formally employed increase the likelihood of being financially included by 25 percent. The positive increase in probability of being financially included for the formally employed is not unexpected since the formally employed are required to have bank accounts for, among others, salary payments. These results are consistent with findings reported by Delvin (2009) in the United Kingdom.

Table 4: Marginal Effects After Probit

y= Pr(financial inclusion) (predict0 =.64754895 variable	dy/dx	Std.	Err.	z	P>z
Age	0.001	0.0004	3.06	0.002	0.000
Formal employment	0.251	0.027	9.13	0.000	0.197
Gender (male)	0.052	0.011	4.64	0.000	0.030
Residence (Urban)	0.179	0.011	16.20	0.000	0.157
Education					
Uneducated	-0.412	0.023	-18.22	0.000	-0.456
Primary	-0.169	0.018	-9.43	0.000	-0.204
Secondary	-0.057	0.021	-2.75	0.006	-0.098
Marital status					
Married	0.044	0.016	2.68	0.007	0.012
Divorced	0.079	0.022	3.59	0.000	0.035
Widowed	0.038	0.026	1.47	0.141	-0.013
Wealth					
Second (wealth Quantile)	0.078	0.015	5.32	0.000	0.049
Third (wealth Quantile)	0.113	0.014	8.03	0.000	0.085
Fourth (wealth Quantile)	0.201	0.013	15.42	0.000	0.175
Richest (wealth Quantile)	0.299	0.012	24.69	0.000	0.275

Note: (*) dy/dx is for discrete change of dummy variable from 0 to 1.

The results in Table 4 further shows that gender is statistically significant factor of financial inclusion.⁶ Specifically, the results suggests that being a male respectively increase the probability of being financially included by 5 percent. The results are similar to the findings of Zins and Weill (2016) in Africa, which suggested that in Africa being a woman decreases formal savings in favour of informal savings. In addition, the results show that the probabilities of the urban based individuals being financially included increase by about 17.9 percent, as compared to living in the rural areas. The results are consistent with that obtained by other studies, among others, Intermedia (2012), Issouf, Fulbert and Thierry (2016) in Tanzania and West Africa, respectively.

The study reveals that education is important for financial inclusion: the coefficients of all categories of education are statistically significant. The results suggests that being uneducated decrease by 41 percent the probability of financial inclusion; having primary education decreases the probability of being financially included by 16 percent; and, and having secondary education decreases the probability of being financially included by only 5 percent. It is not surprising that higher education favours financial inclusion, considering that the well-educated people understand the importance of utilizing financial services. The findings of this study are consistent with that obtained by Akudugu (2013) in Ghana and a study by Lukman, Olufemi and Babatunde (2017) in SSA countries.

The estimation results show that high income increase the probability of financial inclusion. This finding is consistent with that obtained by Allen *et al.* (2016) in a worldwide study and also Chithra and Selvan (2013) in a study on China. As the results also shows the coefficient for the richest income quantile is positively signed and statistically significant.

⁶ The omitted categories for the for the independent variables are: female for gender, rural for residence, not formally employed for formal employment, single for marital status, poorest income quantile for the income dummy variables and tertiary for education level.

The results also suggests that the likelihood of being financially included increases by 7 percent for individuals in the 2nd wealth quantile; and, it increases by 11 percent for individuals in the 3rd wealth quantile; increases by 20 percent for individuals in the 4th quantile of income; and, increases by approximately 30 percent for the richest individuals. The trend observed indicates that's as one's income increases they are more likely to be financially included.

Generally, the marginal effects reveals probability of financial inclusion is determined by income level, gender, age, place of residence, employment status, and education. The results, however, revealed formal employment, income and education exerted relatively larger marginal effects on financial inclusion.

6. Conclusion

This study employed FinScope (2017) survey data of 9,459 individuals. Both descriptive and econometrics analyses based were used to established determinants of financial inclusion. Both descriptive and econometrics analysis revealed income, gender, age, place of residence, formal employment, income and education were the statistically significant determinants of financial inclusion in Tanzania. Specifically, first, the increase in income increase financial inclusion. In this regard, poverty alleviation and innovation of financial products for low income groups would enhance financial inclusion. The government should continue advocating for microfinance institutions that provide financial services to the low income groups. Second, the study revealed being a male favoured financial inclusion to a certain extent. This finding emphasises importance of programmes for gender equality as instruments for financial inclusion. Third, the results revealed financial inclusion is likely higher for the urban than rural based individuals. This demand for promotion of access to formal financial services in the rural areas, among others, development of transport and communication infrastructure and also security. Fourth, the study revealed formal employment is one of the factors with larger positive marginal effect on financial inclusion. This, implicitly, suggests policy measures targeted to increase employment in public and private sectors would augur for financial deepening. Fifth, study also found that education has an impact on financial inclusion: individuals with primary or no formal education were more likely to be financially excluded. This implies that the government should invest more in higher education so as to improve the education level of the population.

Notable, this study only focused on determinants of financial inclusion from a demand side. Second, the focus of the analysis was on the socio-economic characteristics of consumers of financial services, that is, individual uptake of financial services in Tanzania. In this regard, therefore, a study orientated on the supply side of financial services may illuminate more on financial inclusion in Tanzania.

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