Willingness to Pay for Community Health Insurance: A Study of Hygeia Operations in Shonga and Afon Communities in Kwara State

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Abstract

Background: Despite provisions for people in both formal and informal sectors are contained in the Nigerian National Health Insurance Scheme as an alternative financial mechanism for healthcare, there has been a disproportionate focus on the formal sector. Central to the health insurance coverage is the determination of the premium paid by beneficiaries of the plan. While this is straightforward for people in the formal sector, the non-deterministic income base in the informal sector has made actuary determination of premium a challenge. Thus Community Based Health Insurance (CBHI) is designed to cater for the inclusion and uptake of the rural poor, subject to payment of the often arbitrarily prescribed premium. This paper investigates the willingness to pay (WTP) for CBHI and its determinants by the rural people of the Shonga and Afon communities of Kwara State.
Methods: Using the CBHI scheme in Afon and Shonga communities of Kwara State, the paper applied the contingent valuation method (binding game format) and Probit regression to track the extent of WTP for the plan, and its determinants. Administering a pre-tested questionnaire, information was collected from a total of 220 households selected through a simple stratified random sampling method.
Results: Relative to N300 ($1.36) currently being charged participants as premium, the mean amount respondents are willing to pay is N720 ($3.27) with the minimum and maximum amounts being N200 ($0.91) and N5,000 ($22.73), respectively. Results from Probit regression revealed that WTP is significantly driven by age, gender, marital status, frequency of illness, and income level of respondents. Higher WTP is associated with males, the married and youthful respondents with more education and income, and higher frequency of illness.
Conclusion: Given that the mean WTP is higher than the currently charged premium, there are indications that additional resources can easily be raised for the scheme. This points to viability of replicating the scheme in more communities across the country, and thus expands coverage. Extension of the scheme to other rural communities should be preceded with empirical analysis of amount the population is willing to pay for the scheme.

Key words: Willingnes to pay, Community based health insurance, Probit regression, Contingent valuation method, Categorical variables.

Introduction

Similar to what obtains in most developed countries, there has been a growing increase in the adoption of social health insurance scheme as a veritable healthcare financing alternative to government and out-of-pocket (OOP) funding of healthcare services in developing countries, especially in Africa, including Nigeria. Arising from dwindling government resources and allocation to health, and the increasing financial burden on the household, there is a general consensus that continued reliance on government budget and household OOP spending to finance healthcare in developing countries is not sustainable. In 2005, social health insurance was formally introduced to the Nigerian healthcare financing landscape, with provision made for people in both the formal and informal sectors of the economy. Apart from facilitating the raising of additional fund for healthcare, the National Health Insurance Scheme (NHIS) was instituted to ensure universal access to healthcare services at affordable rate. Given the predominance of informal sector in the country, as in many other African countries, a community based health insurance (CBHI) scheme component was provided for in the NHIS to cater for the health needs of the people in the informal sector, especially of the rural poor. A very prominent example of CBHI scheme is the Hygeia Community Health Care (HCHC): a public-private partnership arrangement currently being implemented ground in Lagos and Kwara states. Unlike in the formal sector where contribution to the social health insurance scheme is based on income of participants, the irregular and non-deterministic income in the informal sector demands the application of flat rate contribution by the participating group at the community level.

However, within the informal setting, the decision to enroll on the scheme by individuals or households is dependent on affordability of the premium being charged, while the sustainability of the scheme is premised on fixing appropriate premium that is not only sufficient to meet cost of providing the required healthcare needs, but also affordable for enrollees. The provision for informal sector under the NHIS prescribes that with a minimum of 500 participants (to ensure viability), the composition of the benefit package should reflect the amount the community is ready to pay. This implies that for communities that contribute more, the benefit package should reflect more and deeper healthcare options. Though a number of CBHIs is currently been managed across the country, there are no evidence that the premium been charged is actuary sound to sustain the scheme. Most of the schemes were initiated with support from foreign assistance as a pilot project to serve as template for replicating the same across other communities in the country. The determination of the premium has often being arbitrary without accurately reflecting the ability of the beneficiaries to pay for the scheme. While excess premium may defeat the accessibility objective of the scheme, charging premium below what is affordable and people are willing to pay can also defeat the objective of the scheme serving as alternative optimal means of raising finance for healthcare. This paper therefore investigates the willingness to pay (WTP) for CBHI scheme and its determinants in the Afon and Shonga communities of Kwara State in Nigeria.

Brief Overview of Health Care Financing in Nigeria

Both public and private sector are jointly involved in the funding of health care in Nigeria. The three tiers of government (Federal, State, and Local Government) in

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the country shoulder some financial burden in the provision of health care to the populace. The private involvement in the funding of health care in Nigeria includes the financial commitments by individuals or the households in form of OOP, and the firms. Given the dwindling resources of government, and in the absence of information on the share of health care financing in the country, there has over the years been agitation for pushing part of the financial burden of the government to members of household. Thus, with the adoption of Structural Adjustment Programmes (SAP) in the middle of 1980s, following the economic depression of the 1980s, the government succeeded in introducing user charges to the health sector, and significantly reduced her allocation to the health sector. Subsequently, public health facilities were mandated to generate funds from their health care service delivery, with focus on Internally Generated Revenue (IGR). The implication was increased burden on the households, who have been shouldering substantial financial responsibility in the private-health-facility dominated health care landscape of the country. However, following the first two rounds of National Health Accounts (NHA) estimations[37-38], it became clear that the apparently assumed heavy burden shared by the government is actually shouldered by the households. Mainly, the sources of financing health in the country are classified into four: the government, households, firms, and donor agencies (external source). From the NHA estimates for Nigeria for the period 1988 to 2005, the private sector (mainly households) dominates as the major source of funding health care in Nigeria, accounting for close to two-third of the resources channeled to the sector.

On the average, private sector dominates, accounting for more than an average of 71% of the country's Total Health Expenditure (THE), while government and donor agencies contribute about 21% and 8%, respectively (Table 1). Of the 71% contribution by the private sector, average of more than 66% is attributed to the households. While the incidence of poverty has over the years increased, accompanied by slow growth of per capita income, the share of the health financing burden by the household has remained high, and in some years even increased. Estimates figures from WHO for 2009 to 2013 put the average household OOP for healthcare to be more than 60%. This raises the issue of equity and sustainability of healthcare financing in the country.

With the burden heavily shouldered by the households, in the wake of increased incidence of poverty, the issue of accessibility to health care has become more pronounced around financial constraint issue. The need for equity and sustainability shifted policy attention to the consideration of alternative funding mechanism for the country's health sector. To overcome some of these problems and ensure that every Nigerian has access to good and affordable health care services as well as ensure that medical costs are distributed equitably among different income groups, the Nigerian government re-launched the NHIS in 2005.[6] Thus health insurance, which was hitherto private driven, has been enhanced with the introduction of social health insurance scheme, which provides for both formal and informal sector. In this regard, the CBHI is designed to cater for uptake of individuals within the informal sector.

Table 1: Relative shares of various health care financing mechanisms in Nigeria

Indicator	Total Health Expenditure as % of GDP	Government Expenditure as a % of THE	Private Sector Expenditure on health as a % of THE	Households' OOP as a % of THE	External Sources as a % of THE
1998	5.5	14.9	72.0	69.2	13.1
1999	5.4	16.6	69.5	66.0	13.8
2000	4.4	18.7	65.0	60.4	16.2
2001	4.5	27.2	67.2	61.5	5.6
2002	4.7	21.6	72.3	65.9	6.1
2003	12.2	18.7	81.3	74.0	4.2
2004	8.0	26.4	73.6	65.7	4.6
2005	8.6	26.0	74.0	67.2	3.7
Average	6.7	21.3	71.9	66.2	8.4

Source:[37-38]

Hygeia Community Health Care Insurance in Kwara

Hygeia Community Health Care Insurance, (formerly known as Hygeia Community Health Plan) is a pilot community based health insurance scheme organized and managed by Hygeia Group Limited to provide health insurance for some market women communities in Lagos State and the farming communities around Shonga and Afon in Kwara State.[23] The people of Shonga and Afon communities are predominantly farmers, though there are people in other occupations such as civil servants and traders. The Scheme is aimed at scaling up access to quality health care of low income communities through a mechanism of public private partnership. In Kwara State, the Scheme is supported by the Dutch government through its health insurance fund and implemented through Pharm Access and Hygeia aided by the Kwara State Community Health Insurance Scheme (CHIS). Currently, Hygeia operates two schemes in Kwara State: the Shonga (Kwara 1) Scheme in Edu LGA of Kwara north which commenced operation in January, 2007. Heath providers used in this area are: Shonga Comprehensive Health Centre, Shonga, Lafiagi General Hospital, Lafiagi, Tsaragi Cottage Hospital, Tsaragi, Ogo Oluwa Hospital, Bacita and Resource Access Centre, Iyana Bacita. The second is the Afon (Kwara 2) Scheme from Kwara Central established in 2009 and the providers here are Afon General Hospital, Afon, Basic Health Centre, Otte-Oja, Alapa Cottage Hospital, Alapa and Ilera Layo Medical Centre, Aboto Oja. Providers at the Secondary Care/Referral level are University of Ilorin Teaching Hospital (UITH) and Ola Olu Hospital.

To be eligible to receive health services for the period of one year, an individual is to pay Three Hundred Naira (N300) as annual premium. Once registered, each enrollee is issued a membership card which enables enrollee to access medical care services at any of the selected HCHC provider hospitals. The providers are reimbursed in the form of Donor Health Insurance Fund paid up as a combination of Capitation fees and Fee for service.

Review of Related Literature on Willingness to Pay

WTP is a concept used to assess the value that consumers place on certain goods and/or services as a result of monetizing the benefits associated with such good or service.[33] It represents the maximum

amount that an individual is prepared to give up to gain utility or satisfaction from the consumption of a particular good or service. The approach to assessing WTP for a particular good or service in the literature relies mainly on contingent valuation method (CVM). The CVM is a stated preference valuation method that asks willingness to pay, willingness to accept, or voting questions that directly estimate non-market benefits.[41] Closely related to the theory of consumer behaviour, the theory of contingency valuation is a flexible nonmarket valuation method that is widely used in cost-benefit analysis.[16,31] Contingent valuation studies ask questions that help to reveal the monetary tradeoff each person would make concerning the value of goods or services.[15] The method elicits directly what individuals would be willing to pay for a particular product or good. It is contingent upon the simulated market presented to the respondents to elicit the maximum WTP for a good. First, the good and a hypothetical market in which the good can be bought are described to the respondent (the contingency). The respondent is then asked to state the maximum amount he/she is willing to pay for the good (the valuation).

While there are both market and nonmarket valuation techniques to estimate the monetary value of a service,[32] the most widely used nonmarket valuation method is the CVM.[39] CVM studies often take a variety of elicitation formats, including open-ended, dichotomous choice (DC), multiple-bounded dichotomous choice, iterative bidding game, and payment cards.[28] Though at the expense of efficiency, the DC choice approach has recently gained a high level of popularity. The DC approach is sub-divided into two variants: single-bounded (take-it-or-leave-it); and double-bounded (take-it-or-leave-it with follow-up). An extended version of the latter approach which is called 'triple bounded dichotomous choice' that extends the double-bounded DC for a further question has also been used in some of the CVM studies.

The bidding game is the oldest elicitation technique among all the techniques.[31] By the bidding game approach, the respondent in a CVM study would be randomly assigned a particular bid from a range of predetermined bids. With a 'yes' or 'no' response to a particular bid, the bid assigned may be either a lower or higher level bid, repeatedly the process continue until 'the highest positive response is recorded'. Advantages of this approach include that it provides relatively better results since it gives a 'market-like' situation within which respondents can rehearse their preferences; and allow the researcher obtain maximum WTP value.[16] It has however been argued that the cost of implementing the bidding game is comparatively higher in the sense that it involves presence of interviewers during the interview, while the starting points used in the bidding game might influence the final value of the stated WTP.

The open-ended elicitation technique involves asking individuals about the maximum amount that they are willing to pay for a public good or policy. It is considered to be convenient to answer, and neither requires an interviewer, nor result in any starting point bias. The approach is considered relatively efficient in instances aimed at deriving conservative estimate values, since it provides a lower level conservative value than the bidding game approach.[40] However, it has been criticized on the ground that it tends to create large number of non-responses or protest bids since respondents either find it difficult to answer or do not have incentive to provide true answer.[11] It has also been argued that it may attract strategic bias in

which response reflects the cost rather than true value.[21]

The take-it-or-leave-it (or single-bounded dichotomous choice) approach involves assigning a single bid from a range of predetermined bids that potentially reflect the maximum WTP amounts of the respondents for a particular good. Here, a 'yes' or 'no' response is expected with regards to the bid on all or nothing basis, which facilitates the complete valuation process by the respondents. The approach being an incentive compatible one is capable of minimizing the strategic bias in the WTP values.[11] While attracting starting point bias, it however facilitates the derivation of only the maximum/minimum WTP but not the actual WTP amount.[10] It has been argued that in the case of public good it is provided through voluntary contribution and when a new private or public good is provided, the approach may not be applicable.[11] A modified version of the take-it-or-leave-it approach called, 'double-bounded dichotomous choice approach' (or 'take-it-or-leave-it-with follow up') was introduced by Carson.[13] First applied by Carson and Steinberg,[12] it involves assigning one more bid to the initial bid (in the single-bounded approach), whose direction depends on the 'yes' or 'no' answer to the initial bid. It allows for easy identification of the location of the maximum WTP value from the derived data, and it is incentive compatible. It is statistically more efficient than the single-bounded dichotomous choice approach.[27] However, results obtained from the double-bounded dichotomous approach are vulnerable to starting point bias and 'yes-saying' problem.[36]

Review of Empirical Studies on Willingness to Pay

Thousands of contingent valuation studies have been done in many countries looking at cultural, environmental, health, transportation, and other issues.[14] Studies that focus on WTP for health insurance in developing countries abound in the literature, of which appreciable number centres on African countries. Recent related studies with focus on Nigeria include Onwujekwe et al[35] which examined the socio-economic status and geographic difference in WTP for community-based health insurance in Nigeria. The valuation of individuals' WTP for community prepayment scheme is the focus of Binam et al,[9] while the possibility of rural households in Nigeria paying for healthcare in the form of community insurance schemes was investigated by Ataguba[7] and Ataguba et al.[6] Other African countries' focused studies include Donfouet et al,[18] which investigated for Cameroon the impact of social capital on the demand for health insurance. Also, in Burkina Faso, WTP for community-based insurance with some social characteristics were examined in Dong et al.,[19] while the plausibility of community health insurance on poor rural households of Ethiopia was investigated by Asfaw and von Braun.[4] Using the large informal sector of Ghana, Asenso-Okyere et al[2] valued WTP for health insurance.

Related studies outside Africa also abound in the literature. For instance, approaching the subject from sustainability perspective of National Health Insurance (NHI), Lang and Lai[29] investigated peoples' WTP to sustain the NHI program in Taiwan, while in China; Barnighausen et al[8] assessed the maximum WTP for social health insurance among informal sector workers in Wuhan. Jiang et al[24] estimated the WTP for Rural Cooperative Medical Scheme (RCMS), while Asgary et al;[5] estimated rural household's WTP for community health insurance in Iran. Mathiyazhagan[30] and Dror et al[20] differently valued the willingness of rural households to pay for

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community health insurance through community involvement, and participation in rural India. Griffiths et al[22] made reference to the use of contingent valuation in valuing the benefits of the US Clean Water Act of individual regulations targeted at specific industries or water bodies. Jeuland, Lucas, Clemens, and Wittington[25] used CVM to access the value of developing vaccines policies in Africa, while de Meijer, Brouwer, Koopmanschap, van den Berg, and van Exel[17] applied the same method to estimate the hourly value of informal care givers in the Netherlands. Jiang, Jin, and Lin[26] also utilized CVM in studying willingness to incur higher water tariffs for less river pollution in Fuzhon, China. Aldy, Kotchen, and Leiserowitz[1] on the other hand used CVM to determine the willingness of the US public to pay for climate change measure.

Most of the existing studies on WTP corroborate the existence of substantial WTP for health insurance. Prominent among socio-economic factors influencing willingness to join and pay for health insurance scheme was found to include gender, age, education, occupation, income, quality of health care facility, and physical accessibility to quality health services. Onwujekwe et al[34] affirm that socio-economic status, such as place of residence, gender and level of education significantly influence peoples' WTP for CBHI membership. Exploring the impact of socio-economic status (SES) and geographic differences on WTP for community-based health insurance scheme in Anambra and Enugu States of Nigeria, Onwujekwe et al,[34] found fewer rural households (7%) to be willing to pay for CBHI. Dror et al[20] was able to establish a strong positive link between household's income and WTP. Asgary, et al[5] found that the rural households are WTP average of US$2.77 per month for health insurance in Iran.

Generally, males are noted in the literature to be willing to pay higher amounts for health insurance than females, while people with more education exhibits higher WTP and less wealthy households or individuals are willing to pay lesser amounts.[3,7,34] Whilst previously paying OOP was negatively related to WTP, previously paying for health care using health insurance mechanism was positively related to WTP.[34]

Methods
Though the CBHI scheme being investigated is already in existence, the transaction process between the plan providers and the participant is not founded on market determined exchange price. Thus when a market price is not related to marginal cost of producer or the marginal utility of the consumers, then CVM becomes apt in tracing the price the consumers would have paid given their revealed utility and preference. Although it is possible to employ CVM for commodities available for sale in regular marketplaces, many applications of the method deal with public goods. The ultimate good of concern here is health, which has significant attributes of public goods.

As at the time of the study, the information from the books of Hygeia put the total number of enrollees at about 80,000 spread between the Shonga and Afon communities. The stratified random sampling procedure was designed to include respondents from each of these locations. Since the respondents were accessed at the facility location, the questionnaire was administered on those who enrolled on the scheme and utilized the facilities within the week of survey. The results from these respondents are considered to be representative of the enrollees on the scheme, since those covered were not predetermined by the

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researcher. A total of 220 semi-structure questionnaires were administered randomly on the respondents. The study survey was conducted at eight locations (Shonga, Lafiagi, Tsaragi, Bacita, Afon, Otte-Oja, Alapa and Ilaro) where Hygeia health facilities are situated. Shonga and Afon serve as the headquarters of the Shonga and Afon Schemes, respectively. While 50 questionnaires were administered in each of Shonga and Afon, 30 questionnaires were administered in each of the other six locations, totaling 220 respondents.

Using 'contingent valuation' method, the WTP questions is based on iterative "bidding game" approach. This method entails a utility change valued in money, determined by the maximum amount that respondents agree to pay for health insurance. It involves presentation of iterative price value, in which the respondent is asked whether he or she is willing to pay more of less of the price value presented. The respondent's response is used to determine a follow-up price value within the upper or lower range of preceding price value. The corresponding price amount where the respondent becomes indifferent is taken as the respondent's WTP for the health insurance.

Model Specification

The analytical techniques used in this study include descriptive statistics such as frequencies, percentages and means through cross-tabulation used to show relationship of variables with the WTP and comparing observed association between respondents' mean WTP. In addition, econometrics analysis based on Probit model was carried out to estimate the marginal effects of determinants of WTP for the health insurance scheme. The key issue empirically estimated is the marginal

effects of determinants of WTP for the health insurance scheme. Since the goal is to determine WTP greater than or equal to the currently paid premium of three hundred naira (≥ N300), we adopt binary model specifications. Probit is one of the most popular binary choice models in the literature. We represent WTP ≥ N300 = 1 when an individual i is willing to pay and WTP < N300 = 0 if otherwise. In view of this, estimations of this study are in terms of probabilities. Due to heteroscedasticity problem associated with linear probability model we opted for Probit model for estimation of the parameters in this study.

The Probit model is a log-linear approach used to measure the effects of the independent variables on the dependent variable. With categorical variables used, this study adopts the following empirical Probit model specification:

$$y_i = \alpha_0 + \alpha_1 Age_i + \alpha_2 Sex_i + \alpha_3 Edu_i + \alpha_4 Inc_i + \alpha_5 Dis_i + \alpha_6 Fil_i + \alpha_7 MS_i + \alpha_8 HF_i + \mu_i \qquad (1)$$

where
y_i = WTP for the Hygeia health insurance scheme (1 = WTP ≥ N300, 0 = WTP < N300). Age_i = Age of respondents; Sex_i = Sex of respondents; Edu_i = Level of Education; Inc_i = Income; Dis_i = Distance to the nearest Hygeia health facility; Fil_i = Frequency of illness; MS_i = Marital status; HF_i = Availability of health facility. Each of the categorical variables is specified in the model as (m-1) variables with one category being the reference category.

Results and Discussions

Descriptive Analysis

The descriptive and summary statistics of the explanatory variables are presented in Table 2. Majority of the respondents are

relatively young in age, as the lowest age bracket of 20-35years dominates, accounting for 46%, with 28% being within the age bracket of 36-50years. Thus it appears, the youth are getting more involved in farming business. However, majority of the respondents are female, accounting for 62%. Consistent with the demographic structure of the population in the state, dominated by Muslims the respondents are dominated by married male individuals, mainly of Islamic religion. Analyzing the income profile of respondents, about half (49%) earn income between N200,000 and N400,000, while 29% falls within income bracket of N400,000 and N600,000, which is suggestive of relative low income set of people. Only 5% of the respondents reported income in excess off N600,000.

Disease incidence among the respondents is sufficiently low as the frequency of illness is under two episodes per year for majority. The process of enrolling on the scheme is adjudged to be generally easy or at least moderately easy, while the health facilities for the scheme is reported to be within 2km range to most of the respondents' residence.

Table 2: Descriptive Statistics of Categorical Variables by WTP

VARIABLES	SHONGA COMMUNITY			AFON COMMUNITY			TOTAL		
	< ₦ 300 (%)	≥ ₦ 300 (%)	Total	< ₦ 300 (%)	≥ ₦ 300 (%)	Total	< ₦ 300 (%)	≥ ₦ 300 (%)	Total
Age									
20-35	4	56	66	8	24	35	6	40	101
36-50	2	30	35	6	38	48	4	34	83
50 & above	0	8	9	2	22	27	1	15	36
Total	**6**	**94**	**110**	**16**	**84**	**110**	**11**	**89**	**220**
Sex:									
Female	2	30	35	14	30	48	8	30	83
Male	4	64	75	2	54	62	3	59	137
Total	**6**	**94**	**110**	**16**	**84**	**110**	**11**	**89**	**220**
Education									
No formal	0	26	29	0	16	17	0	21	46
Primary	4	10	15	0	32	35	2	21	50
Adult education	0	14	15	6	4	11	3	9	26
Secondary	2	44	51	10	26	40	6	35	91
Post-Secondary	0	0	0	0	6	7	0	3	7
Total	**6**	**94**	**110**	**16**	**84**	**110**	**11**	**89**	**220**
Distance									
0-3	4	76	88	8	58	72	6	67	160
4-6	2	16	20	2	4	7	2	10	27
7-10	0	0	0	6	20	29	3	10	29
11 & above	0	2	2	0	2	2	0	2	4
Total	**6**	**94**	**110**	**16**	**84**	**110**	**11**	**89**	**220**

Table 2 (contd.): Descriptive Statistics of Categorical Variables by WTP

VARIABLES	SHONGA COMMUNITY			AFON COMMUNITY			TOTAL		
	< ₦ 300 (%)	≥ ₦ 300 (%)	Total	< ₦ 300 (%)	≥ ₦ 300 (%)	Total	< ₦ 300 (%)	≥ ₦ 300 (%)	Total
Marital Status									
Single	4	26	33	8	30	42	6	28	75
Married	2	68	77	8	54	68	5	61	145
Total	**6**	**94**	**110**	**16**	**84**	**110**	**11**	**89**	**220**
Income									
<200,000	0	10	11	2	22	26	1	16	37
200,000 - 400,000	6	52	64	6	34	44	6	43	108
400,000 - 600,000	0	28	31	6	24	33	3	26	64
>601,000	0	4	4	2	4	7	1	4	11
Total	**6**	**94**	**110**	**16**	**84**	**110**	**11**	**89**	**220**
Freqill									
Once	4	26	32	8	30	42	6	28	74
Twice	2	24	29	4	24	31	3	24	60
Thrice	0	18	20	4	26	33	2	22	53
More than thrice	0	26	29	0	4	4	0	15	33
Total	**6**	**94**	**110**	**16**	**84**	**511**	**11**	**89**	**220**
Enrol									
Difficult	6	4	11	0	4	4	3	4	15
Moderately easy	0	44	48	2	40	46	1	42	94
Easy	0	46	51	14	40	60	7	43	111
Total	**6**	**94**	**110**	**16**	**84**	**110**	**11**	**89**	**220**
Avail									
0-2	6	92	108	12	56	75	7	68	183
3-5	0	2	2	4	28	35	4	21	37
6-10	0	0	0	0	0	0	0	0	0
>10	0	0	0	0	0	0	0	0	0
Total	**6**	**94**	**110**	**16**	**84**	**110**	**11**	**89**	**220**

Willingness to pay for Health Insurance
Result from the survey (Table 3) shows that about 89% of the respondents are willing to pay a premium in excess of what is currently being charged [N300 ($1.36)], while on the average, they are willing to pay N720 ($3.27). From Table 4, the minimum amount respondents are willing to pay is N200 ($0.91) while the maximum amount is N5,000 ($22.73). Only 16% of respondents aged 50 and above are willing to pay to participate in the scheme. The relative high WTP of people in their prime and productive age is a pointer to the high opportunity cost of illness/diseases, given its effect of productivity loss to individuals. Sensitization activities directed towards the economically active age group of communities stands to serve as a positive strategy for promoting community health insurance in other communities in the state and other states.

Table 3: Distributive Statistics of Premium Respondents are Willing to Pay per Year

Premium (Naira)	Number of Respondents	Per cents
< 300	24	11
301 – 601	95	43
601 – 1000	70	32
> 1000	31	14

Table 4: Descriptive Statistics for Amount Willing to Pay

Variable	Revealed Willingness to Pay		Health Care Expenditure	
	Naira (₦)	Dollar ($)	Naira (₦)	Dollar ($)
Minimum	200	1.27	500	3.18
Mean	720	4.59	3392	21.61
Medium	500	3.18	2000	12.74
Mode	500	3.18	2000	12.74
Standard Deviation	766	4.88	3535.21	22.52
Maximum	5000	31.85	25000	159.24

Probit Regression Results

The Probit regression result of WTP for the CHIS by respondents is presented in table 5. Given the categorical nature of the variables, and the appropriateness of Probit estimation technique, each categorical variable was incorporated as (m-1) variables with one serving as the reference category. Three different models were estimated for the total sample, and each of the two communities separately. For majority of the variables, the pattern of significance in the three models is generally similar. The pseudo R2 coefficients of determination reveal that the included variables in the total sample, Shonga and Afon samples, respectively explained around 31%, 25% and 18%, of the variations in the values of WTP probability. The pseudo R2 value is the proportion of the variance of the latent variable that is explained by the covariate. The apparently low level of pseudo adjusted coefficients determination is typical of most cross-sectional survey based studies.

The coefficients of the age variables turned out to be consistently significant with the effect being positively stronger for lower working age group. Though remains positive, it is observed that the magnitude of the coefficient drops as age increases. Policy measures that draw and retains youth participation in farming job has the tendency to promote greater WTP, as they are more economically active and have greater opportunity cost of time taken away from work due to illness (i.e. greater productivity loss). Male respondents have greater WTP for the scheme, with a positive coefficient that is statistically significant.

While no education was used as the reference category, possession of primary education qualification tends to negatively influence WTP. The results revealed that level of education of the respondents has significant influence on WTP. The results buttress the a priori expectation that as the level of education of respondents increase, the more likely they will be willing to pay for health insurance given that they are better

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aware of the benefits of the scheme. The coefficient of the subsequent higher levels of education on the other hand has a positive value, and is significant. As proposed in the literature on the positive relationship between education and health, the results imply that not only do educated ones value good health status, they are more open to securing their future health by taking advantage of community health insurance scheme. The variations in the values of the coefficient shows that the WTP increases with level of education, as those with higher education display greater urge to pay for the community health insurance. While education influences the appreciation of health insurance, typical rural setting in Nigeria is characterized by low level of education. Policies that promote positive attitude towards education can be used to enhance the acceptance of community health insurance initiatives in the rural areas. The prominence of education in the whole picture confirms the assertion that the educated tends to attach higher return to health.

The distance to facilities as a factor influencing willingness of respondents to pay for the community health insurance appears to be generally not significant. This however further buttressed the fact that most of the facilities are close by. The proximity to health facilities tends to motivate individuals to be willing to pay for healthcare. Ensuring proximity of healthcare facilities to the community is therefore an essential precondition for motivating people to enroll in CHIS. It tend to build peoples' trust as to the accessibility of what they are paying for.

While "single" is used as the reference category, the coefficient of "married" turned out to be positive and significant. It indicates that being married tend to increase respondent's appreciation of the

benefits of enrolling on the scheme, as good health is crucial to being productive, and ensure earning to cater for the consumption needs of the household. The income categorical variable is split into four, with the highest income group as the reference category. The results of the coefficients of incomes appear to be mixed. While the coefficient of the lowest income category is negative and statistically significant, the rest two income categories are positive, but only significant for income group (N400,000 - N600,000). This result affirms the relevance of income in decision to want to pay for CHIS. While the poor are not willing to pay because they lack financial ability, the relatively rich group tends to be willing to pay. With the category of enrollees engaged in the formal sector and mostly farmers, policy measures that assist them to increase their farm yield and agricultural output, with positive impact on their income can certainly influence their WTP.

The more frequent the experience of illness the more likely a respondent will be willing to pay for the CHIS. As a rational individual, repeated episode of illness has cost implication, thus those with higher frequency of illness stands to benefit more from the coverage of the CHIS. They tend to safe more resources that would have been committed to paying directly in the absence of community health insurance plan. This is indicative of susceptibility to adverse selection problem, as people with greater exposure or higher record of illnesses are more likely to enroll. There is therefore the risk of enrolment on the scheme being dominated by the people with health condition. Mechanism for screening health profile of enrollees and cost implication should be considered. Barriers to healthcare come in different forms, and one of them is the constraint associated with documentation and bureaucratic requirement for enlisting

individuals for the use of health facilities. While CBHI scheme is intended to promote accessibility to healthcare services, the bottleneck in the process of enrolling could be discouraging a times. The results from this study reveal that the ease of enrolment positively contributes to WTP for the scheme. The coefficients are statistically significant, and declines in magnitude as the degree of ease drops.

Table 5: Results of Probit Regression Analysis of WTP

EXPLANATORY VARIABLE	SHONGA	AFON	TOTAL
	dF/dx	dF/dx	dF/dx
Age (20-35)	0.02135**(2.65)	0.03240**(2.40)	0.01135(0.97)
Age (36-50)	0.01301**(2.92)	0.00750**(1.76)	0.01722**(1.74)
Age (50 & above)	RC	RC	RC
Male	0.2544**(16.49)	0.1853**(7.96)	0.2034**(14.22)
Female	RC	RC	RC
No formal Education	RC	RC	RC
Primary Education	-0.0051(-0.20)	-0.0038(-0.60)	-0.0047(-0.92)
Adult Literacy Education	0.0013**(37.61)	0.0022**(21.36)	0.0009**(29.41)
Secondary Education	0.0316*(6.94)	0.0244*(3.14)	0.0637*(5.39)
Post-Secondary Education	0.0137 (1.16)	0.0931*(21.64)	0.0067*(13.41)
Distance (0-3km)	0.0427*** (1.89)	0.0387***(2.10)	0.0192(1.08)
Distance (4-6km)	-0.0054 (0.94)	-0.0194 (0.44)	-0.0104 (0.61)
Distance (7-10km)	-0.0063 (1.39)	-0.0049 (1.25)	-0.0002 (1.12)
Distance (11 & above)	RC	RC	RC
Married	0.0042*(3.62)	0.0174*(4.84)	0.0205*(9.30)
Single	RC	RC	RC
Income (<200,000)	-0.0649**(-2.74)	-0.0359**(-5.55)	-0.0083**(-2.62)
Income(200,000-400,000)	0.0024(1.67)	0.0028(1.00)	0.0017(0.73)
Income(400,000-600,000)	0.0106**(2.32)	0.0074**(2.26)	0.0068**(2.01)
Income (>600,000)	RC	RC	RC
Freq. of illness (once)	-0.0642(0.75)	-0.0314(0.75)	-0.0432(0.75)
Freq. of illness (twice)	0.0501(1.65)	0.0600**(2.52)	0.0081(1.12)
Freq. of illness (thrice)	0.0521*(4.56)	0.0461*(7.34)	0.0095*(3.15)
Freq. of illness (> thrice)	RC	RC	RC
Enrolment (easy)	0.0383*(12.85)	0.0522*(17.83)	0.0411*(25.12)
Enrolment (moderately easy)	0.0204**(2.83)	0.0147**(2.74)	0.0307**(4.25)
Enrolment (Difficult)	RC	RC	RC
Avail health facs. (0-2)	-0.0079(-1.19)	-0.0042(-0.95)	-0.0107(-1.22)
Avail health facs. (3-5)	0.0003(1.02)	0.0012(0.52)	0.0001(0.02)
Avail health facs. (6-10)	0.0010**(1.98)	0.0002**(2.57)	0.0014**(2.18)
Avail health facs. (>10)	RC	RC	RC
Pseudo R-square	0.3116	0.2511	0.1829
Wald Chi2(prob-chi2)	3462(0.0000)	1852(0.0000)	1572(0.0000)
Observation	220	110	110

Note: Values within parenthesis represent z-statistics where (*) and (**) represent significance at (1%) and (5%), respectively. RC denotes reference category: the (m-1)th category.

No matter the funding mechanism on which a healthcare system is base, accessibility to healthcare significantly hinges on availability of health facilities. Where health facilities are in short supply, adoption of

user charges, general tax, free healthcare or any form of health insurance may not make any difference on the degree of accessibility.

One necessary condition the individuals will fundamentally look out for as prerequisite to partaking in any health insurance plan is the assurance that the healthcare service will be made available. The coefficient of "availability of health facilities" appears to be generally not significant, except for "avail health facs. (6-10)", which is positive and statistically significant at 10%. This implies that provision or availability of health facilities is crucial to successful and significant uptake of the scheme by the households. Thus future extension of the CHIS to other communities in the country, especially in the rural areas should be preceded by adequate and even spread of facilities, expected to provide the healthcare services.

Conclusion

This study examined the WTP for health insurance by rural poor in Kwara state, Nigeria. The study applied both the descriptive analysis and Probit regression methods to explain the extent of WTP for CHIS and its determinants. The contingent valuation method was used to determine the WTP by the respondents. Majority of the respondents who are at their prime and economically productive age, mostly engaged in farming activity were found to be willing to pay a premium in excess of what is currently being charged [N300 ($1.36)], with an average WTP of N720 ($3.27). Given the categorical nature of the variables, the Probit regression techniques was applied as the appropriate estimation procedure. Three models based on samples from each of the communities of Shonga and Afon separately and their pool were estimated. The pattern of significance of the variables is similar across the

models. The regression results revealed the determinants of WTP to include the age, income, gender of the respondents, educational attainment, and frequency of illness. The youthfulness of age which is strongly linked with productiveness significantly strengthen WTP. Probably driven by family responsibility, the male respondents tend to appreciate the essentialness of health to productivity, and are more favourably disposed to enrolling and paying for community health insurance scheme. Education also plays a significant role in respondents' WTP for CBHI. Experience of incidence of illness by respondents also drive respondent's decision to take up and pay for CBHI, which is suggestive of possible adverse selection problem, as the scheme becomes more attractive to people with more frequent incidence of illnesses.

To promote increased enrolment and wider coverage to other communities, policy measures that enhance the productivity potential of rural populace should be pursued. Economically empowering people to be more productive has the tendency of promoting virtuous circle of productivity working through better health and increased labour participation.

References

1. Aldy JE, Kotchen MJ, Leiserowitz AA. Willingness to Pay and Political Support for a US National Clean Energy Standard. Nature Climate Change; 2012 2(8): 596 – 99.
2. Asenso-Okyere WK, Osei-Akoto I, Anum A, Appiah EN. Willingness to Pay for Health Insurance in a Developing Economy. A Pilot Study of the Informal Sector of Ghana Using Contingent Valuation, Health Policy; 1997, 42: 223-237.
3. Asfaw A, Gustafsson-Wright E, VanderGaag J. Willingness to Pay for

Health Insurance: An Analysis of the Potential Market for New Low-cost Health Insurance Products in Namibia, Amsterdam Institute for International Development; 2008. AIID RS-08 01/2: 1-22.

4. Asfaw A, von Braun J. Can Community Health Insurance Schemes Shield the Poor Against the Downside Health Effects of Economic Reforms? The Case of Rural Ethiopia', Health Policy; 2004. 70: 97-108.

5. Asgary A, Willis K, Taghvaei AA, Refeian M. Estimating Rural Households' Willingness to Pay for Health Insurance. European Journal of Health Economics; 2004. 5: 209-215.

6. Ataguba JE, Ichoku HE, Fonta WM. Estimating the Willingness to Pay for Community Healthcare Insurance in Rural Nigeria, PMMA Working Paper Series 10, 2008.

7. Ataguba JE. Community Health Insurance Scheme as a Viable Option for Rural Population in Nigeria. Paper submitted to the Centre for the Study of African Economies (CSAE), Department of Economics, University of Oxford; 2008.

8. Barnighausen T, Liu Y, Zhang X, Sauerborn R. Willingness to Pay for Health Insurance among Informal Sector Workers in Wuhan, China: a Contingent Valuation Study, BMC Health Services Research; 2007. 7: 114.

9. Binam JN, Nkama A, and Nkendah R. Estimating the Willingness to Pay for Community Health Prepayment Schemes in Rural Areas: a Case of the Use of Contingent Valuation Surveys in Centre Cameroon, Paper submitted to the Centre for the Study of African Economies (CSAE), Department of Economics, University of Oxford; 2004. Available from http://www.csae.ox.ac.uk/conferences/2004-GPRaHDiA /papers/4h-Binam-

CSAE2004.pdf

10. Boyle KJ, Johnson FR, McCollum, DW, Desvousges WH, Dunford R.Hudson S. Valuing Public Goods: Discrete Versus Continuous Contingent-Valuation Responses. Land Economics; 1996. 72: 381– 96.

11. Carson RT, Flores NE, Martin KM, Wright JL. Contingent Valuation and Revealed Preference Methodologies: Comparing the Estimates for Quasi-public Goods. Land Economics; 1996. 72:80–99.

12. Carson RT, and Steinberg D. Experimental Design for Discrete Choice Voter Preference Surveys, 1990; Proceeding of the Survey Methodology Section of the American Statistical Association; 1989. Washington, DC: American Statistical Association.

13. Carson RT. Three Essays on Contingent Valuation: Welfare Economics, Non-market Goods, Water Quality, PhD Thesis. Berkeley: Department of Agricultural and Resource Economics, University of California; 1985.

14. Carson, RT. Contingent Valuation: A Comprehensive Bibliography and History, Northampton, MA: Edward Elgar; 2011.

15. Carson, R.T. Contingent Valuation: A Practical Alternative when Prices Aren't Available, Journal of Economic Perspectives; 2012. 26(4), Pp 27–42.

16. Cummings RG, Brookshire DS, Schulze WD. Valuing Environmental Goods: a State of the Arts Assessment of the Contingent Valuation Method. Totowa, NJ: Roweman and Allanheld; 1986.

17. de Meijer, C, Brouwer W, Koopmanschap M, van den Berg B, and van Exel J. The Value of Informal Care – A Further Investigation of the Feasibility of Contingent Valuation in Informal Caregivers, Health

Economics; 2010. 19(7): 755 –71.

18. Donfouet HP, Essombe PJE, Mahieu P, Malin E. Social Capital and Willingness to Pay for Community Based Health Insurance in Rural Cameroon, Global Journal of Health Services; 2011. 3(1): 142-149.

19. Dong H, Kouyate B, Cairns J, Sauerborn R. Inequality in Willingness to Pay for Community Based Health Insurance. Health Policy; 2005; 72: 149-156.

20. Dror DM, Randermacher R, Koren R. Willingness to Pay for Health Insurance Among Rural and Poor Persons: Field Evidence from Seven Micro Health Insurance Units in India. Health Policy; 2006. doi:10.1016/j.heal thpol.2006.07.011

21. Hanemann MW. Valuing the Environment Through the Contingent Valuation, Journal of Economic Perspectives; 1994; 8(4): 19-43.

22. Griffiths, C, Klemick H, Massey M, Moore C, Newbold S, Simpson D, Walsh P, Wheeler W. U.S. Environmental Protection Agency Valuation of Surface Water Quality Improvements, Review of Environmental Economics and Policy; 2012 6(1): 130 – 46.

23. Hygeia Connect, Hygeia Nigeria Limited Connect. A Quarterly Newsletter; 2007.

24. Jiang Y, Asfaw A, von Braun J, Performance of Existing Rural Cooperative Medical Scheme and Willingness to Pay for the Improved Scheme; 2004. Available from: http://www.tropentag.de/2003/abstract s/full/10.pdf.

25. Jeuland, M, Lucas M, Clemens J, Whittington D. A Cost–Benefit Analysis of Cholera Vaccination Programs in Beira, Mozambique, World Bank Economic Review; 2009. 23(2): 235 – 67.

26. Jiang, Y, Jin L, Lin T. Higher Water Tariffs for Less River Pollution— Evidence from the Min River and Fuzhou City in China, China Economic Review; 2011. 22(2): 183 – 95.

27. Kanninen BJ. Optimal Experimental Design for Double-bounded Dichotomous Choice Contingent Valuation, Land Economics; 1993. 69:138–46.

28. Kerr, G. Contingent Valuation Elicitation Effects: Revisiting the Payment Card, Paper presented to Australian Agricultural and Resource Economics Society, Adelaide; 2001. 23-25. Available from: http://ageconsearch.umn.edu/bitstrea m/125686/2/Kerr1.pdf

29. Lang H, Lai M. Willingness to Pay to Sustain and Expand National Health Insurance Services in Taiwan. BMC Health Services Research; 2008. 8:261 doi:10:1186/1472-6963.

30. Mathiyazhagan K. Willingness to Pay for Rural Health Insurance Through Community Participation in India, International Journal of Health Planning and Management; 1998. 13: 47-67.

31. Mitchell RC, Carson RT. Using Surveys to Value Public Goods: The Contingent Valuation Method. Resource for the Future, Washington, DC; 1989.

32. Mohammed EY. Contingent Valuation Responses and Hypothetical Bias: Mitigation Effects of Certainty Question, Cheap Talk, and Pledging, Environmental Economics; 2012 3(3).

33. Morrison GC, Gyldmark M. Appraising the Use of Contingent Valuation. Health Economics; 1992. 1: 233–43.

34. Onwujekwe O, Okereke E, Onoka C, Uzochukwu B, Kirigia J, Petu A. Willingness to Pay for Community-Based Health Insurance in Nigeria: Do Economic Status and Place of Residence Matter? Health Policy and Planning; 2010. 25:155-161.

35. Onwujekwe O, Uzochukwu B, Kirigia J. Basis for Effective Community-Based

Health Insurance Scheme: Investigating Inequities in Catastrophic Out-of-pocket Health Expenditures, Affordability and Altruism. African J. Health Economics; 2011. 0001: 1-11

36. Ready RC, Buzby JC, Hu D. Differences between Continuous and Discrete Contingent Valuation Estimates. Land Economics; 1996. 72(3), 397-411.

37. Soyibo A, Olaniyan O, Lawanson AO. National Health Accounts of Nigeria, 2003-2005; Incorporating Sub-national Health Accounts of States. Vol. 1: main report submitted to Federal Ministry of Health, Abuja; 2009.

38. Soyibo A. National Health Accounts of Nigeria, 1998-2002, Final report submitted to World Health Organization, Geneva; 2005. Available from: http://www.who.int/nha/country/nga/en/

39. Venkatachalam L, The Contingent Valuation Method: A Review, Environmental Impact Assessment; 2004. 24, pp. 89-124.

40. Walsh RG, Loomis JB, Gillman RA. Valuing Option, Existence and Bequest Demands for Wilderness. Land Economics; 1984. 60:14 – 29.

41. Whitehead JC, Blomquist GC. The Use of Contingent Valuation in Benefit-cost Analysis; 2005. Available from: http://gatton.uky.edu/faculty/blomquist/HandbookCV%202006%20CV%20in%20BCA%20Whitehead%20Blomquist.pdf