Determinants of Pension Uptake in the Informal Sector of Tanzania

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ABSTRACT
Pension is important for persons in both formal and informal sectors of the economy. In developing countries, formal sector is much covered in terms of pension compared to informal sector though people employed in the two sectors are equally in need during retirement age. This study aimed at determining the factors for pension uptake in the informal sector in Tanzania, secondary data collected by FinScope Tanzania in 2017 were used. To determine the factors for pension uptake in the informal sector, the binary multiple logistic regression model was applied. The dependent variable is pension status and the independent variables include age, gender, highest education level, income, location, and main income generating activity. Individuals working in farming and fishing, trade, service provision, and casual work are less likely to uptake pension compared to informal salaried. Likewise, females are less likely to uptake pension compared to male category in the informal sector. Individuals at age forty and above are more likely to uptake pension compared to those aged less than 20 years. Middle and the two highest quintiles of income are more likely to uptake pension compared to those in the two lowest quintiles of income. Persons in urban are more likely to have pension compared to rural residents. Pension uptake is common to individuals with above secondary education, at least middle-income quintiles, urban residents, males, and those aged forty years and above in the informal sector.

Key Words: Pension, uptake, informal sector

INTRODUCTION

The evolution of pension is based on the Bismarckian social welfare in German and it was very common for formal sector but recently following the millennium development goals, the focus is also on informal sector (Hu and Stewart, 2009). Pension is purposely for helping persons at the time when they get retired from working (Modigliani and Muralidhar, 2004). Population in countries with no universal pension schemes for old age are more likely to be affected by poverty during old age (Joust and Rattenhuber, 2018). The life-cycle theory of saving illustrates that people save at a young age for consumption at old age (Ando and Modigliani, 1963). Pensioners get rid of poverty after retirement from working to sustain their life through pension at the time their contribution to the workforce is believed to diminish.

The government of Tanzania implements all labour regulations and has developed the national security policy which is consistent with the ILO social security convention of 1952 ((ILO, 2008). Pension as a social protection is important for every individual for use during retirement age regardless of employment in either formal or informal sector (Damerau, 2015). The informal sector is broadly defined as units engaged in the production of goods or services with the main objective of generating employment and incomes to the persons involved (ILO, 1993). The informal sector in Africa employs 85.8 percent of employed persons (ILO, 2018). In Tanzania, about 4.3 million people are engaged in the informal sector as their main economic activity and considering the SMEs, most of them fall in the informal economy (FinScope Tanzania, 2013; ILO, 2017; NBS, 2015).

Therefore, in order to ensure poverty reduction during old age, uptake of pension through social security schemes is necessary for both formal and informal sectors. In Tanzania, there were five pension funds which included GEPF, LAPF, NSSF, PPF, and PSPF before the decision by the government to merge some of them (SSRA, 2019). Recently, the government has merged some of these pension funds to form two major pension funds one for public sector employees and the other for private sector employees. The PSSSF has been established officially 2018 after merging GEPF, LAPF, PPF, and PSPF for public sector employees and NSSF has been uniquely for private sector employees, informal sector employees and the self-employed (URT, 2018).

The factor which is commonly known to influence people to join pension funds in Tanzania is the compulsory scheme for formal sector. Recently from implementation of millennium development goals, even the informal sector is considered for pension uptake. According to the report by FinScope Tanzania (2017) in Tanzania, 16 percent of pensioners joined voluntarily to private pension fund and 84 percent joined as a statutory by the employer. Beside the requirement by the government requiring employers to contribute for their employees with some percents contributed from salary, other factors influencing uptake of pension in Tanzania are not known. Social protection is inadequate for the majority of workers especially in the informal sector even though the ILO framework redirects workers to get social protection (Ackson and Masabo, 2013). Pensioners in Tanzania are directly attracted by formal employment and particularly biased with serving in the government institutions as a way to secure old age pensions after retirement form employment (Ahmed and Wang, 2018; Songstad *et al*., 2012). The formal sector and the informal sector play a mutual role in providing employment to people such that neither formal nor informal sector can completely absorb the whole working population in the country. Researchers Adzawla, Baanni and Wontumi (2015) in their study point out that elderly, single, highly educated, highly depended, and high-income earners have high a probability of contributing to the pension scheme. A study by Heenkenda (2016) identified the number of dependants, income, asset index, financial literacy and social capital index as some of the factors for dropping out from the voluntary pension scheme in Sri Lanka. A study by Ingrid and Russell (2008) identify lack of information by migrants in China as a barrier to utilize social security scheme in a situation where employers are not willing to get involved with social protection through pension schemes. Factors for pension uptake have been examined for the general population that include formal sector that is under compulsory pension scheme and informal sector that depends on voluntary scheme. There is a need to understand factors that determine pension uptake in the informal sector which is not based on compulsory scheme. Therefore, this study aimed at determining factors that influence pension uptake in the informal sector in Tanzania.

METHODOLOGY

The study used secondary data collected by FinScope Tanzania in 2017. This survey collected information related to pension and other related financial inclusion variables in Tanzania for persons aged 16 years with

the sample size targeted to 10,000 persons with a response rate of 95 percent equal to 9,459 respondents. From this data, the informal sector domain analysis was utilized to suit the objectives of this study which targeted factors for pension uptake in the informal sector. From the sample collected by FinScope Tanzania, 9033 respondents belong to the informal sector after omitting those in the formal sector. Multiple binary logistic regression analysis was used to model the relationship between pension uptake and its determining factors in the country. The dependent variable, in this model, is pension uptake which is a dummy variable taking value "1" if an individual is a pensioner and "0" otherwise. Multiple binary logistic regression determines the likelihood of factors influencing a dependent variable. The independent variables identified from the review of related studies include age, gender, cluster location, the main source of income, level of education and income. Progressive out of Poverty Index (PPI) was used as a proxy variable for income. The general mathematical representation of multiple binary logistic regression model is given in equation 1. The central role of the logistic regression model is to estimate the log odds of the event in this case pension uptake. The variables X_1, X_2, ..., X_k are the independent variables which determine pension uptake expressed in a linear model.

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

FINDINGS

The findings of this study are presented in forms of descriptive and inferential statistics. Table 1 presents the descriptive statistics of variables used in this study. Most of the respondents 63.24% and 88.53% of males and females respectively in this study had married marital status and single accounted the least 5.71% and 1.39% of males and females respectively. Most of the respondents in this study were aged forty years and above accounting 39.5% and 33.87% of males and females respectively with very few aged below 20 years accounting 10.23% and 11.74% of males and females respectively. Farming and fishing were the main sources of income for most of the respondents for both males and females. Among males, 56.96% were farmers and fishers and 54.44% of females were farmers and fishers. This is in line with statistics from the World Bank showing that agriculture which employs a large number of

people in the informal sector and in the country have a share of 65% in 2019 (World Bank, 2020).

Similarly, a study by Idris (2018) confirms that the agriculture sector employs the largest number of females. Very few depend on other economic activities as their main sources of income. Therefore, most of the listed economic activities presented were conducted by individuals in the informal sector. In this study, most of the individuals working in the informal sector completed primary level of education where males and females accounted 52.3% and 49.1% respectively. Very few had at least a university level of education with males and females accounting 1.78% and 1% respectively. Working in the informal sector does not require any educational qualification which is contrary to formal sector where the qualification in terms of education is required.

Table 1: Descriptive statistics of variables used in the study

Variables	**Frequency**	
	Male	**Female**
Cluster		
Rural	2,925(75.81%)	3,760(72.65%)
Urban	933(24.18%)	1,415(27.34%)
Total	3,858(100%)	5,175(100%)
Marital status		
Married/living together	487(63.24%)	2,910(88.53%)
Divorced/separated	77(10%)	104(3.16%)
Widowed	162(21.03%)	227(6.9%)
Single/never married	44(5.71%)	46(1.39%)
Total	770(100%)	3,287(100%)
Age		
Below 20	395(10.23%)	608(11.74%)
20-30	1,066(27.63%)	1,630(31.49%)
30-40	873(22.62%)	1,184(22.87%)
40+	1,524(39.5%)	1,753(33.87%)
Total	3,858(100%)	5,175(100%)
Main source of income		
Informal sector salaried	69(1.93%)	61(1.57%)
Farmer & fishers	2,033(56.96%)	2,102(54.44%)
Trader	59(1.65%)	127(3.28%)
Service provider	269(7.53%)	414(10.72%)

Piece work/casual labor	172(4.81%)	209(5.41%)
Welfare	950(26.61%)	931(24.11%)
Other	17(0.46%)	17(0.43%)

The general relationship between pension uptake and associated factors shows that age, PPI, highest education attained, gender, and location of the cluster are statistically influencing pension uptake in the informal sector. These variables are statistically significant at 5% level of significance as presented in Table 2.

Table 2: Determinants of pension uptake in the informal sector, general relationship

Pension dummy	**Coef.**	**Std. Err.**	**z**	**P>z**
Main income generating activity	-0.126	0.072	-1.750	0.081
Age	0.323	0.132	2.440	0.015
PPI Category	1.247	0.170	7.350	0.000
Highest Education	0.242	0.092	2.630	0.009
Gender	-0.894	0.270	-3.310	0.001
Cluster	1.130	0.294	3.840	0.000
Constant	-8.420	0.845	-9.960	0.000

Binary multiple logistic regression model was fitted to determine the factors for pension uptake in the informal sector. Table 3 presents the odds ratio from the multiple binary logistic regression model with their P-values. The odds of farmers and fishers, traders, service providers, piece worker/casual labour, welfare and dependents are 77.5%, 85.5%, 85.5%,

Total	3,569(100%)	3,861(100%)
Highest Education		
No formal education	485(12.57%)	1,108(21.41%)
Primary	2,018(52.3%)	2,541(49.1%)
Secondary	386(10%)	398(7.69%)
University or other higher	69(1.78%)	52(1%)
Other	900(23.32%)	1,076(20.79%)
Total	**3,858(100%)**	**5,175(100%)**

78.5%, 83.1%, and 88.95% lower than informal individuals who are salaried to uptake pension respectively. Individuals aged 40 and above

years old are 25.4% more likely to have pension uptake compared to those age below 20 years. The relationship is statistically significant at 5% level of significance. Individuals at the middle quintiles are 5.237 times more likely to have pension compared to those in the two lowest quintiles and the results are statistically significant at 1%. Individuals in the two highest quintiles of income are 6.849 times more likely to uptake pension compared to those in the first two quintiles of income with the results statistically significant at 5% level of significance. In this study, it was identified that persons with secondary level of education and university or above are respectively 10.505 and 55.612 times more likely to uptake a pension when compared to persons with no formal education and the findings are statistically significant at 1% and higher levels of significance. Females are 49% less likely to have a pension compared to males and persons in urban are 91.8% more likely to have pension compared to those in rural areas. These findings are statistically significant at 5% level of significance.

Table 3: Determinants of Pension Uptake in the Informal sector, Results from Logistic Regression

Independent Variables	**Odds Ratio**	**Std. Err.**	**Z**	**P>z**	**[95% Conf. Interval]**	
Source of Income [Informal Salaried]						
Farming & fishing activates	0.225***	0.123	-2.720	0.007	0.076	0.660
Trade	0.145**	0.118	-2.360	0.018	0.029	0.719
Service provision	0.146***	0.086	-3.250	0.001	0.046	0.465
Piece work/casual labor	0.215***	0.124	-2.670	0.008	0.070	0.664
Welfare	0.169***	0.091	-3.290	0.001	0.059	0.487
Dependents	0.111*	0.136	-1.800	0.072	0.010	1.222
Age group [Below 20]						
20-30	3.452	3.639	1.180	0.240	0.437	27.252
30-40	5.042	5.467	1.490	0.136	0.602	42.220
40+	9.254**	10.041	2.050	0.040	1.103	77.604
PPI Category [Two lowest quintiles]						
Middle quintiles	5.237***	2.019	4.300	0.000	2.460	11.148
Two highest quintiles	6.849**	3.088	4.270	0.000	2.831	16.571
Highest Education [No education]						
Primary	2.113	1.541	1.030	0.305	0.506	8.824
Secondary	10.505***	7.844	3.150	0.002	2.431	45.388
University or other higher	55.612***	42.953	5.200	0.000	12.239	252.704

Other	1.310	1.110	0.320	0.750	0.249	6.895
Gender [Male]						
Female	0.510**	0.147	-2.340	0.020	0.290	0.898
Cluster [Rural]						
Urban	1.918**	0.586	2.130	0.033	1.054	3.491
Constant	0.001	0.001	-5.260	0.000	0.000	0.012

*Note: ***, **, and * means statistically significant at 1%, 5%, and 10% respectively and categories in brackets are the reference categories for each categorical independent variable.*

DISCUSSION

Individuals working in farming and fishing activities are less likely to have pension uptake compared to informal salaried individuals. People and or households depending on farming and fishing as their main sources of income are concentrated in rural areas and information about pension services are not well distributed compared to those in urban where there is a possibility of receiving some salary in the same production chain (Lotto, 2018; FAO, 2003). People employed in farming and fishing industry stay for so long period of time in their field and travel to urbanized areas for very short period of time that leads to a small chance of being accessed by pension institutions for information. Pension services have a close similarity with financial services such that they are largely concentrated in urban areas leaving rural areas with limited information and access to these services (Lotto, 2018). According to Adzawla *et al*. (2015) in their study on factors influencing pension uptake in the Tamale metropolis of Ghana pointed out that traders use to contribute a large amount to pension funds on monthly basis. Casual workers get only income for daily consumption and serve little or nothing which limit them to get involved in pension uptake. The increasing casualization of labours is one of the structural problems (Pellissery and Walker, 2007). Persons in middle and the two highest quintiles of income are more likely to uptake pension compared to those in the two lowest quintiles since at least they have something to save from their income. In the informal economy, individuals have low and unstable income to pay for social security and this influence exclusion from benefiting from social security (Holmes and Scott, 2016; ILO, 2013). Most of them can afford their basic needs, are found in urban areas where financial institutions are spread and get

involved to the pension as their saving for the future. A study by Kwena and Turner (2013) identified that poor people are not financially included though they have the same needs as others in the higher levels of income. It was also concluded by Agravat and Kaplelach (2017) that higher income is positively related to pension uptake in their study.

Individuals with secondary and at least university level of education are more likely to have a pension compared to those with no education. This is due to the fact that those with such levels of education are financially included, have knowledge of pension, and found in urban areas. Similar studies conducted by Agravat and Kaplelach (2017) and Muller (2001) revealed that respondents with higher education are likely to join the micro-pension scheme in Kenya which has a similar background of economic development to Tanzania. Males are more likely to have pension than females since in the country males are dominating decision at the household level and are more empowered than females and it is that reason women empowerment have been emphasized for a long period of time. A similar study conducted by researchers Agravat and Kaplelach (2017) found that demographic factors influence pension uptake among informal employees of Kenya Ports Authority. Financial inclusion in urban areas is at high level compared to rural (Lopez and Winkler, 2018) which contributes to the likelihood of urban dwellers to have the high odds of pension uptake relative to rural settings.

CONCLUSION

In this study, farmers and fishers, traders, service providers, piece worker/casual labour, welfare, dependents, and females are less likely to uptake a pension. Persons aged forty years and above, persons in the middle and two highest quintiles of income, individuals with secondary and at least university level of education, and those in urban residences are more likely to uptake pension. The government, private sector and international organizations that are stakeholders to pension coverage should cooperate so that large population of the country and the world at large is covered by pension.

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