DETERMINANTS OF THE DEMAND FOR LIFE INSURANCE IN THE NORTHERN REGION OF GHANA- A STUDY OF THE TAMALE METROPOLIS

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Abstract

This study examined the determinants of life insurance demand in the Northern region of Ghana using primary data on 200 sampled customers and potential customers of life insurance companies in the Tamale metropolis (the Northern regional capital). The views of the respondents were obtained with a structured questionnaire. The preliminary results showed that, the average insurable age in the region is 33 years with an average economic dependency of 3 persons. Also, less than fifty percent (49.5%) of the people of the insurable age owned a life policy. The results also showed that, Endowment policy is the highly owned life insurance policy compared to Term and Whole life policies. More so, 78% of the respondents have an idea about life insurance and more than 50% said the services of life insurance firms are good. Adopting the binary logistic regression model, easy access to claims when due, perceptions about services of insurance firms and employment status were the statistically significant determinants of the demand for life insurance policies in the Northern region of Ghana. Though, age and number of dependents were statistically insignificant, they were positively associated with the demand for life insurance. Also females, Christians as well as married persons were found to have more chance of taking life insurance. It is therefore recommended that, access to claims should be made easier and convenient; customer services should be improved for improved better perceptions about life insurance companies; segmenting potential customers using the sector of employment could help life insurance firms to easily target potential customers in the sale of life policies; the Whole life and Term life policies should be redesigned with more attractive features.

Keywords: life insurance, demand, determinants, Northern region

1. INTRODUCTION

Insurance is a legal agreement whereby one party (the insurer) promises to pay the other party (the insured) or his designated beneficiaries a lump sum of money or its equivalent in return for an agreed payment (premium) on the event of a loss to the insured. It offers protection against the financial impact of an untimely death, accidents, health among others. Ghana's insurance history dates back to the colonial era in 1924, when Royal Guardian Enterprise, now Enterprise Insurance Company Limited was established. As at June, 2016, the number of licensed insurance companies in the country stood at 49 of which 22 are Life and 27 non-life (NIC, 2017). The insurance industry is one of the key areas of the financial services sector in Ghana.

Insurance plays a key role in the functioning of both developed and developing economies. For instance, the insurance sector accounted for 4.8% of the gross domestic product (GDP) of India in 2011 which further grew to 6% in 2012 (Barik, 2012). In the case of Ghana, insurance penetration is still very low. Insurance penetration which is defined as the contribution of total insurance premiums to Gross Domestic Product (GDP) is still less than 2%. The average growth rate in the insurance industry's gross premium fell sharply from 26% to 24% between 2015 and 2016. Whereas life insurance recorded a growth rate of 22%, non-life insurance grew by 25% (NIC, 2016). Nonetheless, most Ghanaians especially those in the informal sector, do not take-up insurance as a way of preparing towards future unforeseen misfortunes (NIC, 2010). This situation is a matter of concern when it comes to the patronage of life insurance. Though, the sector is improving in terms of patronage, it is at a snail's pace which is worsening moving into less developed and economic depressed parts of the country. What could influence people decision to patronize life insurance? To answer this question, many reasons have been explained by studies in this area of which socio-economic and demographic differences always pose gab to some generalizations.

In theory, the demand for life insurance is traced to the theory of utility maximization, where a person's decision to purchase life insurance or not is dependent on his/her expected utility. On the empirical literature, Çelik and Kayali, (2009) in a study of 31 European countries found income to be the key variable which influences life insurance consumption. Nesterova, (2008) investigated the determinants of the demand for life insurance in Ukraine and other countries and found that countries with higher life expectancy at birth, income level, and old dependency ratio have higher levels of life insurance consumption. Dragos, (2014) among other findings revealed urbanization to influence the demand for life insurance in Asia but not Europe. Laurent and Kivyiro, (2015) found macroeconomic and demographic factors to influence the demand for life insurance in Kenya, Nigeria, and South Africa. In Ghana, Wireko, (2016) found income, employment status, education and the age of consumers to have positive significant influence on life insurance consumption in the Kumasi Metropolis. Sarkodie and Yusif, (2015) revealed that, better perception about insurance, income, number of dependents, higher education and employment by someone else improved the likelihood of demanding life insurance in the Ayeduase Kumasi Community. Ackah and Owusu, (2012) attributed low patronage of insurance (which excludes public health insurance) especially among the low-income population to lack of knowledge about insurance products, and to an extent misunderstanding of the concept of insurance. Francis, *et al.*, (2017) found that Muslim and Traditional/other religious faith respondents were less likely to purchase life insurance relative

to respondents belonging to the Christian faith in the Asokore Mampong municipality. Also, Fofie, (2016) found that sex, education, age, marital status, income status, employment status and number of dependents positively influenced insurance patronage in the Sunyani Municipality of Ghana. Although, studies have investigated the factors that influence the demand for life insurance products that contribute to the growth in premium income and consequently, in the market share of the life insurance sector in Ghana, those studies are not specific to the Northern region, where the population is diverse with social, economic and demographic differences. It is based on this backdrop that this study is conceptualized to add to knowledge, bridge the research gap and form the basis for broader investigation into this area in Northern Ghana. Further, this study seeks to consider other variables such as religion, access to insurance products at less cost and to segment employment into public, private and unemployed which have received little attention in literature. The rest of the paper is divided as follows: Section 2 reviews the literature on the determinants of life insurance. Section 3 details the methodology of the study while Section 4 discusses the results. Conclusion is outlined in Section 5.

2. LITERATURE REVIEW

2.1 The Concept of Life Insurance

Life insurance is an agreement in which the insured transfers, and the insurance company assumes, the risk of death for a specified period of time (Zietz, 2003). Generally, life insurance policies can be seen as a protection against the impact of financial loss or its equivalent that would result should the insured passed away (Freeman, *et al.*, 2015). The beneficiary or beneficiaries named in the contract of the policy receives the benefits from the insurance company and are therefore cushioned from the adverse financial impact from the death of the insured. According to Greene and Trieschmann, (2005), life insurance is a method by which a group of people may co-operate to ease the loss resulting from premature death of members of the group. The insuring organization collects contributions from each member, invests these contributions, guarantees both their safety and a minimum interest return, and distributes benefits to the estates of the members who die or become disabled. As a basic feature of insurance contracts, policyholders shift the risk to the insurance company by paying the agreed premiums and in return, receive the sum assured from the company on the happening of the stated event. Also, as a contingent contract, the sum assured is paid to the beneficiary of a life policy on the occurrence of the stated event (death) after all requirements in substantiating the claim is met (proof of death). However, there are exclusions to the contract for which the insurer is not liable to pay any claim, for instance suicide. Again, one could only purchase a life insurance policy on the life of someone else on condition that, the former has an "insurable interest" in the life of the later. In this case, the policyholder is not the life insured (Wireko, 2016). For instance, if a husband buys a life policy on behalf of his wife, he (the husband) is the policyholder, but the wife is the life insured.

2.1.1 Basic Terms in Life Insurance

1) Insurable Interest

Frederick, (1999) defined "insurable interest" as the legitimate reason for insuring someone else's life. You can only buy a life policy on an individual's life if there is a legal right to insure between you and the life to be insured. That is, if you stand to lose or gain financially or its equivalent from the existence or death of the life insured.

2) Life Insured

This refers to the individual on whose life an insurance policy is bought. Example, if a son buys a life cover on his aged father, the later is the life insured while the former is the policyholder.

3) Premium

This is the amount payable by the policyholder to the insurance company for insurance coverage.

4) Sum Assured

This is the amount the insurance company promises to pay to the life insured's beneficiary should he, the insured be deceased.

5) Insurance and Assurance

Though the difference between these two terms is usually confusing, "Insurance" generally cover events which is not certain to occur (e.g. motor accident), where as "assurance" cover events which is certain to occur (e.g. death). Wireko, (2016) commented that the distinction between the two terms has become blurred, principally due to many companies offering both types of policies and rather than refer to themselves using both insurance and assurance titles, they simply settle for one.

2.1.2 Types of Life Insurance

Life insurance policies are of many variations but, George, (2003) classified them into three basic types namely; Term life insurance, Whole life insurance and Endowment.

1) Term Life insurance

Term life insurance provides a specific amount of life insurance coverage for a designated time period, commonly one year, five years, ten years and fifteen years. Thus, the sum assured is paid to the designated beneficiaries if the life insured dies within the term of the policy and expires otherwise, originally with no claim payment. George, (2003) featured Term life insurance as the simplest type of life insurance which covers mortality risk for a stated length of time. Zietz, (2003) identified the following Term life insurance policies; Decreasing term, Increasing term, and Re-entry term and Level-term policies where the same amount of benefits is paid if death occurs while the policy is in force.

2) Whole Life Insurance

This type of insurance traditionally provides life coverage as long as the insured lives. Thus, the sum assured is paid to the beneficiary whenever the insured dies. This life policy can therefore be viewed as a life cover "till death". However, George, (2003) identified two different types of whole life insurance in his study; Ordinary life and Limited-payment life insurance.

3) Endowment Policy

Greene and Trieschmann, (2005) posited Endowment policies as primarily savings contracts with some element of life protection incorporated into the policy. Endowment policy is further divided into two, namely; Limited-term endowment contract and Retirement income policy (Greene and Trieschmann, 2005).

2.1.3 Factors That Influence the Demand for Life Insurance Policies

Whereas the theory of utility maximization is behind the demand for life insurance in theory, empirical studies have shown economic and socio-demographic factors as some possible determinants of life insurance consumption in both developed and developing economies.

Most findings from literature showed direct relationship between age and life insurance consumption (Berekson, 1972; Fofie, 2016; Ibok, 2006 and Wireko, 2016). However, some findings established an indirect relationship between the two (Savvides, 2006; Hau, 2000; Liebenberg, *et al.*, 2010; Goldsmith, 1983). Also, Sarkodie and Yusif, (2015) found age to have a negative relationship with the odds of taking life insurance in the Ayeduase Kumasi Community. Yusof, *et al.*, (2009) following their findings, commented that, employees who are toward the end of their working life may exhibit consciousness of life after retirement, hence may tend to demand for life insurance.

Also, Fofie, (2016) observed a significant positive relationship between gender and insurance patronage. Francis, *et al.,* (2017) found that, female are more likely to demand for life insurance in the Asokore Mampong municipality of the Ashanti region of Ghana. However, Sarkodie and Yusif, (2015) established that, male respondents add more to the odds of taking life insurance than females, though it was statistically insignificant. More so, gender was found by Freeman, *et al.*, (2015) to be significant but negatively related to the demand for life insurance policy among bank workers in Ghana.

Ibok, (2012) observed that religion variable has no significant effect on insurance consumption in Nigeria. However, Juetting, (2003) found a significant relationship between Catholicism and health insurance consumption. More so, Francis, *et al.*, (2017) concluded that people of the Islamic and Traditional/other religious faith are less likely to purchase life insurance relative to those of the Christian faith.

More so, findings from literature on the association between life insurance consumption and education revealed positive impact (Curak and Kljakovic, 2011; Lin and Grace, 2007; Nesterova, 2008; Savvides, 2006 and Yusof, *et al.*, 2009).However, some studies shown rather negative relationship between the two variables (Anderson and Navin, 1975; Duker, 1969 and Tan, *et al.*, 2009). Truett and Truett, (1990) and Baek and Devaney, (2005) however posited that, higher education may equip people with the willingness to offer financial security to their dependents.

Further, Trujillo, (2003), Liu and Chen, (2002) and Cameron and McCollum, (1995) observed that married couples are more likely to buy insurance coverage of any kind compared to their unmarried counterparts. Akotey, *et al.*, (2011) noted that married couple will demand various micro-insurance services such as life insurance, so that the family can have some financial assistance in the event of death.

Some studies revealed direct association between life insurance consumption and the size of the household or the number of children in a household (Hammond, *et al.*, 1967; Savvides, 2006; Shower and Shotick, 1994). Burnett and Palmer, (1984) and Ferber and Lee, (1980) pointed out that, number of children is a positive significant determinant of life insurance consumption since families that have greater number of children tend to buy more life insurance products, all things being equal.

Black and Skipper, (1993) and Savvides, (2006) in their work found a positive association between life insurance consumption and employment status. More so, those

gainfully employed also take insurance coverage more than the unemployed (Butler, 1999; Sawage and Wright, 1999). Liebenberg, *et al.*, (2010) found that newly employed individuals are more likely to own life insurance policies compared to their counterparts. Higher employment position of people reflects how individuals perceive their future and their level of financial complication and again it indicates their willingness to educate their wards (Duker, 1969).

In addition, the findings of Babbel, (1985), Browne and Kim, (1993), Cargill and Troxel, (1979), Gandolfi and Miners, (1996), Lewis, (1989) and Truett and Truett, (1990) suggest that income has a strong positive effect on the demand for life insurance products. The effect of income on life insurance consumption may be considered the most common of all economic variables considered in literature.

Sen, (2008) argues that consumption of life insurance is enhanced when saving components are embedded in life insurance policies. Some findings indicate indirect association between the two variables (Beck and Webb, 2003; Savvides, 2006). Buyers have preference for saving substitutes if return on life insurance products is lower relative to the substitutes (Redzuan *et al.*, 2009).

Depamphills, (1975), Mantis and Farmer, (1968), Outreville, (1996) and Ward and Zurbruegg, (2002) established a positive relationship between price of insurance and life insurance consumption, though Hwang and Greenford, (2005) observed that the lower the price of insurance, the higher its expected demand. However, Sen and Madheswaran, (2007) concluded that price does not significantly affect life insurance demand at all.

3. METHODOLOGY

3.1 Data Type

This study is based on a sample survey where questionnaires were administered to a sample of 200 respondents aged 15years and above (insurable age) who were of sound mind in the Tamale Metropolis, the Northern regional capital. Respondents were owners and potential owners of life insurance policies. The sample which reflects the diverse communities in the Metropolis was obtained using two-stage cluster sampling method. In addition, qualitative and quantitative analysis was also employed.

3.2 Methods of Data Analysis

3.2.1 The Binary Logistic Regression Model

Binary logistic regression estimates the probability that a characteristic is present (e.g. estimates the probability of "success") given the values of explanatory variables. Since the study is based on a current status data, we can only determine whether a respondent owns a life insurance policy or not. Therefore the dependent variable in this study is ownership of life insurance.

Assuming Y_i (binary dependent variable) is the observed reaction of each sample population (i^{th} observation). Thus, Y_i can be defined as follows;

$$Y_i = \begin{cases} 1, & if \ \ a\ respondent\ has\ or\ owns\ a\ life\ insurance\ policy \\ 0, & otherwise \end{cases}$$

Let $X = (X_1, X_{2.....}X_i)$ be the set of explanatory variables and $\beta = \beta_0, \beta_1....., \beta_k$ are the unknown parameters of the explanatory variables.

This can be expressed as:

$$Y_i = \beta_0 + \beta_1 X_1 + ... + \beta_k X_{ik} \qquad \text{for i= 1… 15 and k = 0, 1...15} \tag{1}$$

The probability of owning a life insurance policy (π_i) is given by:

$$\pi_i = P(Y_i = 1 | X_i = x_i) = \frac{e^{Y_i}}{1+e^{Y_i}} = \frac{1}{1+e^{-Y_I}} = \frac{1}{1+e^{-(\beta_0+\beta_1 X_1+.....+\beta_k X_{ik})}} \tag{2}$$

The odd of owning a life insurance policy which is defined as the ratio of the probability of owning to the probability of not owning is given by:

$$odds_i = \frac{\pi_i}{1-\pi_i} = \frac{\mathrm{P(Y=1)}}{1-\mathrm{P(Y=1)}} \tag{3}$$

Because the independent variables X_i is not linear in $\pi_i(x_i)$ we need to transform equation (3) using logit function which is simplified as;

$$\ln\left(\frac{\pi_i}{1-\pi_i}\right) = \ln\left(\frac{\mathrm{P(Y=1)}}{1-\mathrm{P(Y=1)}}\right) = \beta_0 + \beta_1 X_1 + ... + \beta_k X_{ik} \tag{4}$$

Where;

X_1= age of respondent; X_2=gender of respondent (coded: 0 if male and 1 if female); X_3= religion of respondent (0 if Christian, 1 if Muslim and 2 if Traditionalist);

X_4= Mmrital status of respondent equals (0 if married, 1 if single, 2 if divorced and 3 if widow/widower); X_5=number of dependents of respondent;

X_6= educational level of respondent equals (0 if basic, 1 if Sec/Tech./Vocational, 2 if tertiary and 3 if none); X_7= employment status of respondent (0 if public servant, 1 if private sector employee, 2 if self-employed and 3 if unemployed);

X_8= life insurance knowledge of respondent (0 if YES and 1 if NO); X_9= respondent's rating of life insurance firms (0 if Excellent, 1 if Very good, 2 if Good and 3 if Bad)

X_{10}= income level of respondent (0 if YES and 1 if NO); X_{11}= level of savings of respondent (0 if YES and 1 if NO);

X_{12}= premium level/price of insurance (0 if YES and 1 if NO); X_{13}= easy access to life insurance products (0 if YES and 1 if NO);

X_{14}= flexible terms of premium payment (0 if YES and 1 if NO); X_{15}= easy access to claims when due (0 if YES and 1 if NO)

3.3 Estimation Method

Considering the dependent variable defined as Y_i which only takes the outcome values 0 and 1, estimating the parameters β_k using Ordinary Least Squares (OLS) is not appropriate. The Maximum Likelihood (ML) method is therefore adopted. The ML estimates the parameter values for which the probability of the observed data is greatest. An extensive literature has been devoted so far to statistical inference in logistic regression models (Diop *et al.*, 2011). In particular, the maximum likelihood estimator of β_k is obtained by solving the following score equation (Diop *et al.*, 2011). Also, see Hosmer and Lemeshow, (2000) and Hilbe, (2009) for detailed treatments and numerous examples.

$$\sum_{i=1}^{n} X_i \left(Y_i - \frac{\ell^{Y_i}}{1+\ell^{Y_i}} \right) \tag{5}$$

It must be noted however that, solving the above equation is complex. Numerical optimization is therefore required. In this study, SPSS is adopted to estimate the parameters. A number of SPSS procedures usually in combination with Fisher scoring provide ML estimation via Newton-Raphson algorithms.

4. DATA ANALYSIS AND DISCUSSION OF RESULTS

4.1 Descriptive Statistics

From Table 1 below, the average insurable age of the sampled respondents is about 33 years and a minimum and maximum ages of 15 years and 70 years respectively. Also, the average economic dependency of the respondents is three (3) persons and a maximum of thirteen (13) dependents. This clearly reflects the extended family system of the Northern region and thus, few working hands may be responsible for many dependents.

Table 1
Descriptive Statistics

Variable	Min.	Max.	Mean
AGE	15	70	33
Number of dependents	0	13	3

Source: Researcher's Survey Data, (2018)

Table 2 gives the summary statistics of the categorical variables. It was seen that, out of the 200 sampled respondents, males constituted the majority (126 males) representing 63%, while their female counterparts accounted for 37%. Also, 64% of the respondents were Muslims, while 35.5% and 0.5% were Christians and Traditionalists respectively. This clearly

reflects the general believe that, the Northern region of Ghana is dominated by people of the Islamic faith (Muslims). It was also noted that, out of the total sampled respondents, 57% were married, while 40.5%, 1% and 1.5% were single, divorced and Widows/widowers respectively. On educational level of respondents, 73.5% attained tertiary education, 16% and 4.5% had Secondary/Tech/Vocational and basic education respectively, while the remaining 6% had no formal education. Moreover, 43%, 17.5% and 15.5% were public servants, private sector employees and self-employed respectively, while 24% were unemployed. Also, 78% of the respondents said they had an idea about life insurance, while 22% said they had no idea about life insurance. Further, 43% perceived the services of insurance firms as good, while 30% and 16.5% perceived the services of insurance firms as very good and excellent respectively. However, 10.5% of the respondents perceived the services of insurance firms as bad. On ownership of life insurance policy, only 49.5% owned a life policy while 50.1% did not own life insurance cover. It was also revealed that, 24.5%, 13.5% and 11.5% of the sampled respondents owned Endowment, Term life and Whole life policies respectively.

Table 2
Characteristics of respondents

Variable	Freq.	Per. (%)	Variable	Freq.	Per. (%)
Gender			**Idea of Life Insurance**		
Male	126	63	Yes	156	78
Female	74	37	No	44	22
Religion			**Services of Insurance Firms**		
Christianity	71	35.5	Excellent	33	16.5
Islamic	128	64	Very Good	60	30
Traditional	1	0.5	Good	86	43
Marital Status			Bad	21	10.5
			Ownership of Life Policy		
Married	114	57			
Single	81	40.5	Yes	99	49.5
Divorced	2	1	No	101	50.5
Widow/Widower	3	1.5	**Policy Type**		
Educational Level			Endowment	49	24.5
Basic	9	4.5	Term	27	13.5
Secondary/Tech/Voc.	32	16	Whole Life	23	11.5
Tertiary	147	73.5			
None	12	6			
Employment Sector					
Public servant	86	43			
Private sector employee	35	17.5			
Self-employed	31	15.5			
Unemployed	48	24			

Source: Researcher's Survey Data, (2018)

4.1.1 Chi-Square Test of Independence

To have a preliminary view of the association of each independent variable with the demand for life insurance, the Chi-square test of independence was carried out From Table 3. It was found that, educational level, employment status, idea of life insurance, perception about

services of insurance firms and easy access to claims when due had a significant relationship with the demand for life insurance at 1% significance level while marital status and number of dependents were significant at 5%.

Table 3
Chi-Square Tests of Independence

Independent Variables	Chi-Square-statistic	P-value
Age	44.7201	0.3583
Gender	1.6387	0.2005
Religion	1.6135	0.4463
Marital Status	9.2675	0.0259**
Number of Dependents	22.1693	0.0231**
Educational Level	26.7038	0.0000*
Employment Sector	58.9466	0.0000*
Idea of Life Insurance	22.1337	0.0000*
Services of Insurance Firms	23.0127	0.0000*
Income Level	0.0631	0.8016
Current Level of Savings	0.0601	0.8063
Price of Policy	0.4967	0.4810
Easy Access to insurance products	0.3199	0.5717
Flexible Terms of Premium Payments	4.1151	0.1278
Easy Access to Benefits when Due	12.8218	0.0003*

***** Significant at 1%; ** Significant at 5% Source: Researcher's Survey Data, (2018)

4.2 Further Analysis: Binary Logistic Model

To further investigate the relationship between the covariates and the demand for life insurance policy, a binary logistic regression was estimated at 5% level of significance. The dependent variable was (Ownership of life insurance policy) with a binary response variable of YES/NO, while the explanatory variables considered were (age, gender**,** religion**,** marital status, educational level**,** employment sector, number of dependents, idea of life insurance, perception about the services of insurance firms, income level, level of savings, premium level/price of insurance, easy access to life insurance products, flexible terms of premium payment and easy access to claims when due).

To determine the significance or otherwise of the fitted binary logistic model, the following hypothesis was used;

$H_0 : \beta_0 = \beta_1 = \beta_2 = \beta_3 = ... = \beta_n = 0$

$H_1 : \beta_0 = \beta_1 = \beta_2 = \beta_3 = ... = \beta_n \neq 0$.

The regression model is insignificant for the null hypothesis (H_0) as against the alternative hypothesis (H_1) that the model is significant at 5% significance level. The decision is to reject H_0 if the p-value is less than 0.05.

From Table 4 which gives the Omnibus test of model coefficients, the binary logistic model fitted was significant at 5% significance level, since the p-value (0.0000) of the test

was less than 0.05. We therefore reject the null hypothesis and conclude that, at least one or more of the coefficients are not equal to zero and thus, the explanatory variables considered explain a significant part of variation in the dependent variable (ownership of life insurance policy) in the Northern region of Ghana. Although the Cox & Snell's R^2 was 0.4329, the Nagelkerke's R^2 was 0.5772, indicating that the independent variables adds about 58% to the odds of owning a life insurance policy. Thus, the model was good.

Table 4
Omnibus Test of Model Coefficients

Chi-square	p- Value	-2Log likelihood	Cox & Snell R Square	Nagelkerke R Square
113.4493914	0.0000	163.79	0.4329	0.5772

Source: Researcher's Survey Data, (2018)

The estimates of the Binary Logistic regression parameters are shown in Table 5. A positive coefficient means that, an increase in the independent variable increases the odds (chances) of purchasing a life policy, while a negative coefficient indicates that, an increase in the independent variable decreases the odds of purchasing a life policy. Relatively, at the given significance level, an odd ratio greater than 1 means that, the variable concerned increases the odds (chances) of demanding for life insurance as against the reference variable. Conversely, an odd ratio less than 1 means that, the variable concerned decreases the odds of demanding for life insurance relative to the reference variable, holding the other independent variables fixed at a given value.

From Table 5 below, it was found that, the demand for life insurance was statistically significantly influenced by; easy access to claim when due, perceptions about services of insurance firms and employment status of respondents at 5% significance level. Further, respondents who said NO (thus, easy access to their claims when due will not determine their decision to buy a life insurance policy) are 82% (odd ratio of 1.8188) more likely to buy life insurance policies compared to those who said YES (it is a key factor they will consider when buying a life insurance policy). Also, poor perceptions of people about the services of insurance firms was found to add less to the chance of purchasing a life policy (thus, reducing the chance of a potential customer buying a life policy) by about 82% (0.1753) for bad compared to 85% (01513) for good, 94% (0.0612) for very good and all compared to excellent. This means that the more people negatively perceive the services of insurances firms, the less likely they are to buy life insurance. The unemployed, private sector employees and the self-employed add about 82%, 95% and 97% respectively less to the odds of buying life insurance compared to employees in the public sector.

Conversely age, number of dependents, religion and gender were statistically insignificant at 5% significance level as shown in Table 5 below. However, increasing age by one year increases the chance of purchasing a life insurance policy by 0.1%. Moreover, increasing the number of dependents by one person, adds about 11% to the chance of taking a life insurance policy. Also, Females have about 89% chance of buying life insurance than their male counterparts and even so, Christians and Traditionalist are about 99% and 84% respectively more likely to purchase life insurance compared to Muslims.

More so, from Table 5, marital status, educational level, idea of life insurance, income level, level of savings, premium level/price of insurance, easy access to life insurance products and flexible terms of premium payment were statistically insignificant at 5% significance level. Further, singles, widows/widowers and divorcees were found less likely to demand for life insurance relative to their married counterparts as given by the odd ratios 0.3947, 0.4140 and 0.5785 respectively. Higher educational level surprisingly, was found to add less to the odds of buying life insurance compared to basic education. Also, given the odd ratio 0.4696, people who have no idea about life insurance were found to add less to the odds of buying life policies relative to people who have idea about life insurance. Other variables found insignificant and add less to the odds of taking life insurance as given by their odd ratios were, income level, level of savings, Easy access to life insurance products, price of life insurance policies and Flexible terms of premium payment.

Table 5
Parameter Estimates

Variable		B	Sig.	Exp.(B)/Odds
Employment	Private	-3.0984	0.0000*	0.0451
(Public)	Self-employed	-3.3761	0.0000*	0.0342
	Unemployed	-1.6969	0.0313**	0.1832
Services	Very Good	-2.7941	0.0024*	0.0612
(Excellent)	Good	-1.8887	0.0172**	0.1513
	Bad	-1.741	0.0227**	0.1753
Easy Access to Claims(Yes)		1.3399	0.0217**	1.8188
Age		0.0010	0.9941	1.0010
Number of Dependents		0.1009	0.4652	1.1061
Religion	Christianity	4.9126	0.9999	1.9877
(Islamic)	Traditional	4.9961	0.9999	1.8422
Gender (Male)	Female	0.6385	0.1591	1.8936
Marital Status	Single	-0.9295	0.6011	0.3947
(Married)	Divorced	-0.5474	0.7684	0.5785
	Widow/Widower	-0.8819	0.7521	0.4140
Educational Level (Basic)	Secondary/Tech/ Vocational	-20.2270	0.9985	0.0150
	Tertiary	-19.7850	0.9986	0.0310
	None	-20.7000	0.9985	0.0020
Idea of Life Insurance (Yes)		-0.7560	0.2467	0.4696
Income (Yes)		-0.0750	0.9149	0.9277
Current Level of Savings (Yes)		-0.7254	0.1958	0.4841
Price of Policy (Yes)		-0.1119	0.8303	0.8941
Easy Access to Insurance Products (Yes)		-0.0521	0.9167	0.9493
Flexible Terms of Prem. Payment (Yes)		-0.6774	0.2914	0.5080

***** Significant at 1%; ** Significant at 5% Source: Researcher's Survey Data, (2018)

4.3 Discussion of Findings

The results of the multivariate analysis of the determinants of the demand for life insurance using the Logistic regression model showed that, the demand for life insurance is statistically significantly influenced by; easy access to claim when due, perceptions about

services of insurance firms and employment status. Thus, the more claims processing procedures are made more convenient, less time-consuming and claims satisfactorily paid in time to customers at no extra costs, the more the demand for life insurance. The issue of claims payments from customers' perspective could be either claims take longer days to be processed or they do not meet their expectations when paid. This result is consistent with the findings of Wireko, (2016).

Also, people who had poor perception about the services of insurance firms are less likely to purchase life insurance policies compared to people who had better perceptions about the operations of insurance firms. The reason could be that people with poor perceptions about the services of insurance firms may feel they are being cheated by service providers and hence less likely to buy life insurance. Similarly, Sarkodie and Yusif, (2015) and Francis, *et al*., (2017) found that better perception about insurance firms increases the likelihood of demanding for life insurance.

More so, public sector employees were more likely to demand for life insurance compared to the self-employed, private sector employees and the unemployed as seen in the study. This could be attributed to the fact that, the public sector is the largest employer in Ghana and provides secured and stable income compared to other sectors, hence employees will be more confident of their earnings, thus may be capable and willing to enter into long term contracts. This agrees with Black and Skipper, (1993), Wireko, (2016), Savvides, (2006) and Fofie, (2016), who found that, employment increases the odds of buying life insurance. However, Freeman, *et al*., (2015) found a high patronage level of life insurance policy among bankers and high earning workers.

Even though age was statistically insignificant, it was found to be positively related to the demand for life insurance. Thus, as age increases, the demand for life insurance increases. This may be attributed to the need for individuals as they age, to meet their basic needs and that of their dependents like shelter, higher education and saving for retirement purposes. Thus, they may purchase life insurance policies like Endowment that match their investment objectives given the average insurable age of about 33 years. Berekson, (1969), Fofie, (2016), Ibok, (2006) and Wireko, (2016) identified age as a statistically significant variable and positively related to insurance demand. However, Savvides, (2006), Hau, (2000), Liebenberg, *et al*., (2010), Goldsmith, (1983) and Sarkodie and Yusif, (2015) found age to be negatively related to life insurance demand.

Also, females were found more likely to purchase life insurance policies than their male counterparts, though gender is insignificant. This can be attributed to the fact that, females naturally are more risk averse compared to their male counterparts, hence their willingness to buy life policies to secure the financial future of their dependents. On the contrary, Sarkodie and Yusif, (2015) found that, males add more to the odds of taking life insurance than females. However, Francis, *et al.,* (2017) and Fofie, (2016) found gender to have significant positive relationship with the demand for life insurance.

Respondents of the Christian and Traditional faiths though insignificant, were found more likely to purchase life insurance relative to people of the Islamic faith. This may be attributed to the teachings of the Islamic religion that discourage its believers from transacting in interest-related (Rib bah) businesses as the study area is dominated by Muslims, hence may add less to the odds of buying life insurance which indirectly is linked to investments with interest. Similarly, Ibok, (2012) found religion as having no significant effect on insurance consumption. Even though, Francis, *et al.,* (2017) and Juetting, (2003) found a significant

relationship between religion and insurance patronage, Guyo and Adan, (2013) and Wireko, (2016) observed that religion variable had the least influence on insurance consumption.

Again, number of dependents was found statistically insignificant but positively related to the demand for life insurance. This means an increase in the number of dependents increases the demand for life insurance. This relationship is expected, since the desire to have life insurance coverage to cater for the financial security of survivors may increase accordingly and thereby impacting on life insurance demand.

Married individuals, though not significant were also found more likely to buy life insurance than their unmarried counterparts. This could be attributed to married individuals becoming more risk conscious and concerned about their survivors, thus adopting means to save for the financial security of their survivors relative to their unmarried counterparts, hence increasing the odds of buying life insurance.

Moreover, higher educational level surprisingly, was found to be statistically insignificant and add less to the odds of buying life insurance compared to basic education. This could be that, people may have had education on life insurance from other sources like through agents other than the formal education system, hence may not fully appreciate the benefits and need to voluntarily purchase life insurance without the pursuit of sales agents. Laurent and Kivyiro, (2015) also found level of education to be inversely related to life insurance penetration in South Africa, which they said is beyond their expectations.

Also, Lack of idea about life insurance, however insignificant reduces the chance of buying life insurance policy. Thus, the more people have idea about life insurance, the more likely they are to buy life policies. People without idea of life insurance may hold a blind eye to how insurance benefit participants and its contribution to the economy, compared to people who have idea about life insurance.

Other insignificant variables negatively related to the demand for life insurance are income level, Level of savings, Premium level/Price of insurance, Easy access to Life insurance products and Flexible terms of premium payment. Though income level has been found to be negatively related to the demand for life insurance, Wireko, (2016), Sarkodie and Yusif, (2015), Francis, *et al.,* (2017), Freeman, *et al*, (2015), Babbel, (1981) and Lewis, (1989) found income as having a positive significant effect on the demand for life insurance. However, the findings of Beck and Webb, (2003) and Savvides, (2006) contradict that. On Premium level/Price of insurance, Hwang and Greenford, (2005), Freeman, *et al*, (2015) and Wireko, (2016) found that the lower the price of insurance, the higher the expected demand. However, Sen and Madheswaran, (2007) concluded that price does not affect life insurance demand at all.

5. CONCLUSION AND RECCOMMENDATIONS

The main objective of this study was to investigate the determinants of life insurance demand in the Northern region of Ghana. The study found that, over fifty percent (50.5%) of people of the insurable age do not own a life policy and that Endowment policy is the highly purchased life insurance policy in the metropolis compared to Term and Whole life policies. Hence, insurance companies should improve their marketing strategies in order to increase the patronage of life insurance policies in the Northern region. The Whole and Term life policies should be redesigned to reflect the growing needs of potential customers so as to improve their patronage.

Also, people with better perceptions about the services of insurance firms were found more likely to purchase life insurance compared to people with bad perceptions. Thus, consumers' perceptions about the services of insurance providers influence their patronage of life insurance products. Customer services should therefore be improved and sales agents constantly trained for improved better perceptions about life insurance companies.

On economic factors, employment and easy access to claims when due were found to be statistically significantly related to the demand for life insurance and employees in the public sector are found more likely to purchase life insurance compared to other employees and the unemployed. Segmenting potential customers into different groups by using the sector of employment as basis of segmentation could help insurance firms to easily identify potential customers and prescribe policies appropriately. Also, the process involved in accessing claims should be made easier and convenient so as to encourage a lot of people to patronize life insurance products. Also, creating employment opportunities in the public sector can help improve life insurance penetration in the country.

The study found no statistically significant relationship among socio-demographic factors and the demand for life insurance. However, age and number of dependents were found to be positively related to the demand for life insurance. Also, females, Christians as well as married persons were found to have higher odds of taking life insurance. Idea about life insurance was found insignificant and hence, does not influence life insurance demand. However, people with no idea about life insurance were found less likely to purchase life policies compared to their counterparts who have idea about life insurance.

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