National health insurance scheme renewal in Ghana: Does waiting time at health insurance registration office matter?

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1 January 2019

NATIONAL HEALTH INSURANCE SCHEME RENEWAL IN GHANA: DOES WAITING TIME AT HEALTH INSURANCE REGISTRATION OFFICE MATTER?

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Abstract

The study examined effect of waiting time at national health insurance registration office on national health insurance renewal in Ghana and also, estimated acceptable waiting time at national health insurance registration office. A secondary data collected from 1009 individuals by PhD candidate at University of Cape Coast, Ghana was used for this study. The sample size used for this study was 636 and binary logit model was used to examine the effect of waiting time at national health insurance scheme office on renewal of national health insurance policy. The study found that waiting time at national health insurance scheme registration office/centre has a negative influence on individual's decision to renew NHIS policy. The desired (acceptable) waiting time at NHIS registration centre is 2 hours 45 minutes (147 minutes). This means that individuals who spend less than 2 hours 45 minutes are more likely to renew their NHIS policy when the policy expires. This study recommends that National Health Insurance Authority should develop software (an App) that an individual can use to renew his/her NHIS membership when his/her membership expires without visiting NHIS registration office.

Keywords: National health insurance scheme, waiting time and health insurance renewal.

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INTRODUCTION

The government of Ghana passed the National Health Insurance Scheme Act (Act 560) in 2003 and implemented in 2005 with the aim of making formal healthcare more affordable and accessible. The motive of introducing National health insurance scheme was to abolish the user fees that led to led to drastic drop in attendance at formal healthcare facilities, increase in self-medication and use of herbal medical practitioners was widespread because of people inability to pay user fees at the orthodox healthcare facilities (Asenso-Okyere et al., 1998). During the launching of the scheme in March 2004, the policy objective of the scheme was that within the following 5 years, every resident of Ghana would belong to a health insurance

scheme that adequately covered him or her against the need to pay out of pocket at the point of service delivery (Agyepong & Adjei, 2008).

However, NHIS 2010 annual reports indicated that the active members of NHIS were 8,163,714 representing 34% of the population in 2010. Also, during the 10th anniversary of the scheme, National health insurance Authority (NHIA) clarified that, cumulatively, the NHIS has had 22 million subscribers since its inception in 2003 but 9 million remain active members (Dapatem, 2013; Mahama, 2013). Based on these statistics, it can be said that the policy objective has not yet been met after the ten years in existence not because people are not willing to subscribe but most subscribers are not renewing their membership.

Although many researchers (Atinga et al., 2015; Awudu, 2016; Boateng & Awunyor-Vitor, 2013) have done studies on NHIS renewal in Ghana, to the best of my knowledge none of these researchers examined effect of waiting time at NHIS registration office on individual's decision to renew NHIS policy. Waiting time at the office can reduce economic activity as a result of an individual being unable to participate in the labour force leading to direct loss in man hours and loss of production as well as broader reduction in economic activity.

Martin and Smith (1999) reported that waiting time at a place imposes an opportunity cost on those in the queue in the form of wasted time. Amakom (2008) argued that "time is Wealth" and it implies that individuals could not afford to persistently wait in service outlets to be served without losing enormous amount of income. Also, about 86 % of the employed persons within the age category 15-64 years in Ghana are found in the private informal sector (GSS, 2012) and therefore waiting for a longer period of time at NHIS registration office/centre can affect their businesses negatively. Therefore, this current study examines effect of waiting time at national health insurance registration office on health insurance renewal in selected regions in Ghana, estimates acceptable waiting time at national health insurance registration

office and also, identifies reasons why individuals do not renew their insurance policy when it expires.

Empirical Literature Review on determinants of health insurance renewal

Studies on renewal of health insurance policies are very few. It is generally assumed that factors affecting the purchase will affect the renewal decision but Bhat and Jain (2007) conducted a study in India and found that factors affecting health insurance renewal are not the same as factors affecting health insurance enrolment.

Bhat and Jain (2007) conducted a study in India on factors affecting the renewal of health insurance policy. Binary discrete choice modelling was used for the study. The dependent variable was a binary variable, which took value of one if insurance policy has been renewed and zero if health insurance policy has not been renewed. Their study found education to be statistically significant factor in renewal decision. This means that Households having higher education levels have higher probability of renewing the insurance policy. Age dummy was significant for all ages except higher age groups. Coverage of illnesses and coverage of services were statistically significant. This indicates that if consumer perceives insurance plan is providing good coverage then there is higher chance of renewal of insurance policy.

Although the study was exploratory attempt to understand the factors which affect renewal decision in the health insurance market, the sample size for the study was small and also variables like travel time to the nearest health insurance registration centre, travel time to the nearest healthcare facility and marital status were not included in the study.

In Ghana, Atinga et al. (2015) conducted a study on factors influencing the decision to drop out of health insurance enrolment among urban slum dwellers in Ghana. The objective of the study was to identify the factors influencing dropout from Ghana's health insurance scheme among populations living in slum communities. The study used Cross-sectional data which was

collected from residents of 22 slums in the Accra Metropolitan Assembly. The researchers used cluster and systematic random sampling techniques to select 600 individuals who had dropped out from the scheme 6 months prior to the study.

The study found that non-affordability of premium was the predominant reason for dropping out followed by rare illness episodes, limited benefits of the scheme and poor service quality. Low-income earners and those with low education were significantly more likely to report premium non-affordability. Rare illness was a common reason among younger respondents, informal sector workers and respondents with higher education. All subgroups of age, education, occupation and income reported nominal benefits of the scheme as a reason for dropout. The first limitation of the study is that the study only concentrated on those who had dropped out from the scheme and therefore was not able to identify factors that will influence renewal of health insurance policy. Secondly, the study focused on slums in Accra Metropolitan Assembly and not all the residents of the metropolitan. Therefore, the findings cannot even be generalised for residents in the Metropolitan.

Awudu (2016) employed cross-sectional quantitative method to assess individual, provider and scheme related factors that influence renewal of health insurance membership in the East Gonja District. The sample size used for the study was 380 National Health Insurance Scheme subscribers. The 380 respondents were interviewed from 1st June to 1st July, 2016. His study found that out of the 380 respondents used for the study, 264 (69.5%) were active members of the scheme whilst 116(30.5%) failed to renew their membership. The study demonstrates that NHIS members" knowledge of their card's expiry date has the strongest association (p=0.001) with the decision to renew insurance subscription.

Factors that were found not to influence insurance renewal decisions were age, gender, marital status, and educational level, scheme staff attitude, benefit package and premium price, waiting time at healthcare facility, provider staff attitude, drug availability and distance to

facility. However, this study did not look at waiting time at NHIS registration centre as a variable that can influence NHIS renewal.

Boateng and Awunyor-Vitor (2013) conducted a study in Ghana to assess individual's attitude towards health insurance policy and the factors that influence respondents' decision to renew their health insurance policy when it expires. The study was conducted in Volta Region of Ghana and 300 individuals were interview. Their study employed logistic regression model to assess factors that influence respondents' decision to take up health insurance policy and renew it. Boateng and Awunyor-Vitor found that 61.1% of respondents used for their study were insured, 23.9% had not renewed their insurance after enrolment and 15% had never enrolled. Reasons cited for non-renewal of insurance included poor service quality (58%), lack of money (49%) and taste of other sources of care (23%).

The study also found that gender, marital status, religion and perception of health status of respondents are the main variables that influence individual's decision to enrol and remain in NHIS. Respondents who disagreed to the assertion that joining the scheme stands to benefit them were less likely to renew their insurance. They reported that, respondents who disagreed to the assertion that joining the scheme stands to benefit them were less likely to renew their insurance and respondents who did not view the insurance premium as high were 2.5 times more likely to renew their insurance.

Duku, Asenso-Boadi, Nketiah-Amponsah and Arhinful (2016) conducted a study on the topic "utilisation of healthcare services and renewal of health insurance membership: evidence of adverse selection in Ghana''. Their study investigated the presence of adverse selection by assessing the effect of healthcare utilisation and frequency of use on NHIS renewal. They employed Pearson Chi-square test to test if the proportion of insured who utilise healthcare in a particular year and renew membership the following year was significantly different from those who utilise healthcare and drop-out.

Logistic regressions were also estimated to examine the relationship between healthcare utilisation and frequency of use in previous year and health insurance renewal in the current year. Duku et al. (2016) found evidence suggestive of the presence of adverse selection in the NHIS. According to them, majority of insured who utilised healthcare renewed their membership whiles most of those who did not utilise healthcare dropped out. In other words, the likelihood of renewal was higher for those who utilise healthcare than those who did not and also higher for those who make more health facility visits

METHODOLOGY

This section focused on source of data used for this study, estimation technique used and the empirical model used for this study.

Source of Data

A secondary data collected from 1009 individuals by PhD candidate at University of Cape Coast, Ghana in 2016 was used for this study. The researcher collected data from individuals who have suffered illness within the three months preceding the data collection. The researcher collected information on national health insurance status of the respondents which was captured as currently insured, previously insured (those who have dropped out and are not active members of the scheme) and never enrolled. This study used currently insured who have renewed their insurance and those who dropped out. The variable renewal was measured as renewed and not renewed (dropped out). Individuals who have renewed their NHIS policy were 331 and those who have not renewed their NHIS policy were 305. Therefore, the total sample size used for this study was 636.

The regions in Ghana were divided into three ecological zones using Ghana statistical service demarcation used in their periodic living standard survey since 1998. These three ecological zones were Savannah, forest and coastal zones. he selected a region from each zone since regions in a zone have similar characteristics. The Regions selected were Ashanti Region,

Upper East Region and Central Region. Again, based on the renewal rate of the districts in each of the selected regions, purposive sampling technique was employed to select the district that had the highest renewal rate and the district that had the lowest renewal rate in each of the selected regions. Therefore, two districts were selected from each Region, giving us a total of six districts. The districts selected were Assin North Municipal, Asikuma-Odoben-Brakwa, Asante Akim South, Adansi South, Kasena Nankana East and Bolgatanga Municipal.

Binary Logit Model for Health Insurance Renewal

Individual's decision to renew Health insurance policy is a dichotomous variable and therefore according to Gujarati (2002), the commonly used models when the dependent variable is dichotomous are the binary logit and probit models. The probit and logit models are indistinguishable from each other except for their tails in which the logit has fatter tails. The choice between logit and probit models is largely one of convenience and convention, since the substantive results generated are indistinguishable. For the purpose of this study the logit model is preferred because it is computationally simpler. The probit model was not used because of the nature of the variables used in the study since it assumes cumulative normal distribution (Nketiah-Amponsah, 2009). To determine the probability that the *i*th individual renew his/her health insurance policy, the functional form for the logit model can be expressed as follows;

$$P_i = (y = 1 | x_i) = \frac{\exp(x_i \beta)}{1 + \exp(x_i \beta)} \ldots\ldots\ldots (1)$$

Where $Xi\beta_j = \beta_1 + \beta_2 X_2 \ldots \beta_k X_k$

Based on equation (6), the probability of the ith individual not renewing his/her health insurance policy can be stated as:

$$1 - P_i = \frac{1}{1 + \exp(x_i \beta)} \ldots\ldots\ldots\ldots (2)$$

We can, therefore write

$$\frac{P_i}{1 - P_i} = \exp(x_i\beta)\dots\dots\dots\dots\dots(3)$$

By taking the natural log of equation (8) we obtained the logistic function

$$L_i = In[\frac{P_i}{1 - P_i}] = \alpha + x_i\beta + \varepsilon_i\dots\dots\dots\dots\dots(4)$$

Where ln= natural logarithms; P_i represents the probability of the ith individual renewing his/her health insurance policy, $(1-P_i)$ = ith individual does not renew his/her health insurance policy; x_i is the vector of explanatory variables; β is the parameters to be estimated and ε_i is the stochastic error term. The stochastic error term component captures errors in model specification including omission of relevant variables and errors in data measurement.

According to Nketiah-Amponsah (2009), logistic regression enables researchers to predict a discrete outcome such as the subscription of health insurance from a group of variables that may be continuous, discrete, and dichotomous or a combination of these. The predictor variable in logistic regression can take any form because it makes no assumption about the distribution of the independent variables (they do not have to be normally distributed, linearly related or of equal variance within each group).

Empirical Model Specification

To determine the probability that ith individual renews his/her national health insurance policy, the empirical model for binary logit model to be estimated was specified as follows:

$P_{ij} = \beta_0 + \beta_1 Age_i + \beta_2 whopaid_i + \beta_3 Educ_i + \beta_4 TF_i + \beta_5 schemebenefit_i + \beta_6 ppremium_i + \beta_7 marital_i + \beta_8 employ_i + \beta_9 chronicdisease_i + \beta_{10} Region_i + \beta_{11} WTNHIS_i + \varepsilon_i\dots\dots\dots\dots\dots(5)$

Where: $P_{ij} = 1$ if individual 'i' has renewed his/her national insurance (j = 1) and equals zero otherwise (j = 0), whopaid= who actual paid the premium, educ = educational attainment of

the individual, *Marital= marital status of the* individual, employ =employment status of the individual, pprem= individual perception about the premium, TF= travel time to formal healthcare facility and schemebenefit= whether the individual 'i' has benefited from the scheme before. WTNHIS= waiting time at NHIS registration centre, Region= sector an individual is coming from and chronic disease = whether the individual is suffering from chronic disease or not.

The explanatory variables used for this study were selected based on the study hypothesis, theory, relevant general empirical knowledge and the needs of the model. Also, individual perception about the premium was used as a proxy for insurance premium since there is often limited variation in price in highly regulated health insurance markets such as a public health scheme.

Table 1: *Measurement of Variables in the Renewal Regression*

Variable	Expected signs	Measurement
Dependent variable		
P_{ij}	Dependent variable	0 = individual has not renewed insurance policy
		1 = individual has renewed insurance policy
Independent variables		
age	Positive	years
educ	Positive/Negative	0 = no schooling
		1 = primary school
		2 = JSS/JHS/Middle
		3 = SHS/Tec/Voc
		4 = tertiary
marital	Positive	0= not married

		1= married
Ppremium	Positive/Negative	0 = cheap
		1 = moderate
		2=expensive
TF	Negative	Travel time to facility
employ	Positive/Negative	0= unemployed
		1=employed in informal sector, 2= employed in formal sector
sector		1=Southern, 2= Central
	Positive/negative	3= Northern sector
Inc	positive	Income of the respondent in cedis
Chronic disease	Positive	1= respondent has chronic disease, 0=otherwise
WTNHIS	Negative	minutes
		1= individual has benefited from the scheme, 0= otherwise
Sechemebenefit	Positive	1=individual himself/herself, 2=SSNIT, 3=NGO/institution, 4= family/friends
whopaid	Positive/negative	

Source: Author's construct, 2018

RESULTS AND DISCUSSIONS

This sub section discusses the main factors that influence an individual's decision to renew his

or her national health insurance policy and reasons why individuals did not renew NHIS policy

when expired.

Effect of Waiting Time on National Health Insurance Scheme Renewal

The individual's decision to renew his/her national health insurance scheme policy or not was hypothesised to depend on characteristics of the individual (H), community characteristics (Z) and national health insurance scheme characteristics. These individual, community and NHIS characteristics include age, sex, educational attainment of the individual, marital status of the individual, employment status, travel time to the nearest formal healthcare facility, waiting time at NHIS registration centre, squared waiting time at NHIS registration centre, individual's perception about the health insurance premium and travel time to the nearest NHIS registration centre.

The binary logit model specified in equation (5) was used to estimate factors that influence individual's decision to renew his or her NHIS policy. In order to ensure that no two variables are linearly dependent, the multicollinearity test was done. Multicollinearity in a regression framework refers to a situation where one of the predictors in the model is linearly dependent on other predictor. The linear dependency may be caused by one predictor being exact duplicate of another predictor or by one predictor being equal to a linear combination of other predictors. In logistic regression model, multicollinearity is a result of strong correlation between independent variables and its existence inflates the variances of the parameter estimates.

Table 2: *Marginal Effect of Factors that Influence individual's decision to Renew NHIS policy*

Variable	Marginal Effect	P-Value
age	0.0039**	0.018
	(0.00165)	
Scheme benefit	0.0619*	0.077
	(0.0350)	
Who Paid the Premium		
Family/friend	-0.1626***	0.000
	(0.0441)	
NGO/organisation	-0.2330***	0.000
	(0.0543)	
SSNIT Contribution	0.1574***	0.002
	(0.0500)	
chronicdisease	0.0615*	0.078
	(0.0348)	
wtnhis	0.0046517**	0.017
	(0.00196)	
Wtnhis2	-0.0000158**	0.038
	(7.63e-06)	
married	0.1089***	0.001
	(0.0340)	
Sector		
Northern Sector	0.128***	0.005
	(0.0456)	
Central Sector	0.0791*	0.074
	(0.0443)	
Employment Status		
informal Sector	0.0615	0.207
	(0.0487)	
formal Sector	0.1432**	0.019
	(0.0612)	
Educational level		
Table 2, continued		
Primary	0.1588***	0.002
	(0.0519)	
JSS/middle School	-0.0445	0.364
	(0.0490)	
SSS/Tech/Voc. School	0.2979***	0.000
	(0.0558)	
Tertiary	-0.0700	0.276
	(0.0643)	
Travel time to facility	-0.0036**	0.034

	(0.0017)	
Perception Premium		
Moderate	-0.0002	0.996
	(0.0437)	
Expensive	-0.0696*	0.097
	(0.0419)	

Observations	636	Log pseudolikelihood= -349.829
VIF= 1.04		
Wald chi^2=115.77	Prob > chi^2=0.000	
Pseudo R2= 0.2055		

Source: Field Survey, 2018

The variance inflation factor (VIF) was used to test for multicollinearity. The variance inflation factor with its mean (maximum) value of 1.04 (1.06) indicated no evidence of multicollinearity in the regression model. The implication is that the variables are independent of each other and can be included in the model. With regards to heteroskedasticity, by default, Stata assumes homoscedastic standard errors, so the model was adjusted to account for heteroscedasticity by using heteroscedasticity robust standard errors to deal with the problem of heteroscedasticity (Ronchetti, 1985). ''Robust'' was added to the binary logit model equation in Stata to address the problem of hetereoscedasticity.

The Wald test statistics of the estimated models were significant at one (1) percent level. This means that the independent variables taken together explain an individual's decision to renew his or her NHIS policy. The Pseudo R2 for the model was 0.205 which is less than the 0.33 upper bound R2 for binary choice models (Pindyck & Rubinfeld, 1981). The model also passed the Hosmer- Lemeshow test for goodness-of-fit. linktest command was used to test for model specification. If the model is properly specified, one should not be able to find any additional predictors that are statistically significant except by chance. The emphasis is placed on the linear predicted value squared (_hatsq) in the case of testing for omitted variable (s). If

the hatsq is statistically significant then it means the model is not correctly specified but if the hatsq is not significant then it means the model is correctly specified.

The hat of the binary logit model was _hat: P>|z|= 0.000 which means that it is significant and the hatsq was _hatsq: P>|z|= 0.177 which is insignificant (which is expected). We can therefore say that our model is correctly specified because for an omitted variable case, the _hatsq must also be significant meaning an important variable has been dropped from the binary logit model. In the absence of this problem, we accept the binary logit model as not suffering from omitted variable bias and go ahead with the analysis.

To have more parsimonious model the control variables that were not significant were dropped and estimated again to cross check whether dropping those insignificant variables will affect the model. The variables dropped did not substantially alter our point estimated or hypothesis test results. According to Gujarati (2006), if control variables are not statistically significant and dropping them does not substantially alter our point estimates or hypothesis test results, then dropping them may clarify the model. The variables dropped were sex of the respondent, household size, age squared, income of the respondent and travel time to the nearest national health insurance scheme registration office/centre. The Table 2 shows the marginal effects results of the factors influencing individual's decision to renew NHIS policy.

The results presented in Table 2 indicated that age of the respondent, chronic disease, who paid the premium, waiting time at the NHIS registration centre, benefited from the Scheme, married, employment status, educational attainment, travel time to the nearest formal healthcare facility and perception about the premium are the main factors that influence an individual's decision to renew NHIS policy.

Waiting time at the NHIS registration centre is the main variable of interest. The waiting time at the NHIS registration squared was included in the model because waiting time at the

NHIS registration centre was expected to be non-linearly related to individual's decision to renew NHIS policy when it expires. Waiting time squared was expected to have negative relationship with individual's decision to renew NHIS policy. Both the waiting time at NHIS registration centre and waiting time at NHIS registration centre squared were statistically significant at five (5) percent (P-values = 0.017 and 0.038 respectively).

Waiting time refers to the minutes an individual spends at the NHIS registration centre before he/she will be registered or NHIS policy will be renewed. It is less likely for an individual who spend more time waiting at the NHIS registration centre to renew his/her NHIS policy. Therefore, it implies that an individual who spends fewer minutes at the NHIS registration centre will be more likely to renew NHIS policy. The marginal effect of 0.00465 implies that an initial increase in minute in the waiting time at the NHIS registration centre will increase the probability of an individual renewing NHIS policy by 0.465 percentage point till the waiting time reaches the acceptable (desired) waiting time at NHIS registration centre.

There was the need to calculate the desired (acceptable) waiting time at NHIS registration centre. This calculation helped us to know the maximum waiting time. The desired minutes an individual is expecting to spend at the NHIS office and beyond it we are expecting the probability of the individual renewing NHIS policy to decrease.

$$Desired\ wait\ time\ at\ NHIS\ office = -1.582 + 0.0046517wtnhis - 0.0000158wtnhis^2$$

The -1.582 is the coefficient for the constant, 0.0046517 is the marginal effect for the waiting time and -.0000158 is the marginal effect for waiting time squared.

$$\frac{\partial Desired\ wait\ time\ at\ NHIS\ office}{\partial wtnhis} = 0.0046517 - 0.0000316wtnhis = 0$$

$$0.0046517 = 0.0000316 \text{wtnhis}$$

$$\text{wtnhis} = \frac{0.0046517}{0.0000316} = 147 \min utes$$

$$wtnhis = \frac{147}{60} = 2 \, hours \, 45 \min utes$$

The desired (acceptable) waiting time at NHIS registration centre is 2 hours 45 minutes (147 minutes). This means that individuals who spend less than 2 hours 45 minutes are more likely to renew their NHIS policy when the policy expires. The waiting time at NHIS registration squared has a marginal effect of -0.0000158. This implies that the probability of an individual renewing his/her NHIS policy when it expires decreases by 0.0016 percentage point when that individual spends a minute beyond 2 hours 45 minutes which is the desired waiting time. This means individuals who spend more than 2 hours 45 minutes are less likely to renew their NHIS policy.

Even though treatment is free or covered by the national health insurance scheme, transport costs can be so burdensome to actually hamper access to services at formal healthcare facilities which in the long run can discourage an individual from renewing his/her NHIS policy. Travel time to the nearest formal healthcare facility was used as a proxy for transport cost to the nearest formal healthcare facility. Travel time to the nearest formal healthcare facility was found significant at five (5). There is negative relationship between travel time to the nearest formal healthcare facility and an individual's decision to renew his or her NHIS policy. This means that all other things being equal, a minute increase in the travel time to formal healthcare facility will decrease the probability of an individual renewing his or her NHIS policy. It is assumed that the nearer the formal healthcare facility the fewer the minutes spent by the individual to get there.

The marginal effect of -0.0036 means that a minute increase in the travel time to the nearest formal healthcare facility decreases the probability of an individual in Ghana to renew his or her NHIS policy by 0.36 percentage point. This implies that the fewer the minutes spent by the individual to get to the nearest formal healthcare facility the more likely an individual will renew his/her NHIS policy. This finding is consistent with the finding of Nketiah-Amponsah (2009) who investigated the determinants of health insurance among a cross section of Ghanaian women aged 15- 49. He found that distance to the healthcare facility has positive effect on health insurance purchase.

The result presented in Table 2 indicates that age of the respondent has a positive relationship with an individual's decision to renew his/her NHIS policy and is significant at five (5) percent. The positive coefficient of the age of the respondent implies that the probability of an individual renewing his or her NHIS policy increases as the individual age increases by a year. The marginal effects of 0.0039 indicate that when an individual attains one additional year, the probability of that individual renewing his/her NHIS policy increases by 0.39 percentage point. This can be explained by Grossman model that says that as individuals advance in age, their inherited health stock depreciates at an increasing rate thus inducing increased health investment including that of health insurance (Grossman, 1972).

Grossman (1972) found that the health stock depreciation rate increases with age, it is likely that unhealthy (old) people will make larger gross investments in health than healthy and younger people. This finding is consistent with the findings of Mebratie et al. (2015) and Bhat and Jain (2007). Mebratie et al. found that it is less likely for women aged 16 to 64 years to dropout of health insurance in Ethiopia. Bhat and Jain who conducted a study on health insurance renewal in India found that age has positive effect on health insurance renewal in India. Age having positive effect on individual's decision to renew national health insurance scheme can be attributed to the fact that individuals who are old frequently visit healthcare

facilities because of the depreciation of their health and therefore prefer to renew NHIS policy to reduce their out-of-pocket health expenditure.

The variable scheme benefit looks at whether the individual has benefited from the scheme or not. That is whether the individual has used the health insurance card to access formal healthcare before or not. It is expected that an individual who has used health insurance card to access healthcare when ill will prefer to renew NHIS policy than an individual who did not use his/her NHIS card to access healthcare. The scheme benefit was found to be significant at ten (10) percent and has positive relationship with an individual's decision to renew NHIS policy. This means that it is more likely for an individual who has benefited from the scheme in terms of using it to access healthcare to renew his/her NHIS policy than someone who did not use his NHIS to access healthcare within the time he/she was insured. The probability to renew NHIS policy depends on the benefit the individual derived from the scheme within the period he/she was insured. Individual who did not benefit from his/her subscription may perceived the premium he/she paid as a loss of money and therefore may not renew his/her insurance policy when it expires. This means that the individual will not see the need to renew a policy he/she never benefited from.

The marginal effect of 0.0619 indicates that the probability of an individual who has benefited from the scheme renewing his/her NHIS policy as compared to an individual who did not benefited from the policy increases by 6.19 percentage points with P-value of 0.077. This can be attributed to the fact that an individual who did not benefited from the scheme during the period he/she was covered will be demotivated to renew NHIS policy. This is consistent with the finding of Duku et al. (2016) who reported that majority of insured who utilised healthcare renewed their membership whiles most of those insured who did not utilise healthcare dropped out. They also found that the likelihood of insured persons renewing NHIS

policy was significantly higher for those who utilise healthcare than those who did not and also higher for those who make more health facility visits than those who did not.

The variable chronic disease is a binary variable where 1 means an individual is suffering from chronic disease and 0 otherwise. The rational for including chronic disease as a variable was that most chronic disease patient requires routine management and therefore occasioning more frequent visits to formal healthcare facilities than individuals who are not suffering from chronic diseases. To reduce the out of pocket healthcare expenditure per visit, most of the chronic disease patients will subscribe and renew their national health insurance scheme. Therefore, it is expected that chronic disease will have positive effect on individual's decision to renew NHIS policy. The expectation was met because chronic disease was significant at ten (10) percent and also had a positive correlation with an individual's decision to renew NHIS policy.

The positive correlation with individual's decision to renew NHIS policy means that it is more likely for an individual who is suffering from a chronic disease to renew NHIS policy than an individual who was suffering from an acute disease. This implies that the kind of disease an individual is suffering from has effect on that individual's decision to renew NHIS policy or not.

The marginal effect 0.0615 implies that the probability of an individual who is suffering from chronic disease renewing NHIS policy as compared to an individual who is suffering from an acute disease increases by 6.15 percentage points at national level. This can be attributed to the fact that an individual who is suffering from a chronic disease needs to visit formal healthcare very often therefore renewing NHIS policy will reduce the cost of treatment. This finding is in consistent with the finding of Mebratie et al. (2015). Mebratie et al. found chronic illness to be strongly linked to health insurance renewal in Ethiopia. Also, according

to Awudu (2016), persons with chronic health problems are more likely to utilise health insurance more than those who perceived themselves as healthy.

The variable married was a dummy variable where one (1) means married and zero (0) means not married. Married is expected to have positive effect on individual's decision to renew health insurance policy. Married was found to be statistically significant at one (1) percent (P-value = 0.001). Individuals who are married were found to be more likely to renew NHIS policy than those who are not married. The probability of an individual who is married renewing NHIS policy as compared to an individual who is not married increases by 10.89 percentage points. This can be attributed to the facts that since married people have families to take care of they tend to be more averse to the risk of devastating health expenditures. This is consistent with finding of Boateng and Awunyor-Vitor (2013) who reported that one's marital status has influence on his/her decision to renew health insurance policy.

Employment status was captured by two dummies with 'unemployed' as the reference category. One of the dummy variables of employment status (employed in formal sector) was statistically significant at five (5) percent alpha level (P-value = 0.019). An individual who is employed in the formal sector is more likely to renew NHIS policy as compared to an individual who is unemployed. This can be attributed to the fact that individuals who are employed in the formal sector are SSNIT contributors and do not pay premium but only registration fee. Individuals who are employed in the formal sector, 2.5% of their contribution to the SSNIT is deducted at source as their contributions to the scheme. That makes all SSNIT contributors automatically exempted from payment of premium. The probability of an individual who is employed in formal sector as compared to an individual who is unemployed renewing NHIS policy increases by 14.32 percentage.

There was the need to look at the effect of the person who paid the premium on individual's decision to renew NHIS policy. Who paid NHIS premium is captured by three dummies with "individual paid the premium himself/herself" as the reference category. All the three dummy variables of who paid the premium were statistically significant. The three dummy variables were family member/friend, NGO/ institution and SSNIT contribution. Individual whose premium was paid by a family member/ friend or NGO/ institution is less likely to renew NHIS policy as compared to an individual who paid the premium himself/herself. However, it more likely for an individual who is SSNIT contributor to renew his NHIS policy as compared to an individual who paid the premium himself/herself. All the three dummies were statistically significant at one (1) percent.

The marginal effect of family/friend was -0.1626 which means that the probability of an individual whose premium was paid by a family member/friend renewing his/her NHIS policy as compared to an individual who paid his own premium decreases by 16.26 percentage points. Probability of an individual whose premium was paid by NGO/institution as compared to an individual who paid his own premium decreases by 23.30 percentage points. SSNIT contributor's probability of renewing NHIS policy as compared to an individual who paid the premium by himself/herself increases by 15.74 percentage points. This finding is consistent with finding of Duku et al. (2016). They found that SSNIT contributors and pensioners are more likely to renew their national health insurance policy.

Educational attainment is also captured by four dummies with "no formal education" as the reference category. Out of the four (4) dummy variables for educational attainment, two were statistically significant namely primary education and SSS/Tech/Voc education. Probability of an individual with primary education renewing NHIS policy as compared with an individual with no formal education increases by 15.88 percentage points with P-value of 0.002. This means that individuals with primary education are more likely to renew NHIS

policy than individuals who do not have formal education. The marginal effect for an individual with SSS/Tech/Voc was 0.2979. This implies that the probability of an individual with SSS/Tech/Voc education as compared to individual with no formal education increases by 29.79 percentage points in Ghana. This means that it is more likely for individuals with primary education and SSS/Tech/Voc education to renew their NHIS policy as compared to individuals with no formal education.

This finding is contrary to the findings of Atinga et al. (2015) and Bhat and Jain (2007). Both Atinga et al. and Bhat and Jain found that individuals/ households having higher education levels have higher probability of renewing the insurance policy. This finding is consistent with the finding of Nketiah-Amponsah (2009) and Akazili et al. (2005). According to Akazilli et al, people with primary education were more willing to join national health insurance scheme than those without formal education but those with higher education ironically are much less willing to join the national health insurance scheme. They attributed this to the fact that since higher education may be indicative of better employment and higher income; such individuals may not see the need for any risk-sharing scheme like the impending mutual health insurance scheme.

Perception of the individual about the premium was captured by two dummy variables with premium perceived to be low as the reference category. It is expected that individuals who perceived the premium to be high will be less willing to renew NHIS policy when their policy expire. This expectation was also met because this study found that individual perceived the premium to be expensive was statistically significant at ten (10) percent (P-value = 0.097). This implies that Individuals who perceived the premium to be expensive were found to be less likely to renew their NHIS policy as compared to individuals who perceived the premium to be low. The probability of an individual who perceived the premium to be expensive renewing NHIS policy as compared to individual who perceived the premium to be low decreases by

6.96 percentage points at the national. This means that the price of the premium plays a major role when it comes to renewal of NHIS policy.

Both the Regional dummies were statistically significant. The reference category for the sector variable was southern sector. The study found that individuals in the northern and the central parts of Ghana are more likely to renew their NHIS policy as compared to individuals in the southern sector. The marginal effects of 0.128 and 0.0791 for northern sector and central sector respectively imply that the probabilities of individuals in the northern sector and central sector renewing their NHIS policy as compared to people in the southern sector increase by 12.8 percentage points and 7.91 percentage points respectively.

Reasons for not Renewing National Health Insurance Scheme Policy

According to Dapatem (2013) and Mahama (2013) about 13 million subscribers of the NHIS have not renewed their health insurance policy. Therefore, this section of this thesis examined the reasons why people dropped out of the scheme. The total number of respondents who dropped out of the NHIS was 331. Out of the 331 the respondents who have not renewed their NHIS policy, thus 150 representing 45.32%, responded that the reason why they have not renewed their NHIS policy is that the drugs given to insured people at formal healthcare facilities are not quality. After an individual has enrolled on NHIS policy that individual is expecting the service provider to provide quality services and therefore if the expectations are not met such an individual will be less likely to renew his/her NHIS policy. This confirms the finding of Jehu-Appiah et al. (2011) who reported that there is growing dissatisfaction of insured clients who perceive they are given poorer quality of care and wait longer compared with fee-paying clients.

Secondly, 40 (12.08%) respondents said they did not renew their insurance policy because from their residents to the nearest formal healthcare facility is far. This implies that

they would have renew their NHIS policy if the formal healthcare facilities were closed to their residents. Holding other factors constant, the longer the distance to the nearest healthcare facility the high the cost of transportation. Therefore, transportation may even deter individuals who stay far from the formal healthcare facilities. Jehu-Appiah et al. (2011) had a similar finding. They found that 4.4 % of the respondents who were previously insured said they have not renewed their insurance because the healthcare facilities were too far. Also, 50 respondents representing 15.02% of those who have not renew their NHIS policy said the reason why they have not renewed their NHIS policies was that they paid for most of the drugs given to them when they visited formal healthcare facilities. Seventy –eight (78) respondents also said that they have not renewed their NHIS policy because they did not benefit from their previous enrolment/ renewal. This implies that those who have not use their NHIS cards to access formal healthcare are less likely to renew their NHIS policy. Last but not least, 15 respondents also said they have not renewed NHIS policy because they cannot afford the renewal payment.

Conclusion and Recommendation

This study has shown that waiting time at national health insurance scheme registration office/centre has a negative influence on individual's decision to renew NHIS policy and acceptable waiting time is 2 hours 45 minutes. This study therefore recommends that The National Health Insurance Authority (NHIA) should develop software (an App) that an individual can use to renew his/her NHIS membership when his/her membership expires without visiting NHIS registration office.

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