

*Full Length Research Paper*

# Willingness to participate in micro pension schemes: Evidence from the informal sector in Ghana

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**Market and state based pension schemes in Ghana tends to be better adapted to formal conditions and this limits the participation of majority of the populace especially those in the informal sector of the economy. In cases where “an all inclusive” schemes are developed, no special consideration is made to better integrate low income earners or workers in the informal sector into such pension schemes. Informal workers and their respective households run high risks of falling into old age income insecurity trap. However, long term savings products like micro pensions which is a rather new concept has been developed to bridge the gap and inefficiencies in the open market and state based pension’s schemes in providing old age income security for low income earners. The study was a hypothetical exploratory research to identify underlying factors explaining four urban informal groups (beauticians, drivers, vegetable farmers and woodworkers) decision to participate in a Micro Pension Scheme. A Binary Logit regression model was subsequently used to estimate the factors influencing the participation decision. The survey found a high (87.75%) willingness to participate among the urban informal workers. The empirical results of the Binary Logit model reveal that socioeconomic variables including age, years of schooling, marital status, household size and health status, other income sources, assets, investments, and taxes/levies were important in explaining the decision of an urban informal worker to participate. At the individual economic activity level, having a driving license or being a private mini-bus transport driver or taxi driver has a negative influence on willingness of drivers to participate. In the case of vegetable farmers, location of production as well as rearing livestock alongside crop production also has a negative influence on participation. Further, the results indicate that the woodworker producing for the local market has a positive influence on a woodworkers’ willingness to participate in the scheme. These results have policy implications for the development and the design of Micro Pension Schemes for the informal sectors in developing countries**

**Key words:** Micro pension scheme, urban informal, determinants, participation, Ghana, Logit model.

## INTRODUCTION

In recent years, the importance of social security in helping address vulnerability and exclusion has received much attention among policy makers, academicians, and businessmen. Key among these interests is the 89th International Labour Conference (ILC) that provided a general discussion on social security with a renewed commitment of extending social security coverage as well as improving governance, financing and administration of social security worldwide. There has also been a renewed commitment to develop innovative approaches in the area of social security to help people moving from the informal to the formal economy (ILO, 2001).

Canagarajah and Sethuraman (2001), argue that a more important reason behind the recent renewed concern for social protection in the developing countries is due to the rapid expansion of the informal economy or sector which basically implies low income and poor conditions of work. Results from the 1997 Core Welfare Indicator Questionnaire (CWIQ) survey in Ghana indicated that, more poor employees are located in the private sector of the economy particularly the private informal sector. The results of the 2000 Population and Housing Census (PHC) showed that about 80% of the economically active population in Ghana work in the informal sector (Baah-Boateng and Turkson, 2005; Tsekpo, 2005; World Bank, 2009). It is also estimated that approximately 3.2 million households representing about (46.4%) of households in Ghana operate non-farm

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enterprises which is the informal sector of the economy (Ghana Statistical Service, 2008). Notwithstanding, a significant number of the labour force in the informal sector are excluded from social security coverage. In Ghana only 10% of the working population is covered by social security (Asomadu-Kyereme, 2006).

As suggested by Asomadu-Kyereme (2006), the recent gaps in current social security regime relate to the virtual exclusion of the informal sector and lower income groups such as women, migrant workers, and agricultural workers. The existing social security regimes have design characteristics that favours formal sector workers and are often inaccessible to informal workers, particularly women (Barrientos and Barrientos, 2002). Majority of Ghanaians continue to depend on the informal economy for a living and wages in the sector are low with poor working conditions as well (Baah and Akorsu, 2007). Also workers in private informal employment sector are among the poorest in the country (Tsekpo, 2005). Ironically, although the informal sector employs about 80% of the labour force in Ghana, it is the most vulnerable sector with declining social protection capacity, and constitutes a growing sector as an outlet for survival (Kumado and Gockel, 2003). The trend in Ghana seems to be consistent with a further argument by Coheur (2007) who states that approximately 80% of the populations in Sub-Saharan Africa (SSA) are without any formal social protection arrangements because they work either in rural areas or in the informal sector. Dixon (2000), on the other hand argues that several countries in Sub-Saharan Africa, have specific provisions in their welfare legislation that explicitly exclude workers in the informal sector or the moral economy from participating in formal old age income provision arrangements.

Baah (2004) attributes the low participation of informal economy workers, and women in Ghana's national social security scheme to be due to the inherent discrimination inherent in social security scheme in favour of males and formal sector workers. The World Bank (2001) asserts that there is evidence of hidden demand for pension among labour force and suggests that a vast numbers of uncovered workers are anxious to participate in government-run pension schemes but however, evasion appears to be rampant. Workers typically choose to exclude themselves due to the costs of joining the formal sector pension schemes as well as a number of factors specific to the pension system itself.

The problem of a reducing social security for most Ghanaians is further compounded by the diminishing role played by families in old-age social security. As stated by Sikken et al. (2008), families traditionally play an important role in supporting ageing populations in many less-developed countries and in some developed countries. However, this social convention is being challenged as many young people migrate to cities, family sizes shrink and people adopt more individualistic attitudes. Siegel et al. (2001), reiterate that, poor

households and workers in the informal economy often lack access to broader risk and resource pools because of their economic or geographic remoteness and/or their poverty, as well as the lack of information on the side of both the households and potential insurers.

The informal sector, basically comprise of a population not only harder to reach with traditional social security approaches but at higher risk of poverty than formal-sector workers (MacKellar, 2009). It is thus pragmatic that special products with better meets the needs of this segment of the labour force is developed to better integrated and capture them into the social security system. Most traditional pension systems all over the world provide some form of basic protection against the risks associated with old age for formal-sector workers and tend to crowd out low income earners and workers in the informal sector who typically constitute the largest employed group in developing countries (MacKellar, 2009).

All categories of workers in the informal sector are exposed to the risk of old age income security once their working career comes to an end since they have no access to either statutory or non-statutory pension schemes, though in some countries they may have access to social assistance (Canagarajah and Sethuraman, 2001). Informal sector workers lack social security, economic support and legal protection. There are also evidence of common needs which is further differentiated among various groups of informal sector workers, rural and urban as reported by Adu-Amankwah (1999). Thus in discussing the social protection needs of the informal sector categorization is needed since the sector itself is diverse and these different groups have defined characteristics and interest.

Ghana's social security policies have not lived up to the expectations of providing an inclusive social protection for the population especially the labour force in the informal sector and seems to have secluded informal workers from any form of social protection. As stated earlier on, the informal sector is associated with high poverty incidence and this is more pronounced for the urban informal sector and coupled with the progressive weakening of informal safety nets that result from growing urbanization and higher labour mobility, therefore places a high share of the Ghanaian informal worker at risk of age old poverty. It is against this backdrop that this study seeks to answer the question; what factors are important in explaining urban informal workers decision to participate in a Micro Pension Scheme (MPS)?

To accomplish or answer the research question we seek to identify the factors and model their extent of influence in determining urban informal workers decision to participate in a Micro Pension Scheme (MPS).

With a large proportion of the working labour force in the informal sector and the inadequate provision of social protection for those in the sector, the study provides a basis for the design of a pension scheme that will benefit

the working class in this group. Also the identified factors that influence the participation of the Micro Pension Scheme would serve as a marketing tool for private insurance companies and NGO's to also better develop pension products that meet the needs of the informal labour market.

The paper is organised as follows: first, the literature review is presented. Second, the methodology employed in the study is presented, and the empirical results obtained and discussion are presented. Lastly, the conclusions, recommendations and suggestions for future research are discussed.

## LITERATURE REVIEW

Micro Pension Schemes are typically designed as a defined contribution scheme which basically operates on the principle of voluntary savings to accumulate annuity over a long period (Shankar and Asher, 2009). The savings are invested through financial and capital markets by a professional fund manager and an agreed upon withdrawal age, usually between the age of 58 to 60 years so that the accumulated balances can be withdrawn either in a lump sum, a phased withdrawal, annuity or some combination of these options (Asher and Shankar, 2007).

A Micro Pension Scheme is such that an investor, in this case an informal or low wage worker, voluntarily deposits a certain defined amount of premium for up to 25 years or more with the expectation that the collected premium will be invested and the earned interest will be paid as an annuity sometime in the future. As stated by Shankar and Asher (2009), the concept of Micro Pensions is at its early development stage but a Micro Pension plan needs to address longevity, investment and inflation risks by specifically bearing the low income in mind. Also industry experts suggest that, there are two typical objectives of such Micro Pension Schemes which are; reducing poverty and eliminating the risk of rapidly falling living standards at old age, and protecting the elderly from economic and social crisis (Arunachalam, 2007; Shankar and Asher, 2009).

In India, the concept of Micro Pensions is already well established. Uthira and Manohar (2009) indicated that, the only formal Micro Pension scheme in India was rolled out by UTI Mutual Fund in collaboration with the Self Employed Women's Association (SEWA) Bank and Self Help Promotion for Health and Rural Development (SHEPHERD). These Non Governmental Organizations (NGOs) are known to have introduced the Micro Pension scheme to their members (Uthira and Manohar, 2009). As reported by Goyal (2010), the most commonly used scheme for providing Micro Pensions is the 'partner-agent model' and this entails an insurance company managing the Micro Pension savings by pooling them in a fund, while a Micro Finance Institution (MFI) offers the

Micro Pension product to its clients.

According to Kumado and Gockel (2003), traditional African societies realized the need to put in place measures to cater for major contingencies through collective security and mutual help to one another well before the advent of Europeans and the rise of modern states. The importance of traditional social protection with the family and the community as an institutional provider of social security before the pre-colonial era has long been documented (Kpessa, 2010). Historically, Ghana had a traditional system of social security and this was strongest amongst rural folks and the social security setup ensured that the extended family took the responsibility of taking care of the aged (Dei, 2001). The important role played by families in social security has well been argued out by many studies (Gerdes, 1975; Sanda, 1987; Kpessa, 2010). Apt (2002) also argues that despite the pressures from globalization and urbanization, the family in Africa continues to play a dominant role as an institutional provider of old age security and this seems to be the case in Ghana since the state lacks the will to provide social security to the entire populace. Beyond the family there exists at the community level, a second pillar for social protection in SSA countries. In some cases, community level social protection arrangements are organized along gender lines and Goldstein (2000) reported that insurance networks in Ghana are organized as such, with women insuring each other rather than the entire community.

Although the family and the community serve as an institutional providers of social security, their importance in recent times as a first source of social security for most individuals is dwindling. This has been generally due to the demographic transitions and a general exclusion of the populace especially informal workers and low income groups that cannot afford to participate in the traditional pension schemes since their design features does not met the characteristics of these groups. Asomadu-Kyereme (2006) also noted that, the exclusion gaps have created significant economic and social consequences that are not inadequately addressed by government in its macro-economic planning and poverty alleviation strategy programmes. Notwithstanding, these gaps in the social security in most developing countries has created a condition whereby a significant proportion of the populace is excluded from social security coverage. In sub-Saharan Africa for instance, public pension schemes and provident funds cover less than 10% of the labour force (Gillion et al., 2000). Nearly 80% of the African population is excluded from social health care (Bailey, 2004). Similarly, in Ghana only 10% of the working populations are covered by social security (Asomadu-Kyereme, 2006).

Until recently the Social Security and National Insurance Trust (SSNIT) established the SSNIT Informal Sector Fund (SISF) to provide a social protection scheme for workers in the informal sector since February 2008

(SSNIT, 2009). The product which is the first of its kind is growing rapidly and hopes to cover a larger spectrum of informal workers. The scheme which is a voluntary one is divided into two accounts; occupational scheme account which takes up 50% of contributions and a retirement account taking the remaining 50%. Additionally, the scheme plans to also provide other products like a credit scheme, group pension schemes, provident fund schemes and occupational pension schemes.

The main difference distinguishing the hypothetical Micro Pension Scheme from the SISF is that in the SISF contributions by members are divided into two equal parts (Occupational Scheme Account (50% of Contribution) and retirement account (50% of contribution) which the hypothetical scheme does not have. Subsequently in the SISF a member is permitted to make periodic withdrawals from the Occupational Scheme Account after five months of initial contributions provided the account has a credit balance but the Micro Pension Scheme makes no provision for pre-withdrawal before maturity date. Subsequently due to the nature of withdrawals and the scheme being oriented towards lump sum payment and thus subject subscribers to longevity risk while micro pension makes provision for both lump sum payment and phased withdrawal and thus makes provisions to mitigate against longevity risk.

Participation and knowledge of the SSNIT Informal Sector Fund (SISF) has been increasing steadily but design features do not assure pensioners of old age income security since it does not protect them against longevity risk. The SISF is divided into an occupational scheme account where 50% of the contribution goes and retirement account which picks up the remaining 50% of contribution. Periodic withdrawals from the occupational scheme account after five months of initial contributions provided the account has a credit balance are permitted under the SISF. However the type of annuity oriented towards lump sum payment, subscribers are not insured against longevity risk. Moreover, wider coverage is far from being reached. The current pension reform of Ghana, National Pensions Act, 2008 (Act 766) and subsequently the launch of the new 3-Tier Pension Scheme for all workers also seem to be the step in the right direction as it creates room for participation and as well widens the scope of old age income protection for all categories of labour. Such provision in the new National Pensions Act also makes room for MFIs and private insurance companies to develop micro pension products and this will eventually widen the scope of social security for the vulnerable and excluded social groups.

Ghana is currently also making strides in the area of health insurance for the population. As reported by Asomadu-Kyereme (2006), there is growing evidence that health insurance schemes offered through Mutual Insurance Organizations (MIOs) promise to provide alternative social security system for the excluded. There have been some strides as well in government policy to

extend old age income security to the populace. Ghana has had a total of 6 pension reforms spanning from 1950 to 2008. Earlier pension reforms were to the benefits of civil servants and public sector workers before it gradually included workers in the private formal and informal sectors.

In Africa, informal work is estimated to account for around 80% of non-agriculture employment and 90% of new jobs in the past decade (Charmes, 2002). In Ghana the trend is not that much different. Hormeku (1998) reports that, the size of Ghana's informal sector is placed at 80% of the total labour force. According to Adu-Amankwah (1999), the origin of the informal sector in Ghana's economy could be traced back to the very beginnings of colonial capitalism in the then Gold Coast. He further indicates that, the large-scale retrenchment of labour during Ghana's structural adjustment programmes (SAP), coupled with the inability to provide employment for the emerging labour force had created a large pool of unemployed persons who have naturally gravitated towards the informal sector.

According to the Ghana Statistical Service (2008) results of the 2000 Population and Housing Census (PHC) shows that, about 80% of the economically active population works in the informal sector. As noted by the World Bank (2009), a large share of the Ghana's population remains engaged in low productivity unskilled work. Also Adu-Amankwah (1999) indicated that, the informal sector has received increasing attention in the development dialogue of Ghana since the middle of the 1980s and the beginning of the 1990s. He further indicated that the sector had been the target of some policy initiatives and activities by certain governmental and Non-Governmental Organizations (NGOs), including the trade unions. The informal economy remains important for Ghana in terms of both employment as well as its contribution to national output. Although there is no reliable data on the contribution of the informal economy to national output, researchers and commentators on the economy of Ghana according to Appiah-Kubi (2007) put the estimates within a range of 20 to 40%.

According to Osei (2007), the sizes of operations in informal economic activities in Ghana are usually small and owners rely mainly on own savings and credit from Micro Finance Institutions (MFIs) to produce mainly goods and services for the local market. According to the World Bank (2009), there is evidence that labour force is moving outside agriculture into self-employment as well as formal wage employment in Ghana and this is leading to the growth of informal urban employment. The Youth Employment Network and The International Youth Foundation (2009) also noted that current sector growth trends suggested that retail trade is becoming an important sector in terms of providing informal sector employment, particularly in the urban areas. The labour force in the informal sector of Ghana is diverse and engages in several economic activities on a very small

scale.

In the case of the urban informal sector in Ghana as elsewhere in Africa there is remarkable heterogeneity and variety in its scope and operations. An ILO (1997), study on the urban informal sector in Ghana revealed a wide range of operations in the urban informal sector that can be grouped under; services, construction and manufacturing. Economic activities with the service sector were further disaggregated and diverse. It was basically made up of urban food traders and processors (food sellers in the market, itinerant wholesalers and retailers, bakers, caterers and cooked-food sellers) and these are mostly women, predominantly illiterate or semi-illiterate. Other activities under the service sector include; health and sanitation workers, repairers of equipments (watches, refrigeration equipment, radios, mechanical or electrical/electronic), garages (auto mechanics, sprayers, welders, vulcanizers, auto electricians), graphic designers, audio-visual workers (photographers, cinema/video operators, performers, musicians, film-makers), hair-dressers and barbers, and private security men.

Adu-Amankwah (1999), discusses trade union organization in the informal sector and he highlights on four major important unions [the Ghana Private Road Transport Union (GPRTU); General Agricultural Workers' Union (GAWU); Timber and Woodworkers Union (TWU) and the Industrial and Commercial Workers Union (ICU)]<sup>1</sup> in the informal sector of Ghana. These unions form an important collection of the various spectrums of informal economic activities in Ghana, upon which this study is based.

## CONCEPTUAL FRAMEWORK AND METHODOLOGY

### Conceptual framework

Economic theory states that the decisions or responses regarding participating or not participating in any program depends on the level of perceived utility that participant gains from their choice (Adhikari et al., 2003). In the decision making process, an individual weighs the utility of two alternatives and selects the alternative with the highest level of utility. In the case of pensions as argued by Castel (2006) is based on actuarial principles. Thus, a worker will be willing to participate in a pension system, if the level of well-being he or she can attain with the pension system's benefits is higher than the level he or she can attain without participation and by simply saving the same amount of contributions. The author further indicates that aside the individual characteristics and socio-economic factors, the system's financial return or the present value of the expected pension benefits less the costs of contribution is an important determinant of workers' willingness to participate. Using this similar approach from Castel (2006), an urban informal worker will be willing to participate in a Micro Pension Scheme, if the level of well-being it can attain with the scheme's benefits is higher than the level it can attain without, by simply saving the same amount of contributions, or by choosing another old age income strategy like continuing working or getting the financial support of his/her friends

and relatives. Consequently, participation is related to financial indicators that reflect the costs and benefits of the system and individual, households and socio-economic factors but in the case of this study, the financial indicators are not explicitly looked at since the study is exploratory in nature.

The operational definition of informal workers for the study is adapted from Fields (1990); Canagarajah and Sethuraman (2001); Betcherman (2002); MacKellar (2009) and Laura and Puerta (2010). For the purpose of the study, an urban informal worker is an employee (micro entrepreneur, self-employed) who works without a labour contract, and tends to operate on a small scale basis and is ill-equipped in terms of education and skills, and possesses few resources for significant physical investment such as premises and equipment, and machinery. Such informal workers are not registered with the authorities and do not participate in "official" tax systems, social security systems, and in meeting regulatory requirements. Their non participation is as a result of legitimate exclusion (by size of the firm) or from non-compliance and operate in a free-entry sector.

### Area of study

The study area, Accra, forms part of the Accra Metropolitan Assembly (AMA) which has a total land area of 200 km<sup>2</sup>. Accra having a vibrant economy as well as a hot spot for commerce, attracts labour from all parts of the country and thus makes it a great study area because of a diverse group of labour force working in several informal activities (MLGRD & E, 2006). The criteria for categorizing an area as urban are based on population density, presence of establishments, community facilities, and occupation of the inhabitants. According to Owusu (2005a), urban centers or areas in Ghana is officially defined as settlements with populations of 5000 or more. Using Ghana's official urban definition, the study area, Accra is a large towns/city since it has a population of about 1,695,136 (Owusu, 2005b; MLGRD & E, 2006). Informal economic activities are very important source of work in the study area which tends to be flooded with migrants from other parts of the country as well as immigrants from neighbouring West African countries. The migrants have no access to public sector jobs or private formal jobs and thus engage themselves in informal activities, in order to make ends meet.

### Sources of data and sampling technique

Primary data was used for the study and was obtained through administering a structured questionnaire composed of both open and closed ended questions. A pre-test of the structured questionnaire was carried out on twenty members of the target group and the necessary modifications and changes were made to the questionnaire. The study area is basically composed into four area; Accra Central, Accra North, Accra East and Accra West. These areas are further segregated into towns and suburbs. Thus multistage sampling was employed by randomly selecting some towns and suburbs within the Central, North, East and West zones of Accra. Subsequently a simple random sampling technique was used to select the urban informal workers in the towns and suburbs. Respondents were given accurate description of the hypothetical Micro Pension Scheme proposed, including explanations about some relevant pension principles as applied to Micro Pensions, and were questioned about their willingness to participate in the Micro Pension Scheme starting off with a closed ended question "Yes" and "No". A total of 400 urban informal workers cutting across 4 different informal activities (drivers made up of taxi drivers and private mini-bus transport drivers known in local parlance as "trotro drivers"; beauticians also known in the local parlance as "hair-dressers", farmers or urban vegetable growers and Woodworkers

<sup>1</sup> For more exposition please refer to Adu-Amankwah, K. (1999). Trade unions in the informal sector: Available at [http://www.ilo.org/wcmsp5/groups/public/-ed\\_dialogue/actrav/documents/publication/wcms\\_111494.pdf](http://www.ilo.org/wcmsp5/groups/public/-ed_dialogue/actrav/documents/publication/wcms_111494.pdf).

(that is carpenters) were sampled for the study. Samples of 100 each were selected for each of the 4 urban informal activities.

### Method of data analysis

A random utility model can be used to analyze the dichotomous choice between participating and not participating in a Micro Pension Scheme by urban informal workers. As stated by Adhikari et al. (2003) the utility function of a participant in this case is not directly observable, so utility is treated as a random variable in the participation model. From this perspective, the random utility model evaluates the probability that an urban informal worker would participate in a Micro Pension Scheme based on the information that describes the decision makers (in this case the urban informal worker). The Willingness to participate (WTP) can also be thought of as a function of the socio-economic, demographic, and attitude, characteristics of the urban informal workers, in addition to the cost of the Micro Pension Scheme with regards to the premium contributions. Since the costs of the Micro Pension Scheme are not available and also the study is that of an exploratory nature trying to look at the feasibility of a Micro Pension Scheme, design options or features were rather considered. The willingness to participate (WTP) in a Micro Pension Scheme was assumed to be dichotomous; that is, whether or not urban informal workers are willing to participate in the Micro Pension Scheme. The Binary Logit model was used to examine the willingness of urban informal workers to participate in a Micro Pension Scheme. The objective of the Logit model is to estimate the probability of participating in the Micro Pension Scheme. The Logit model belongs to the general class of binary choice models, where the dependent variable is dichotomous (Islam et al., 2001; Maddala, 1983; Greene, 2002; Magnac, 2002). The Binary Logit for the urban informal workers' willingness to participate (WTP) is specified as follows:

$$\log\left(\frac{p_i}{1-p_i}\right) = \alpha_0 + \beta DEMO_i + \delta ECON_i + \lambda CMPS_i + \gamma ATTR_i + \varepsilon_i \quad (1)$$

Where  $\log\left(\frac{p_i}{1-p_i}\right)$  denotes the log odds that an urban informal sector worker will participate in the micro pension scheme;  $DEMO_i$  denotes demographic variables including the age of the urban informal worker, family size, years of schooling etc;  $ECON_i$  denotes economic variables related to income, access to loans, ownership of assets etc. for the  $i^{th}$  urban informal worker;  $CMPS_i$  denotes micro pension characteristics; defined benefits or defined contributions etc.  $ATTR_i$  denotes Specific characteristics attributable to the four different urban informal (eg. presence of apprentice, type of vehicle etc)  $\beta$ ,  $\delta$ ,  $\lambda$ , and  $\gamma$  are parameters of the explanatory variables,  $\varepsilon_i$  represent the random error term.

The empirical model is specified as:

$$WTP_{MPS} = \alpha_0 + \beta DEMO_i + \delta ECON_i + \lambda CMPS_i + \gamma ATTR_i + \varepsilon_i \quad (2)$$

Where:  $WTP_{MPS}$  denotes willingness of an urban informal worker to participate in a micro pension scheme;  $DEMO_i$ ,  $ECON_i$ ,  $CMPS_i$ , and  $ATTR_i$  are as defined earlier. Table 1 show the variables used in the Binary Logit model, their descriptions and measurements.

### EMPIRICAL RESULTS

Table 2 gives a brief summary statistics of some key variables from the survey. The mean age for the four urban informal groups is about 35 years, varying between a minimum age of 18 years and a maximum of 71 years.

The survey indicates that, urban informal workers on the average have 7 years of schooling. Educational level attainment varied between those who have no formal education to those who have gotten up to the tertiary level. Average personal gross income was at GH¢ 265.92 (US \$177.28) per month. A mean willingness to pay (WTP) amount for the hypothetical Micro Pension was found to be GH¢ 19.30 (US \$12.87) per month.

From the survey, 87.75% of the urban informal workers were willing to participate in the hypothetical Micro Pension Scheme (Table 2). Thus willingness to participate in a hypothetical micro pension scheme can thus be said to be high among the four urban informal groups. However, the remaining 12.25% of the sampled urban informal workers reiterated their unwillingness to participate in the scheme citing reasons of financial insecurity at the present and lack of confidence in the administration of the scheme as well as cumbersome administrative processes as reasons for not willing to participate.

### Factors influencing willingness to participate

A total of four Logit regressions models were estimated to identify important factors explaining urban informal worker's decision to participate in the hypothetical micro pension scheme. The first Logit regression model was estimated for all the four urban informal groups (beauticians, drivers, vegetable farmers and woodworkers). Subsequently, separate regression analysis was carried out on each urban informal group, to identify specific variables that influence the decision to participate in the hypothetical micro pension scheme. The group levels Logit regression model estimation was only possible for drivers, vegetable farmers and woodworkers but was not successful for the beauticians due to a rather high skeweness of response in the dependent variable which favoured a higher willingness to participate.

The empirical regression results are shown in Table 3. Results for the collective Logit regression showed that age, marital status, household size, investment options, tax or levy payment, the type of pension scheme and annuitization, and affiliation of an urban informal worker to any work related associations were the most important factors in explaining urban informal worker's decision to participate in the hypothetical micro pension scheme. At the individual urban informal activity level, years of schooling; marital status; other income sources; assets; availability of a driver's license; type of driver are factors that influences a drivers' willingness to participate in the hypothetical MPS. In the case of vegetable farmers, age; years of schooling; household size; savings; location of production; rearing livestock alongside production; annuitization type of the MPS; duration of premium payment and affiliation to a Farmer Based Organization (FBO) are significant in explaining the willingness decision to participate in the hypothetical MPS. On the

**Table 1.** Explanatory variables for willingness to pay (WTP) decision.

Category	Explanatory variable (X <sub>i</sub> )	Description	Measurement/Description of the coding	Expected sign
Demographic characteristics of urban informal workers (DEMO)	age	Age of urban informal worker (UIW)	Age in years	-
	gender	Gender of UIW	1=Female 0=Male	+
	edu_ybgd	Years of schooling of UIW	Years of schooling	+
	Income	Personal gross income/month of UIW	Income in GH ¢	+
	hh_size	Household Size of UIW	Number of members in household	-
	hh_posit	Household position of UIW	1=Household head 0=Otherwise	+
	maristat	Marital status UIW	1=Married 0=Otherwise	+
	typ_work	Type of work by UIW	1=Full time 0=Otherwise	+
	healt_st	Health status of UIW	1= Seldom fall sick 0=Otherwise	+
	Economic variables related to urban informal workers (ECON)	associate	Affiliation to a work related association by UIW	1= Yes 0=No
oth_inco		Other income sources available to UIW	1= Yes 0=No	+
assets		Assets of UIW	1=Owns assets 0=Otherwise	-
acc_loan		Access to loans by UIW	1=Have access 0=Otherwise	-
savings		Savings by UIW	1=Save 0=Otherwise	-
pay_tax/lev		Payment of taxes/levies by UIW	1=Pay taxes/levies 0=Otherwise	-
reg_acti		Registration of activities by UIW	1=Registered 0=Otherwise	+
loc_work		Work location of UIW	1=Residential area 0=Otherwise	+
Investme		Investment alternatives made by UIW	1=Yes 0=No	-
Micro pension characteristics (CMPS)		typ_pens	Type of Micro Pension Scheme	1=Defined Benefits 0=Defined Contribution
	typ_anut	Annuitization type	1=Lump sum 0=Otherwise	+
	cont_pay	Frequency of premium payment	1=Weekly 0=Monthly	-
	dur_cont	Duration of premium payment	1=>25 years 0=Otherwise	-
	knowledge	Knowledge about pension	1=Yes 0=No	+

Table 1. Contd.

Specific characteristics of the 4 urban informal groups (ATTR)	apprenti	Presence of apprentice to beautician or woodworker	1=Yes 0=No	-
	own_prem	Ownership of working premise by beautician or woodworker	1=Yes 0=No	+
	pur_prod	Purpose of production for woodworker	1=Local market 0=Otherwise	+
	own_vehi	Ownership of vehicle	1=Yes 0=No	+
	typ_driv	Type of driver	1=Trotro driver 0=Otherwise	+
	lien_d	Availability of a drivers license to a driver	1=Yes 0=No	+
	land_tot	Total land size of farmers	Land size in acres	+
	no_crops_gn	Number of crops grown by farmers	Number of crops	+
	rear_liv	Livestock reared by farmers	Number of livestock reared	+

other hand, age; marital status; health status; savings; investment alternatives, purpose of production, duration of contribution, and affiliation of wood worker to any work related association influences a woodworkers' willingness to participate in the scheme.

## DISCUSSION

The regression results reveal that age, which is significant at 5% and has a negative influence on participation in the Micro Pension Scheme. In the case of the collective regression results, a one year increase in an urban informal workers' age would lead to a 0.3% reduction in the probability of willing to participate in the Micro Pension Scheme. On the other hand a one year increase in the age of a vegetable farmer and a woodworker leads to a 1.5E-09 and 0.001 reductions in probability of willing to participate in the Micro Pension Scheme, respectively. The implication is that the younger an urban informal worker is the more likely they are willing to participate in the Micro Pension Scheme. These results are somewhat consistent with Holzmann et al. (2001) who analyzed the determinants of pension participation in Chile and Argentina and found that as age increases, the probability of contribution to the pension scheme decreases. Their result suggested increases in the probability of contribution, except for individuals of retirement age 65 in Argentina and individuals age over 40 in Chile who had a decreasing probability of contributing. However, our empirical results are contrary to Zekri et al. (2008) who found age to have a positive influence on older fishermen's willingness to enrol in the insurance program in Oman.

Marital status (Maristat) of an urban informal worker has a positive influence on their willingness to participate

in the hypothetical Micro Pension Scheme. Aside being significant at 1% for the overall regression, it was also significant for drivers (5%) and woodworkers (10%). Drivers and woodworkers who are married thus have increased probability of 6.8% and 2.4% respectively of participating in the Micro Pension Scheme than those who are not married. Thus urban informal workers who are married are more willing to participate than those who are not. These results are consistent with Holzmann et al. (2001) who reveal that married individuals tend to participate more.

Although workers in the informal sector are not bounded by strict regulations and requirements that exist in the formal sector, they pay some form of tax or levy related to their economic activities and these payments are basically made at the local government level or to city authorities. In the case of this study making such payments has a significant and positive influence on urban informal workers willingness to participate in the Micro Pension Scheme. The results show that urban informal workers that make some form of tax or levy payments have an 8.6% increased probability of participating in the Micro Pension Scheme than those who do not pay any form of tax or levy. The probable reason underlying this behavior could be that the payment or premium contribution frequency and pattern of Micro Pension follows a similar pattern of payment for these taxes or levies by either being on daily, weekly, monthly etc. basis of which these informal sector workers are already familiar and used to.

Years of schooling (edu\_ybgd) has a positive influence on drivers and vegetable farmers' willingness to participate in the micro pension scheme, being significant at 5% and 10% respectively. It therefore means that a one year increase in the education of a driver and vegetable farmer would lead to a 0.013 and 6.06E-09



**Table 2.** Summary of socio-demographic characteristics of respondents.

<b>Variable</b>	<b>Frequency</b>	<b>Percent (%)</b>	<b>Mean</b>	<b>Std. deviation</b>
<b>Willingness to participate (WTP)</b>			0.878	0.328
Yes	351	87.75	-	-
No	49	12.25	-	-
<b>Gender</b>			0.253	0.435
Males	299	74.75	-	-
Females	101	25.25	-	-
<b>Age (years)</b>			34.75	9.541
< 29	137	34.2	25.8	2.74
30-39	165	41.2	34.29	2.86
40-49	67	16.8	43.61	2.88
50-59	21	5.2	54.14	2.22
>60	10	2.5	64.9	2.77
<b>Marital status</b>			1.62	0.601
Single	174	43.5	-	-
Married	205	51.25	-	-
Divorced	19	4.75	-	-
Widow/widower	2	0.5	-	-
<b>Type of work</b>			0.89	0.313
Full time	356	89	-	-
Part-time	44	11	-	-
<b>Education level (years)</b>			6.67	3.93
Junior High School	142	35.5	7.8	0.81
Senior High School	90	22.5	10.99	0.8
Primary School	86	21.5	4.53	1.2
No education	68	17	0	0
Technical/Vocational School	8	2	11.5	0.53
Tertiary	5	1.25	15.2	0.84
Diploma	1	0.25	14	-
<b>Personal gross income (GH¢/month)**</b>			265.92	0.771
< 200	212	53	130.5	57.59
201-400	130	32.5	325.62	57.24
401-800	54	13.5	581	100.34
>801	4	1	1250	288.68
<b>Affiliation to work related association</b>			0.443	0.497
Yes	177	44.25	-	-
No	223	55.75	-	-

Total sample (n)=400; \*\*1 GH¢=US \$1.50.

increased probability of participating in the Micro Pension Scheme respectively. These results are consistent with Holzmann et al. (2001) who reveal that as education increases, the probability of contributing to a pension account also increases in Chile and Argentina. Further-

more, Castel (2006) in identifying the determinants of the participation of workers from the informal sector in a public voluntary pension scheme in Vietnam found higher education levels to be associated with higher willingness to participate. As revealed by

**Table 3.** Logit model estimates for the willingness to participate (WTP) decision.

Variable	All		Drivers		Vegetable farmers		Woodworkers	
	Marginal effect	Std. Err.	Marginal effect	Std. Err.	Marginal effect	Std. Err.	Marginal effect	Std. Err.
<b>Age</b>	<b>-0.003**</b>	0.019	-0.002	0.100	<b>-1.50E-09**</b>	0.139	<b>-0.001*</b>	0.182
<b>Gender</b>	0.037	0.551	-	-	-	-	-	-
edu_ybgd	0.004	0.044	0.013**	0.185	6.06E-09*	0.584	-0.001	0.266
Maristat	0.090***	0.420	0.068**	1.580	-3.31E-09	2.618	0.024*	3.150
hh_size	-0.017***	0.087	-0.012	0.266	1.01E-08*	1.016	-	-
hh_posit	-	-	0.062	1.467	-	-	-	-
typ_work	0.019	0.563	-0.029	1.725	1.38E-07	4.341	0.018	2.467
Income	0.000	0.001	0.000	0.003	2.98E-11	0.007	6.81E-06	0.003
healt_st	0.024	0.392	-0.024	1.175	9.99E-10	2.977	0.283**	2.257
oth_info	0.044	0.456	-	-	1.93E-08	4.663	-	-
oth_inco	-	-	-0.237**	1.495	-	-	0.013	1.760
<b>Assets</b>	0.012	0.447	<b>0.089*</b>	1.432	0.000	8.228	-0.003	1.844
acc_loan	0.022	0.417	-0.029	1.050	5.04E-09	3.111	0.001	1.701
<b>Savings</b>	-0.011	0.472	0.176	1.438	-2.16E-08*	4.832	0.144*	2.416
loc_work	-	-	-	-	-1.13E-07**	5.274	-	-
land_tot	-	-	-	-	-3.38E-08	4.106	-	-
no_crops_gnn	-	-	-	-	3.88E-09	0.747	-	-
rear_liv	-	-	-	-	-0.553**	10.587	-	-
Investme	-0.140***	0.453	-0.008	1.418	-	-	-0.125**	1.878
pay_tax	0.086***	0.423	-0.033	2.374	-	-	2.8E-07	1.428
apprenti	-	-	-	-	-	-	-6.3E-03	1.367
lien_d	-	-	-0.043*	1.965	-	-	-	-
own_vehi	-	-	0.019	1.789	-	-	-	-
typ_driv	-	-	-0.090**	1.462	-	-	-	-
typ_pens	0.095***	0.405	0.071	1.117	1.94E-07	3.232	-2.8E-03	1.761
typ_anut	-0.081***	0.384	0.029	1.205	-0.180**	11.028	-3.9E-03	1.285
pur_prod	-	-	-	-	-	-	0.178*	2.435
cont_pay	0.038	0.417	-0.036	0.997	-	-	-8.7E-03	1.695
dur_cont	-0.027	0.414	-0.092	1.408	-8.78E-07*	6.901	0.023*	1.764
Knowledge	0.045	0.376	-0.062	1.157	-4.91E-10	3.078	8.7E-03	1.253
<b>Associate</b>	<b>-0.065**</b>	0.385	-0.036	1.428	<b>-3.37E-07**</b>	4.107	<b>-0.758**</b>	3.356
_cons	-	1.163	-	5.559	-	10.977	-	5.089

\*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

Canagarajah and Sethuraman (2001), education and training increases incomes of workers in the informal sector and this coupled with knowledge as well as higher incomes is likely to influence participation in the Micro Pension Scheme. The effects of education on household well-being in Ghana has been studied by Canagarajah and Pörtner (2003), and the authors found out that post-basic education is important in explaining the welfare of house-holds and it has a strong and significant relationship to welfare outcomes in both rural and urban areas. The World Bank (2004), study in Ghana also indicated that, an extra year of schooling increases per capita household expenditure by about 4%. The impact of education is thus two-fold affecting the likelihood of obtaining wage employment and the wage level received which can then translate to willingness to participate in a Micro Pension Scheme.

Household size (hh\_size) was also found to influence urban informal workers decision to participate in the Micro Pension Scheme. Result shows that an increase in the household size by one member leads to a 1.7% reduction in probability of willing to participate in the scheme. This implies that an urban informal worker having an additional member (especially for one that is economically incapable like children, the aged or a sick member) in the household may be accompanied with additional expenditures on food, health, education etc. which may invariably discourage participation. The result could also be explained by the relative importance families play in providing social security for its members and hence the observed behaviour among urban informal workers (Gerdes, 1975; Kumado and Gockel, 2003). This result is consistent with Holzmann et al. (2001) who revealed that each additional child a family has lowers the likelihood that individuals in that household will contribute to a pension scheme. Furthermore, Castel (2006) in identifying the determinants of the participation of workers from the informal sector in public voluntary pension scheme in Vietnam also found out that registered poor household as well as living in a household with a high dependency ratio (the share of elderly and children in the household) have negative impacts on participation.

In the case of the Ghanaian urban informal worker, investments (Investme) made have a negative influence on the willingness to participate in a Micro Pension Scheme. The collective regression result shows that an urban informal worker who has made some sorts of investment(s) has a 14% reduction in probability of participating in the scheme than those who have not made any investment(s). In the case of woodworkers who have made or have investment(s), they have a 12.5% reduction in probability of participating in the scheme compared to those who have no investment(s). Intuitively, it means that such investments means other sources of income streams in the future and since the objective of Micro Pension is to provide this same income stream, it thus have a negative influence on the incentive to

participate.

Micro Pension characteristics such as the type of Micro Pension (typ\_pens), type of annuitization (typ\_anut) and the duration of premium contribution (dur\_cont) are also important in explaining urban informal workers' decision to participate in the scheme. The type of annuitization whether as a lump sum or phased withdrawal was found to be significant at 1% for the collective regression and 5% in the case of the logistic regression for vegetable farmers. It has a negative influence on the decision to participate, meaning that if annuitization is a lump sum, there is an 8.1% reduction in the probability of participation than if it were a phased withdrawal. On the other hand, in the case of vegetable farmers' it leads to an 18% reduction in probability of participating in the scheme. Lump sum benefits from literature is known not to protect pensioners from longevity risk and in cases where an investor misuses the pensions funds, it can lead to a disastrous consequence. The risk of misuse of pension funds could also explain the reason for this likely observed behaviour.

In the case of vegetable farmers, premium contribution duration of over 25 years causes 8.7E-07 reduction in probability of participation in the scheme than if it is less than 25 years. The probability is however negligible. However, in the case of woodworkers it leads to a 2.3% reduction in probability of willingness to participate in the scheme. Intuitively low income earners have to meet short time expenditures periodically and constantly have a short term planning horizon to meet basic daily needs, hence such very long term planning will likely discourage participation (Bales and Castel, 2005; Gianadda, 2007).

An urban informal worker being a member of a work related association (Associate) was found to be significant for the collective regression, vegetable farmers and woodworkers but has a negative relationship with willingness to participate. Thus those who are members of a work related association are more unwilling to participate than those who are not. The probable reason for this result could be that, urban informal workers who belong to associations can rely on members or the association for some form of social protection. Some associations have self-help actions of varying kinds and different purposes and provide assistance or comfort to members through actions, such as drawing down savings, selling of physical assets, reciprocal exchanges of gifts and loans, diversifying of crops, and expanding income-generating activities (Gerdes, 1971, 1975; Goldstein, 2000; Murgai et al., 2002; Kumado and Gockel, 2003; Hyden, 2006; and Kpessa, 2010).

Savings have a negative effect on vegetable farmers' willingness to participate in the scheme. The vegetable farmer who saves has a 2.16E-08 reduction in probability (though negligible) of participating in the scheme, than the vegetable farmer who does not save. On the contrary for woodworkers, savings has a positive relationship with participation. A woodworker who saves has a 14.4%

increased probability of participating in the Micro Pension Scheme than a woodworker who does not save. This finding seems to be consistent to that of Castel (2006), who reveals that a higher saving rate on household's income per capita has a positive influence on participation in a pension scheme.

Other income sources (*oth\_inco*) available to drivers also influence their participation in the scheme. Drivers that have other income sources aside from driving have a 23.7% reduction in probability of participating in the scheme compared to those who do not have other income sources. Probably an additional source of income makes them well off and such additional income sources can be invested in other productive ventures deemed important.

With regards to vegetable farmers, the location of production (*loc\_work*) being in a residential area has a negative relationship with the willingness to participate. Thus farmers in residential areas have a 1.13E-07 reduction in probability of participating than farmers who are not. In addition, vegetable farmers who rear animals (*rear\_liv*) alongside vegetable production have a 55.3% reduction in probability of participating in the scheme than those who do not rear animals. This could be explained by the additional income sources from livestock keeping. As noted by MacKellar (2009), possible reasons for likely non-participation for farmers' and fishermen's, are low incomes, instability or seasonality of earnings. So a farmer by rearing livestock means a much more stable income stream, thus the likelihood of participation.

Health status (*healt\_st*) and purpose of production (*pur\_prod*) are important variables explaining woodworkers' willingness to participate in the Micro Pension Scheme. Both variables have a positive influence on participation. Woodworkers who seldom fall sick have a 28.3% reduction in probability of participating in the scheme than those that fall sick frequently. This could be explained by the likely medical expenses that would be incurred if one is often sick and thus a burden on financial resources.

Also, woodworkers who produce for the local market (*pur\_prod*) have a 17.8% increased probability of participating than those who produce for the export market. Intuitively, those who produce their products for exports are well off and have a strong capital base to afford export tariffs and might have other probably investment options to cater for their old age.

Premiums contribution frequency (*cont\_pay*) and knowledge about pensions have a positive influence on participation; however, in the case of drivers and woodworkers, they are negatively related to participation. As stated by Siegel et al. (2001), the poor in least developed countries (LDC) are sensitive to premium price and payment schedules. The result obtained thus seems to be consistent with what the authors proposed. Castel (2006) in a study to identify the determinants of the participation of workers from the informal sector in public voluntary pension schemes in Vietnam also found

participation to be strongly positively related to the respondents' knowledge about retirement pensions and social insurance coverage. Despite the importance of individual characteristics, socio-economic factors and design characteristics of pension schemes, Castel (2006) argues that the pension system's financial return or the present value of the expected pension benefits, net of the contribution costs, is also an important determinant of workers' willingness to participate. However, the financial part of the Micro Pension Scheme was out of the scope of the study, but it is worth noting that it will also have an influence on participation. However, the variables that explain the willingness to participate above heavily support the inference that individual circumstances and some pension design features matter for participation in the hypothetical Micro Pension Scheme (MPS).

The overall significance and goodness of fit of the Logit model as tested using the Log-Likelihood Ratio test shows that at the 1% level of significance, the null hypothesis that all slope coefficients are equal to zero is rejected for the collective model and subsequently at 10%, 1% respectively for drivers, vegetable farmers and woodworkers models (see Table 4). These results imply that explanatory variables used in each of the four Binary Logit Models jointly explain the variations in urban informal workers' willingness to participate in the Micro Pension Scheme. Further, the Pseudo R<sup>2</sup> values of 0.1854, 0.4064, 0.7071, and 0.5196 for the respective Binary Logit Models suggest that the explanatory variables explain about 19%, 41%, 71%, and 52% of the variations in the willingness to participate in the Micro Pension Scheme, for, all urban informal workers, drivers, vegetable farmers, and woodworkers, respectively.

## Conclusions

This study examines the factors influencing urban informal workers' participation in a micro pension scheme in Ghana. A total of 400 urban informal workers cutting across 4 different informal activities (drivers made up of taxi drivers and private mini-bus transport drivers known in local parlance as "trotro drivers"; beauticians also known in the local parlance as "hairdressers", farmers or urban vegetable growers and woodworkers (that is carpenters) were sampled for the study. Samples of 100 each were selected for each of the 4 urban informal activities.

A Binary Logit regression analysis was employed on the dataset. The empirical results reveal that age, marital status, household size, investment options, tax or levy payment, the type of pension scheme and annuitization, and affiliation of an urban informal worker to any work-related associations were the most important factors in explaining urban informal workers' decision to participate in the hypothetical micro pension scheme. It is interesting to note that some of the variables that influenced urban informal workers' decision to participate (collective

**Table 4.** Diagnostic statistics for logistic regression model.

Logistic regression**	All	Drivers	Vegetable farmers	Woodworkers
Number of observation	400	100	100	100
LR chi <sup>2</sup>	55.16	35.74	57.27	38.13
Prob. > chi <sup>2</sup>	0.0001	0.0582	0	0.0124
Log likelihood	-121.17	-26.099	-11.8611	-17.6266
Pseudo R <sup>2</sup>	0.1854	0.4064	0.7071	0.5196
AIC	286.343	102.199	67.72214	79.25313
BIC	374.155	167.328	125.0359	136.5669

\*\*Dependent Variable = Willingness to participate (WTP<sub>MPS</sub>); 1= "Yes"; 0= "No"

regression) in the hypothetical micro pension scheme were as well important in explaining the willingness to participate decision at the individual urban informal activity level.

The results of the survey indicate a high willingness to participate in a micro pension scheme among urban informal workers. Since the percentage of urban informal workers responding positively to the concept of micro pensions is 87.75%, there is a clear indication that "pre-demand" for micro pension is tangible even before implementation. The results imply a high probability of participation among urban informal groups. These results have implications for policy makers, financial analysts and businessmen, more especially private insurance companies.

The study was carried out in Accra only, the Capital city of Ghana. Though the sample size is very large and covers four distinct groups of urban informal workers, the results may not be representative of the whole population of Ghana. Therefore, extending the study to cover samples from all the 10 regions of Ghana is an avenue for future research. Further, the financial aspects of Micro Pensions would be worth exploring in future studies.

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