Poverty Incidence Among Elderly With and Without Pensions in Selected Localities in Ghana

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Abstract
This paper assesses poverty incidence of elderly with or without pension in selected localities in Ghana. It adopted monetary measure of poverty using consumption expenditure as poverty index. Structured questionnaire was used to collect data from 332 households' randomly sampled in 24 enumeration areas across the three ecological belts in the country. Binary logistic regression estimation method was used for the analyses. The finding shows that whereas households with elderly only; elderly and children; as well as elderly and working age had high incidence of poverty; mixed household had low incidence of poverty. With reference to pensions, households with elderly recipients of pension had a significantly low incidence of poverty compared to those without pensions. In order to tackle old age poverty, the study recommends that public policy must target the poorest among the poor in specific household types with elderly without pension.
Keywords: Poverty, Elderly, Ghana, Pension recipient.

1. Introduction
As one grows into old age, the ability to exchange active labour hours with income generation activities may reduce (WHO, 2002). However, the risk of being attack by numerous health problems increases and the chance of slipping into poverty is often inevitable for many elderly in low income households, especially, in the developing countries. These sort of conditions are unescapable, particularly, among the vast majority of the elderly who do not receive any form of pension in a country like Ghana. This is simply because they may have worked in the informal sector and were unable to contribute into the social security pension scheme or could not work with the Government to get Government pension.

GSS (2013) indicates that 94 percent of the economically active 58.5 percent (or 961,776 persons) of the elderly in Ghana continue to work in low income jobs of the informal economy. In the same study, the proportion of the elderly working in the informal economy increased from 77.3 percent to 93.4 percent between 2000 and 2010. Similarly, the proportion of elderly working as self-employed without employees increased from 73.4 to 74.8 percent while those working as employees declined from 9.61 and 8.9 percent. Overall, the proportion of the elderly in formal sector has drastically reduced from approximately 19.8 percent to 6 percent between 2000 and 2010. This phenomenon exposes the elderly in Ghana to old age poverty and signals that whatever social protection system in place or the lack of it is inadequately supporting the elderly population in the country. Kidd and Whitehouse (2009) argued that the absence of pension would often obliged the elderly to work to fight old-age poverty.

In many of the advanced countries, old-age poverty is something which do not often happen (ILO, 2014) because there are enough social protection system in place to guarantee the provision of basic income and essential health facilities. For instance, more than 90 percent of older persons in North America and Europe above statutory pensionable age receive a pension (ILO, 2014). However, the elderly situation in most of the developing countries, especially countries without any form of social security pension benefits for the vast majority of elderly are susceptible of falling into old age poverty (UN, 2015). The lack of guarantees such as basic income security and essential health care for the elderly that are not covered by contributory pension schemes makes them vulnerable, socially excluded with no safeguard against poverty (ILO, 2014). Some advanced countries such as the United Kingdom and United States of America have developed specific poverty strategies to tackle particular type of poverty across the life cycle (child poverty, working poverty and old-age poverty) which has yielded significant success (Domfe, 2013; Joassart-Marcelli, 2004).

The economic conditions of the elderly in sub-Saharan Africa (SSA) countries have not been systematically analysed with appropriate social protection and Ghana is no exception. Kakwani and Subbarao (2005) used various national data collected across selected SSA countries between the period of 1998 -2001 to investigate "ageing and poverty in Africa and the role of social pensions and found high incidence of poverty among households with elderly. In many countries in SSA and in Asia where there is no pension in place, elderly persons are more likely to be poor than younger ages (UN, 2015). Evidence suggest strong correlation between

poverty and a household with elderly persons in Africa (Faye, 2007).

An assessment of the wellbeing of elderly in Ghana suggests that the situation of older persons are such that many age into poverty which serves as a violation of their economic rights (Government of Ghana- MESW, 2010). The social aspect of old age poverty has been more devastating for many of the poor elderly, especially, women who usually live longer. In the quest of fighting for their daily survival against the monster called poverty, these innocent senior citizens of the society, may be called by all sorts of evil names. Some of them have been called witches, wizards or trouble makers. Some of the worst culprit of such practise in the African society had been the Fetish Priests and the religious leaders who usually prophesy and preaches to their congregations about "older people" or "older parents", especially, the mothers or other elderly relatives as the cause of their troubles. Unfortunately, these treatments that are metered out to the poor elderly appears to suggest that such poor living circumstance cannot be explained by science.

On the contrary, it is extremely rare to brand a financially well-to-do elderly person as a witch in the African society. This is rather puzzling because the society seldomly questions their sources of worth. Indeed, compared to the elderly poor, the well to do elderly are usually invited to play key roles during social events within the communities.

In the mist of the data that suggests average national poverty is falling, while the elderly population rapidly continue to grow, there is clearly the need to investigate the poverty status of the elderly. The data presented by Ghana Statistical Service (GSS) appears to suggest that national poverty levels are falling in the country. For instance, the proportion of the population identified as poor nationally has fallen from 51.7% in 1991/92 to 39.5% in 1998/99 and 28.5% in 2005/6 and 24.2 percent in 2012/3 respectively (GSS, 2014). This poverty rate is still very high especially, the national poverty level of 24.2 percent in 2013 for a country that until recently has witnessed high economic growth to as high as 15 percent in 2011. In terms of the numbers of persons, an estimate of 2.2 million and 6.4 million were extremely poor and poor respectively in 2013 (GSS, 2014). The concern is whether the elderly with or without pension benefits have witnessed such decline of poverty?

Only few studies are carried out to assess the poverty levels of the elderly. The few of the indigenous studies that exist have not made any empirical assessments of pensions and old age poverty (Kpessa, 2011; Appiah-Kubi, Oduro, & Senadza, 2008; Kumado & Gockel, 2003; Dei, 2001). For instance, Kpessa (2011) in comparing recent pension reforms in Ghana and Nigeria, concluded on the risk of not achieving the objective of providing adequate benefits. This was due to the introduction of defined contribution scheme that places the ultimate burden of risk on individuals' level of savings and knowledge of financial markets. Kumado and Gockel (2003) also compared the social security in Ghana to that of Switzerland, Chile and Singapore, and recommended reforms of pension system in Ghana. This research contribute by studying areas not research and also adopts different methodology in the approach.

However, scanty studies on sub-Saharan Africa (SSA) included Ghana as part of a cross country studies do exist (Kakwani & Subbarao, 2005). Due to the cross country nature of these studies, less details are known about in-country regional incidence of poverty and other specific households' issues. Thus, the relationship between pensions and old age poverty is not clear in the context of Ghana. It is the desire to bridge this gap in knowledge that this study seeks to contribute to assess the effect of public pensions on old age poverty in selected localities in Ghana. Following the problems discussed above, the specific question that arises for investigation is: what is the poverty incidence of different household types with elderly and pension or non-pension recipients?

The paper is organised as follows: Section 2 defines poverty and discusses existing empirical literature. Section 3 highlights the data source and methods used for the analyses. Section 4 presents the results and discussions while section 5 draws conclusion as well as the policy implications.

2. Literature Review

In the literature, there are various ways in which poverty can be defined. Tilly (2007) defined poverty as the lack of most or all crucial assets and capabilities in a person's life. Poverty is about having less than others in society or having actual income below just sufficient level (Dartano, 2011). Franco, Marino, and Tommasino (2008:126) asserted that "a person is considered poor if he or she lives in a poor household." Poverty replicate itself in the form of material, social or right deprivation (Appiah-Kubi, Oduro, & Senadza, 2008).

The study used consumption expenditure rather income index of poverty because Ghana Statistical Service (GSS) uses same and due to the large informal nature of the economy that makes it difficult to know households exact income. The widely used measure of poverty put forward by Foster, Greer and Thorbecke (1984) is adopted in various ways to measure incidence of poverty, depth and severity of poverty in other studies such as (GSS, 2014; 2007; 1995; Osei-Fosu, 2010; Dercon & Shapiro, 2007; Kakwani & Subbarao, 2005). Kakwani and Subbarao (2005) stressed that these three measures are adequate to capture various aspects of poverty and vulnerability that confronts the elderly as a subgroup within the entire population. Dartanto (2011) argued that the choice of a certain definition of poverty is based on availability of data.

GSS (2014; 2007) put forward that poverty among the elderly in Ghana was lower than the national average.

This is contrarily to existing literature that found poverty among the elderly to be higher than the national average (Kidd & Whitehouse, 2009; Faye, 2007; Kakwani & Subbarao, 2005). For instance, whereas the national poverty rate declined from 28.5% to 24.2%, poverty among the retiree fell from 9.1 % to 4.7% between 2005/6 and 2012/3 respectively (GSS, 2014). The GSS shows that the fall in the poverty rate of the elderly was far greater compared to active public sector employees that fell from 9 percent to 7.1 percent. The concern with the GSS study is, it does not give details about the classifications of household types with or without elderly and whether the retirees are pensioners or only those who worked in Government sector.

Besides, the same GSS (2014:47) emphasised that "nine out of ten of the economically active elderly are engaged in the private informal sector which offer the lowest wages in Ghana." The concern is, if approximately 59 percent of all persons age 60 plus are still working, would the poverty incidence among the elderly in total (active and inactive) be lower than the national average? Kidd and Whitehouse (2009) questioned studies that seems to suggest that the rate of old age poverty are the same or less than those of the population working as a whole because using averages can gloss over large differences between groups of older persons. For instance, Kakwani and Subbarao (2005) found that in exception of household with single elderly only, all the others such as mixed households with elderly, elderly with children and households headed by the elderly had higher incidence of poverty than the national average in SSA of which Ghana was part. Faye (2007) studied basic pensions and poverty reduction in Senegal and found a strong correlation between poverty and households with elderly. As poverty is an intergenerational issue, the elderly bequeath poverty (i.e. set poverty trap) to their dependents that affects their education and childhood development (Faye, 2007; Barrientos, Gorman, & Heslop, 2003).

This study seeks to critically examine these controversy between previous findings and the claim by GSS (2014). Domfe (2013) contended the association of joblessness with poverty in Ghana and indicates that less attention of policymakers is paid on job poverty (working poor group) which is also prevalent in Ghana. The issue is whether close to the two third of elderly engage in economic activities could still be worst off? Indeed, as cited by Domfe (2013) in studies such as ILO (2003) and Joassart-Marcelli (2004) there are a number of people employed that are barely earning sufficient income to keep them out of poverty. This do suggest that the mere opportunity of a person working does not insulate the person from falling into poverty especially in the developing countries.

3.   Methodology

A questionnaire survey was used to directly collect data from Upper East, Eastern and Volta regions where two Districts each: Akatsi, North Tongu, Upper Manya, Lower Manya, Bulisa and Kasena Nankana West were randomly sampled.

Structured questionnaires were administered within the sampled localities to households made up of elderly only (i.e. persons aged 60 and older); elderly and children (i.e. persons aged 15 and below); elderly and working age (i.e. persons aged between 16 and 59 years); and mixed households (i.e. all ages). The division of households into different subgroups was undertaken to avoid any bias with the whole as indicated by (Truglia, 2009). Furthermore, the households with elderly were subdivided into households with elderly recipients of pension and non-recipients of pension.

This primary method of data collection was undertaken because of the need to gather new types of data by asking new sets of questions that were not in existing surveys such as the Ghana Living Standard Survey (GLSS). Additionally, the general objective of the study is to assess the poverty situation of households with elderly with or without pensions which necessitates the collection of new information from the target population.

Similar to GSS (2014); and Osei-Fosu (2010), the entire geographical area of Ghana was divided into three broad ecological belts: *Northern Savanna belt* (Upper West, Upper East and Northern region); *Middle forest belt* (Volta, Ashanti and Brong Ahafo) and *Southern Coastal belt* (Eastern, Central, Gt. Accra and Western region). In each of the three belts, one region was randomly chosen: Upper East, Volta and Eastern regions. Within each of the three regions, two Districts were randomly selected. The choice of the six Districts were based on the 2015 "Ghana Poverty Incidence 2012/13 Map" and the Population and Housing Census of 2010 as the sampling frame of the Primary Sampling Unit (PSU). The selection of the six Districts used the poverty incidence cut-off of less than 20% or more than 40% in each of the three regions.

Fifthteen (15) households per enumeration area (EA) was used. Twenty – four (24) EAs were sampled based on a formula and probability proportion to population size. A sample size of 332 made up of 80; 148; and 104 in Upper East, Eastern and Volta region was obtained by random sampling method respectively. A systematic sampling through the usage of a listing form was adopted to identify the households with elderly persons within each EA. An audit of the recorded data was undertaken to cross-check the consistency of the captured data against the data recorded on the individual questionnaire.

A binary logistic regression method was used for the analyses of the data. A logistic regression model is applicable to situation with dichotomous dependent and independent variables that takes predicted values

between $y_i \in \{0, 1\}$ or written as relates to this study as:

$$y_i = \begin{cases} 1 & if \quad y_i^* \quad poor \\ 0 & if \quad y_i^* \quad non-poor \end{cases} \qquad \text{for binary logit.} \qquad (1)$$

where y_i was specified as binary variable with value 0 or 1 and assumed $y_i \sim$ Bernoulli (π), such that $\pi = Pr$

[y_i = 1] with $0 < \pi < 1$; and have Pr [y_i =0] = $1 - \pi$. Where Pr represents probability, y_i is the dependent variable or poverty status. Thus, a household with elderly that was poor was specified as 1 and 0 if the household with the elderly was non-poor. With logit model, where the value π_i depends on the explanatory variable x_i, the individual specific probabilities are written as:

$$Pr [y_i = 1] = \pi_i \qquad (2)$$

That is in a simple binary equation format as in in logit model it is written as:

$$Pr[y_i =1] = \frac{\exp(\alpha + \beta_1 x_i)}{1 + \exp(\alpha + \beta_1 x_i)} \qquad (3)$$

$$Pr[y_i =0]= \exp \frac{1}{1 + \exp(\alpha + \beta_1 x_i)}$$

and as odds ratio, it becomes:

$$\frac{Pr[y_i =1]}{Pr[y_i =0]} = \exp(\alpha + \beta_i x_i) \qquad (4)$$

Field (2005:225) defined the odds ratio as " an indicator of the change in odds from a unit change in the predictor." It is the probability of a yes (or being poor) over the probability of a no (or non-poor). The $\exp(\alpha + \beta_i x_i)$ in equation (4) is the exponentiated coefficient (as odds ratio) rather than the logit coefficient in equation (3). The odds ratio signifies the effect of a one unit of change in x_i in the predicted odds ratio with the other variables in the model held constant. In this study, the odds of becoming poor are the probability of being poor divided by the probability of not being poor (i.e. non-poor). The model in equation (4) was specified in the functional form as (5):

$$\frac{[Pr(y_i = 1)]}{[Pr(y_i = 0)]} = \exp(\alpha + \beta_1 (D_{EP})_i + \beta_2 (D_{EC})_i + \beta_3 (D_{WP})_i + \beta_4 (D_{MH})_i + \varepsilon_i) \qquad (5)$$

where D is a dummy; EP is Elderly person only household; EC is Elderly & Children household; WP is Elderly & Working age household; MH is Mixed Household; and y_i is the expenditure of a person or household below the poverty line of GHc 1,314.00 per annum (or Ghc 110.00 per month). The equation estimates the percentage of individual households within a population of interest that are referred to as poor. This usually referred to as the headcount poverty which relates to incidence of poverty and the poverty gap relates to its intensity (Franco, Marino, & Tommasino, 2008). The second part of specific objective relates to households with or without pension recipient as specified as (6):

$$\frac{[Pr(y_i = 1)]}{[Pr(y_i = 0)]} = \exp(\beta_0 + \beta_1 R_i + \beta_2 NR_i + \varepsilon_i) \qquad (6)$$

where R is Recipient; NR is Non-recipient and ε is the error term.

4. Results and discussion

Results from estimation of equation (5) in hierarchical form presented in Table 1 suggests that whereas living in a households with elderly persons only was highly likely of being poor by approximately 400 percent (5.096 - 1=4.096), living in the households with elderly persons and children was also highly likely of being poor by an estimate of 140 percent (2.375-1 = 1.375). Again in Table 1, while living in a mixed households was less likely of being poor by an estimate of 79 percent (0.214 – 1 = 0.786), living in the households with elderly and working

age persons was highly likely of being poor by an estimate of 20 percent 1.199-1 = 0.199).

Insert Table 1 here

In Table 2, the finding with multivariate estimates of equation (5) in model one shows that a person living in a household with elderly person only was 8.97 times more likely of being poor. This was higher than the results from the bivariate estimates in Table 1. Households with elderly and children; and elderly and working age persons were 5.09 and 2.74 times highly likely of being poor respectively. This indicates that the model predicts that the odds of becoming poor was highly associated with elderly persons only than living in the other households' types. Each predictor met the 0.05 statistical significance test chosen.

In order to resolve if any, the problem of omitted variable bias in the analysis, educational achievement was introduced in equation (5) as a control variable in model two and the results still indicate that households with elderly persons only are highly likely to contributes approximately 9 times to being poor than other households types (see Table 2 for details). At the same time, the educational achievement itself is highly likely to lower poverty by 0.2 times. Intuitively, acquiring formal education enhances a person's job prospects that leads to a higher standard of living. Therefore, it is expected that educational attainment should reduce old age poverty.

Insert Table 2 here

The second part of the specific objective was to investigate how much of the changes in poverty levels was predicted by households with elderly recipients or non-recipients of pensions in equation (6). For every one unit increase in a household expenditure with elderly persons receiving a monthly public pension, the odds that poverty would be lower was estimated as 93 percent (0.073 – 1 = **-** 92.7). In other words, a one unit increase in expenditure of a household with elderly person recipient of pension was associated with a 93% lower incidence of poverty (see Table 2 for details). The result supports Kakwani and Subbarao (2005) findings that a recipient of pension benefit is less likely to experience old age poverty. On the contrary, the effect of household with elderly persons without monthly pension income were approximately 14 times highly likely of being poor. This could even be much worse if a person live in a household of elderly person only. The economic intuition behind this is that households with elderly that are non-recipient of pension are burden by the presence of the elderly who is without any form of regular income. The finding confirms Faye (2007) results that there is high correlation between poverty and elderly person in the household in most African countries and also supports UN (2015) claim that many age into poverty in sub-Saharan Africa. This finding shows that the high incidence of poverty found could be partly be explained by the lack of pension benefits to the vast majority of the elderly in the country. The result is consistent with Kidd (2009) and Kidd & Whitehouse (2009) that pension transform the living conditions of the elderly and the lack of pension as key contributed to old age poverty. In all the four models estimated, the result shows that the models are better at predicting old age poverty more accurately. This is because the value of -2log likelihood is throughout lower than the value when only the constant was included in the model (e.g. 453.772-398.785 = 54.987 for households with elderly and education estimates).

The finding reveals that the incidence of poverty among the elderly was 43.8 percent that is about twice higher than the national average. This result is supported by Kakwani and Subbarao (2005) finding of households headed by elderly to have higher poverty rate of approximately 50 percent than the national average in Ghana.

5. Conclusion and Policy Implications

The main aim of the study was to assess the poverty incidence of elderly with or without pension in selected localities in Ghana. The finding shows that the overall poverty incidence in households with the elderly is by far higher than the national average. This result reveals that old age poverty exist and it occurred in certain household types due to factors such as: the type of households the elderly lives in; whether the elderly is a recipient or non-recipient of pension; and lack of formal education. The finding shows that in all cases households with elderly only, and elderly and children, are highly likely to experience higher levels of poverty. However, household with elderly persons that receive monthly pensions are less likely to be poor.

As a policy implications, the result means that to change old age poverty, firstly, public policy benefit must be targeted to households with elderly only and elderly and children. Secondly, household types with elderly without pension benefit and elderly females' households must be targeted. In terms of pension effect, the State should consider introducing a pension scheme that covers the vast majority that are not covered by the existing public pension schemes.

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TABLE 1: Individual household type on poverty

Estimates	(a) Elderly only	(b) Elderly & Children	(c) Elderly & WorkingAge	(d) Mixed Households
Coefficient	1.628***	0.865**	0.182	-1.540***
Standard error	0.316	0.348	0.265	0.242
Wald	26.553	6.191	0.471	40.511
Odds Ratio	5.096	2.375	1.199	0.214

Source: Field Survey, October, 2015.
Estimation method: ML. Logit. Dependent variable = Poverty rate
*** Significant at the 1% level, **   Significant at the 5% level

Table 2 Binary logistic regression models for households with elderly with or without pension effect on poverty.

Independent variable	Model 1		Model 2		Model 3		Model 4	
	B	OR	B	OR	B	OR	B	OR
Constant	-3.71*** (0.62)	0.02	-2.92*** (0.66)	0.05	2.44*** (0.43)	11.5	-0.17 (0.13)	0.84
Elderly persons only	2.19*** (0.35)	8.97	2.21*** (0.37)	9.15				
Elderly & Children	1.63*** (0.38)	5.09	1.73*** (0.41)	5.67				
Elderly& workingage	1.01*** (0.29)	2.74	0.86** (0.32)	2.36				
Education			-1.58*** (0.26)	0.21				
Pension recipient					-2.62*** (0.44)	0.07		
Non pension recipient							2.62*** (0.44)	13.67

Source: Field Survey, Oct. 2015.
*p< 0.05; **p<0.001; ***p<0.0001; standard error in parentheses; B = regression coefficient; OR = odds ratio; dependent = poverty line.