

PAYING FOR COMMUNITY-BASED HEALTH INSURANCE SCHEMES IN RURAL NIGERIA: THE USE OF IN-KIND PAYMENTS

WILLIAM M. FONTA¹, H. EME ICHOKU² & JOHN E. ATAGUBA³

Abstract:

Financing healthcare for the poor is one major challenge facing the world's poorest populations in developing countries. While over 90% of the global burden of disease is borne by over 80%, only about 11% of global health spending is on the poor. Community-based health insurance schemes (CBHIS) have emerged in Africa for mobilizing community resources. They can also be a stepping stone to a more formal and potentially universal coverage. In parts of Africa where such schemes exist, they have not effectively covered the target population. Nigeria has a few such schemes. This paper uses the contingent valuation to examine the possibility of adopting CBHIS using in-kind payments in rural Nigeria. The study finds that gender, household size, health status, the quality of health care centers, confidence in the proposed scheme, distance to the nearest health care center and income are major determinants of households' willingness to pay (WTP) for the scheme.

Keywords: Healthcare Financing, Rural Poor; CBHIS; WTP, In-kind Payments, Nigeria.

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1. INTRODUCTION

Health care financing is one of the most challenging problems facing the

¹ United Nations University Institute for Natural Resources in Africa (UNU-INRA), Accra, Ghana, and Centre for Demographic and Allied Research (CDAR), Department of Economics, University of Nigeria, Nsukka, Nigeria.

² Centre for Demographic and Allied Research (CDAR), Department of Economics, University of Nigeria, Nsukka, Nigeria.

³ Health Economics Unit, School of Public Health and Family Medicine, University of Cape Town, South Africa.

Corresponding Author: Dr. William M. Fonta, United Nations University Institute for Natural Resources in Africa (UNU-INRA), International House, University of Ghana, Legon-Campus, Accra, Ghana. Email: fontawilliam@gmail.com; Tel: +233-541088837.

world's poorest populations especially in developing countries. This is because while over 90% of the global burden of disease is borne by over 80% of the world's poor, only about 11% of global health spending is targeted at the poor (Preker *et al.* 2002). Several possibilities can be identified for the poor to mitigate the negative effects of low health care spending. One of these is to increase risk sharing agreements through the use of tax funds, formal insurance schemes and other forms of mandatory and voluntary financing mechanisms. Another is the use of direct user fees. While these can be important, they are often not easily and effectively implemented in resource poor African countries due to weak institutional arrangements and other deficiencies. Nonetheless, whereas some African countries, such as Ghana, Burkina Faso and Uganda have been able to institute social health insurance schemes (SHICs) that cover both the formal and informal sectors, many others have not been able to do so. In the absence of such nation-wide schemes or mechanisms, community resource mobilization through community-based health finance schemes (CBHIS) can serve as a substitute for financing health services for the poor.

Community health insurance (CHI) schemes are one way of mobilizing community resources to share in the financing of local health services (Cripps *et al.*, 2000). They represent promising mechanisms for increasing rural populations' access to health care and for generating additional financial resources for health (Ekman, 2004 & Basaza *et al.*, 2008). Additionally, they may be seen as a stepping stone to universal coverage (Arhin-Tenkorang, 2001 & Davies and Carrin, 2001). Such schemes are often viewed more favorably than those which adopt user charges at the point of health service utilization as a financing mechanism (Dror and Preker, 2002 & Basaza *et al.*, 2008). This view is based on experiences since the 1980s when the World Bank and other agencies promoted the use of user fees on the grounds of increasing resources to the health sector and improving the quality of health care services through cost recovery measures (Akin *et al.*, 1987 & Bitran *et al.*, 2003). These however, often made health care unaffordable for the poor.

However, despite the advantages associated with CHI schemes, its coverage is still very low in resource poor countries (De Allegri *et al.*, 2006; Bennett *et al.*, 1998; Ekman, 2004; Ataguba *et al.*, 2008; Basaza *et al.*, 2008 & Mladovsky and Mossialos, 2008). Although no clear consensus has emerged as to why, some of the possible reasons offered by many community-based development experts include: (i) poor knowledge in community-based health project planning and implementation (Musau, 1999; Fonta, 2006; Ataguba *et al.*, 2008 & Fonta *et al.*, 2011); (ii) difficulties in setting the financing prices for intended community-based financing schemes (Carrin, 1987; Fonta *et al.*, 2005, 2008, 2009 & Onwujekwe *et al.*, 1998 & 2000); (iii) institutional rigidities

and weaknesses in timing and collection of healthcare premiums (De Allegri *et al.*, 2006); (iv) poor quality of healthcare services (Criel and Waelkens, 2003); and finally, (v) poor understanding of the concept of CHI, poor community involvement in scheme management, inability to pay premiums as well as rigid enrolment criteria (Bennett *et al.*, 1998; Basaza *et al.*, 2008; Mladovsky and Mossialos, 2008 & Onwujekwe, 2011).

The use of the contingent valuation methodology (CVM) is becoming increasingly important in the planning and design of CHI schemes in many parts of Africa (Asenso-Okyere *et al.*, 1997; Asgary *et al.*, 2004; Dong *et al.*, 2004a,b; Fonta, 2006; Ataguba *et al.*, 2008; Onwujekwe *et al.*, 2010, 2011 & Fonta *et al.*, 2011). The main reason for this is that the method is very flexible and adaptable to many valuation tasks that alternative healthcare evaluation techniques cannot handle. CVM results are equally easy to interpret and use for designing healthcare financing scheme. For example, health insurance premiums can be presented in terms of mean or median willingness to pay (WTP) estimates (Fonta, 2006). However, most CHI schemes designed with the aid of the CVM, have rather favoured the use of monetary values as the preferred 'bid vehicle' or 'payment mechanism' for estimating WTP in preference to in-kind contributions. This is in spite of the fact that rural communities are characterized by extreme poverty with extremely low purchasing power (Ataguba *et al.*, 2008).

The main purpose of this paper is to explore the possibility and feasibility of using in-kind payments in the design of CHI schemes in rural Nigeria. As a case study we have used the Nsukka Local Government Area (LGA) of Enugu State, Southeastern Nigeria, where a new CHI scheme is being proposed by the local authorities. However, it would be extremely difficult to design and implement such a proposed scheme in the area without the active participation of the local people. Also, knowledge of the maximum amount the people are willing to pay will help the local authorities to estimate the community's aggregate willingness to pay for the intended scheme. This would go a long way to assist the local authorities to estimate what additional funding may be needed from alternative sources, to implement the scheme in the area.

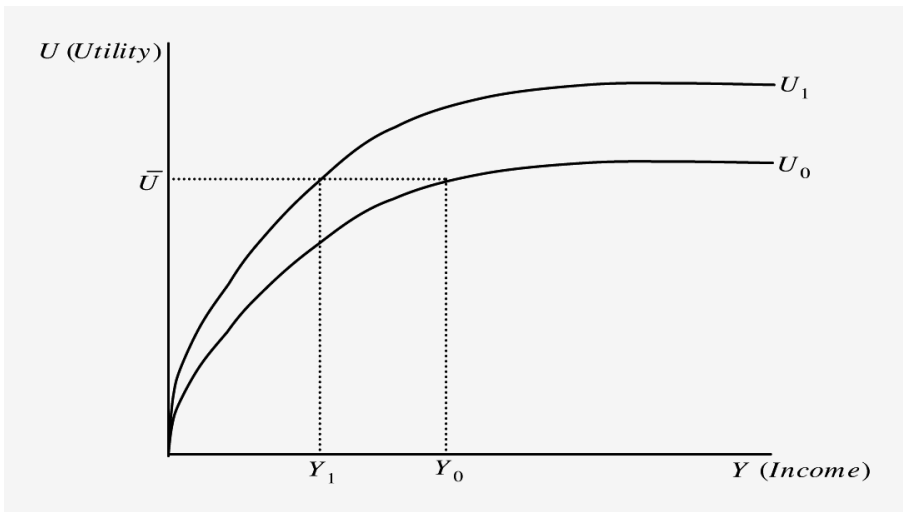
The overall objective of the study was therefore to design an improved planning methodology that could help elicit information on the value placed by the Nsukka inhabitants on communal financing of the scheme, and decide appropriate household insurance premiums or levies. A key concept in such an improved planning methodology is that of the willingness to pay (WTP) of households in the area to finance the scheme. Eliciting households' WTP, with the aid of the CVM, to inform the design of CHI schemes is not a novelty in health economics literature. It has been used by Asenso-Okyere *et*

al., (1997); Asfaw and Braun (2004); Dong *et al.*, (2004b); Binam *et al.*, (2004); Fonta 2006; Basaza *et al.*, (2008); Ataguba *et al.*, (2008) & Onwujekwe *et al.*, (2010 & 2011), to inform the design and initiation of CHI schemes in Ghana, Ethiopia, Burkina Faso, Cameroon, Uganda and Nigeria respectively. However, as earlier indicated, most of these studies with the exception of Asfaw and Braun (2004), failed to explore the importance of using in-kind contributions as a viable community financing option.

2. THEORETICAL FRAMEWORK

The theory of contingent valuation is closely related to that of consumer demand. The maximum amount an individual is willing to pay indicates the value an individual places on the goods under consideration and the reserve price for those goods (Ataguba *et al.*, 2008). This amount is assumed to be additional in individuals within certain households and communities. If we assume that an individual is risk averse with respect to income in demanding a health care scheme, and that the utility or well-being of the individual is dependent on income and health; then the amount the individual is willing to pay for health-care improvement or in this case, health insurance premium, will be the amount of income/commodities the individual is willing to part with and still remain at the same level of utility or well-being as before the payment.

Figure 1: The Amount Individuals are WTP



Graphically the maximum amount individuals are willing to pay for a scheme to improve their health status (Utility) as shown in figure 1, is defined as the gap between Y_0 and Y_1 measured as $Y_0 - Y_1$. The curve U_0 denotes the original level of health status and U_1 denotes the improvement in health status. It can be immediately observed that the income level at an improved state of health is lower ($Y_1 < Y_0$) due to the payment, although the individual still maintains the same level of utility denoted by \bar{U} on an improved health state. However, since health is not a material asset as such and cannot be traded on the market (Johannesson, 1996), one cannot obtain valuations of willingness to pay (WTP) directly. Hence, the use of the contingent valuation methodology (CVM) to value how much households are willing to pay for the scheme and their willingness to participate in the proposed scheme.

In health economics literature, there are four principal types of WTP elicitation formats. These include the open-ended, bidding game, payment card and dichotomous choice elicitation formats. However, although other elicitation methods exist, they can be considered as extensions or hybrids of these four methods (Heinzen and Bridges, 2008 & Fonta *et al.*, 2010). Generally, it has been acknowledged that the dichotomous choice format, when buttressed with a follow-up elicitation question, apart from being incentive-compatible, may likely minimize the occurrence of sample non-response risk (Freeman, 1993). Based on this, and coupled with the fact that the format is closer to what most respondents are familiar with (as it mimics a bargaining process in which the respondents, as buyers of a commodity, would expect the price to first be stated by the seller and then after some bargaining would decide on a final amount they would pay), this approach was selected as the preferred format for the current application.

3. THE DATA

The aim of the study was primarily to meet the policy challenge of improving households' access to health care services in rural Nigeria through CHI schemes. The data used for the study was collected through a contingent valuation method (CVM) survey in the last quarter of 2005. Pre-tested interviewer-administered questionnaires were used to collect the CV survey data from 380 randomly selected households in five (5) out of the 15 communities in the Nsukka Local Government Area (LGA) of Enugu State, Southeastern Nigeria⁴.

⁴ Details of the sampling procedure can be found on pages 20-22 of Ataguba *et al.*, (2008) which is available online at www.pep-net.org/programs/pmma/working-papers.

Nsukka LGA is located in the northern part of Enugu State, Southeastern Nigeria. It is made up of 15 communities with a population estimate of about 309,633 inhabitants. Malaria, TB, diarrhoea, and respiratory infections rank as the top public health concerns in Nsukka (Ichoku *et al.*, 2010). The increasingly low level of care by the rural population has adverse effects on the health and economic productivity of the people. The increasingly low level of care is largely driven by their low purchasing power, hence their potential inability to finance health care needs when household members fall ill. It is recorded that only about 59% of pregnant women in Nsukka LGA seek antenatal care. Furthermore, it is estimated that the average monthly cost of treatment for common diseases ranges from \$4.4 to \$15 per capita for those who are ill (Onwujekwe and Uzochukwu, 2005). Malaria treatment alone would cost households about \$14 per capita, TB about \$7.7 per capita and the poor spend relatively large amounts as a proportion of their income I on treatment (Onwujekwe and Uzochukwu, 2005). These differences in health and health care payments in the area points to the necessity for pre-payment schemes to cater for the poor.

The questionnaire was administered by trained enumerators to household heads in the local language (Igbo) of the community. It was divided into two broad categories. The first category elicited information on households' socio-economic and demographic characteristics, health status, assets holding, housing and wealth information, community variables as well as, community willingness to participation in financing the scheme.

The second mainly focused on the contingent valuation scenario under which the evaluation of the proposed CHI scheme took place. This scenario detailed the nature of the new CHI initiative being proposed in Nsukka, the current health service delivery situation in Nsukka, the institutional setting in which the proposed scheme will be provided, and how each household will have to pay to finance the scheme (i.e., in-kind quarterly contributions). In the WTP question, respondents were asked if the only available option to pay for the scheme was through in-kind contribution: would he/she be willing to contribute? For those who said no, they were asked to give reasons for not wanting to pay to help finance the scheme. However, for those who accepted, they were asked to list the maximum quantities of agricultural commodities they were willing to contribute quarterly to finance the scheme.⁵

⁵ The scale of measurement was a local market basket called 'the mudu'. Most households stated their contributions in terms of rice, beans, cassava, maize, yams, pears, etc. The listed commodities were then converted into actual cash using their current market values to arrive at their monetary equivalence or WTP values for the sampled households.

Overall, out of a total of 380 households randomly selected for interview, 309 were successfully interviewed either during the first visit or during a follow up visit while 71 households refused outright to be interviewed.

4. THE ECONOMETRIC MODEL

Our prime interest here is to identify the determinants of households' WTP for the scheme. However, for this amount to be observed, a household must first be willing to participate in financing the scheme. The situation therefore warrants a joint decision process, first involving whether or not a household decides to participate in financing the scheme (i.e., participation model), and secondly; having decided to participate, the actual amount he/she is willing to pay (i.e., valuation model). If we estimate the determinants of WTP for the scheme based only on the sub-sample of those with reported WTP values, it could be incorrect if there is bias introduced by self-selection of individuals into the participation model (Strazzera *et al.*, 2003). Thus, to check the presence of sample selection bias, we modelled the two choices simultaneously using Heckman's 2-step approach.

Formally, let Y_1 denotes the WTP amount for the scheme, and Y_2 for a binary variable assuming the value of 1 if a household decides to participate in the scheme and 0 otherwise (i.e., no WTP amount). Let x and w also represent vectors of explanatory variables for the valuation and participation models such as respondent age, education level of household head, household income, household size, household poverty status, gender of the respondent, household composition, the health status of the respondent, previous participation in a social health insurance initiative, cost of treatment, means of treatment, distance and quality of available health care facilities⁶. Then we can write:

$$\ln Y_{1i} = x'_i\beta + \sigma\varepsilon_i \quad [1]$$

for the (log) WTP equation, where σ is a scale factor, Y_{1i} is observed only when $Y_{2i} = 1$, and

⁶ These hypothesized variables are based on findings from social health insurance schemes. These include studies by Asenso-Okyere *et al.*, (1997); Dong *et al.*, (2003a & 2003b, 2004a & 2004b & 2005); Binam *et al.*, (2004); Jiang *et al.*, (2004); Asfaw and Braun, (2004); Fonta and Ichoku (2005); Basaza *et al.*, (2008); Ataguba *et al.*, (2008) & Onwujekwe *et al.*, (2010, 2011) etc.

$$Y_{2i} = \begin{cases} 1 & \text{if } w'_i\alpha + \mu_i \geq 0 \\ 0 & \text{if } w'_i\alpha + \mu_i < 0 \end{cases} \quad [2]$$

for the participation equation. The joint distribution of (ε_i, μ_i) is assumed to be bivariate normal with zero means, variances equal to 1 and correlation ρ . When $\rho = 0$ the two decisions are independent and the parameters of the two equations can be estimated separately (Strazzeria *et al.*, 2003). The Heckman procedure is carried out in two stages. First, note that the conditional expected value of (Y_{1i}) is:

$$E[\ln Y_{1i} | Y_{2i} = 1] = x'_i\beta + \rho\sigma\lambda(w'_i\alpha) \quad [3]$$

where, $\lambda(w'_i\alpha) = \phi(w'_i\alpha) / \Phi(w'_i\alpha)$ is the inverse of the Mills ratio and ϕ and Φ are the standard normal density and standard normal functions, respectively. The first step of the Heckman procedure entails the estimation of the participation equation by Probit, which gives us an estimate of λ . The second step consists of a least squares regression of Y_{1i} on x and $\hat{\lambda}$ (i.e., valuation equation).

5. EMPIRICAL RESULTS

5.1 Sample Statistics

Table presents the description and summary statistics of the sampled population. On average there are 6 members in a household. Most of the household heads interviewed (99%) were employed by the Local Government Authority (mainly as menial labourers and clerks) or in the informal sector as craftsmen, petty-traders and farmers. Note that because of the presence of informal sector workers we rather used wealth index as a proxied variable for income as discussed in Fonta (2006). Hence, the average income for the sample was calculated at NGN121,714.20 or about US\$936.26⁷ per annum or NGN10,142.85 (US\$ 78) per month. In terms of gender distribution, more than 63% of the sampled household heads were male. Further still, the average age of the household head in the survey was about 52 years with over 77% having more than 7 years of formal education. Conversely, about 78% of respondents expressed confidence in the proposed scheme while the average cost of treatment for common diseases was about NGN763 or US\$5.87 across the whole sample. Likewise, the average amount borrowed for treatment, including money obtained from the sale of valuable assets and

⁷ As at the time of survey, the exchange rate stood at US\$1 NGN130.

property across all respondents was estimated to be about NGN666 or US\$5.12. This is equivalent to over 87% of the amount spent on treatment across all respondents. Furthermore, more than half (60.2%) of the sampled household heads reported their health status as being better than 'Good' at the time of interview. Equally, about (55%) of the sample reported seeking health care services from orthodox⁸ health care providers while about 45% reported patronizing patent medicine dealers. Finally, in terms of having knowledge about health insurance or any other form of insurance, the sample response rate was quite low. Only about 11% reported having health insurance knowledge or knowledge about any form of health insurance.

Table 1: Description of the variables used in analysis

Variable	Definition and Measurement	Mean/ Proportion*
Age	The Age of the respondent at the last birthday (in years)	51.69
Gender	Gender of household head 1 = male and 0, otherwise	0.63
Education	Education attainment of household head = 1 > primary school and 0, otherwise	77.0
Know_Insurance	Knowledgeable about health insurance or any form of insurance 1 = knowledgeable and 0, otherwise	0.11
Floor_Material	Nature of floor material 1 = cement/tiles/concrete and 0, otherwise	0.82
Toilet	Ownership of toilet facility 1 = own and 0, otherwise	0.46
Bathroom	Ownership of bathroom 1 = own and 0, otherwise	0.96
Num_Rooms	The total number of rooms in the occupied building excluding the living/dining room, kitchen, toilets and bathrooms	4.13
Wealth_Index	Proxy measure for income level of households. This includes considering durable assets, household building materials, ownership of livestock, economic trees, etc. which are further converted into their current market value using current market prices. The market prices used were obtained as the amount it will cost the household to sell the items.	N121,714.20 US\$936.26

⁸ Orthodox providers are categorized as clinics, maternity centres, dispensary, and hospitals. The unorthodox providers are categorized as patent medicine stores, traditional healers and herbalists, etc.

H_Hsize	Total number of household members living together usually as a nuclear family unit (Household size)	6.10
Sick	Indicating whether or not any household member fell ill in the past two weeks prior to interview and 1 = sick and 0, otherwise	0.40
WTP	Dichotomous variable indicating whether or not the individual accepts to contribute 1 = accept and 0, otherwise	0.80
Employed	Whether the respondent is employed or not both in the formal and informal sector 1 = employed and 0, otherwise	0.99
Participation	Indicating whether or not the respondent or any household member had previously participated in any health insurance initiative or are currently enrolled in one. 1 = participated/participating and 0, otherwise	0.03
H_Status	The general state of health of the respondent at the time of interview 1 = Poor; 2 = Fair; 3 = Good; 4 = Very Good; 5 = Excellent	(1) = 6.8% (2) = 33% (3) = 46.6% (4) = 13.6% (5) = 0%
Means_Treatment	The general and often 'usual' means of seeking treatment when any member of the household falls ill 1 = orthodox and 0, otherwise	0.55
Q_Hcentre	The general rating of the quality of the health centres nearest to the respondent 1 = Poor; 2 = Fair; 3 = Good; 4 = Very good; 5 = Excellent	(1)= 4.21% (2) = 36.6% (3) = 6.6% (4) = 12.6% (5) = 0%
Dwelling	Nature of dwelling defined by the building and construction materials used 1 = cement/concrete and 0, otherwise	0.85
Trust	Indicating the level of confidence in any community trust fund or where funds are pooled together and managed by the community 1 = Highly distrust; 2 = Distrust; 3 = Trust; 4 = Highly trust	(1) = 3.6% (2) = 18.4% (3) = 43.7% (4) = 34.3%
Total_Amt	Amount spent on treatment of any household member during the past four weeks. This includes the quantifiable indirect and direct costs measured in Naira.	N763.35 US\$5.9

Borrowed_Amt	Amount borrowed for the treatment of any household member during the past four weeks where any household member has fallen sick. This also includes the monetary worth (measured in Naira) of sold items.	N666.36 US\$5.1
Distance	The distance from the household to the nearest health centre measured to the nearest Kilometres.	3.33

Source: Authors' calculation.

5.2 Empirical Results

Out of a total of 380 households randomly selected for interview, 309 were successfully interviewed either during the first visit or during a follow up visit. The remaining 71 households (18.7%) were mainly those which refused outright to be interviewed. The reasons behind survey refusals in general have been extensively discussed in the sample survey literature (see, for e.g., Cochran, 1977; Mitchell and Carson, 1989; Deaton, 1997; Amahia, 2010 & Okafor, 2010). However, besides the refusals, there are also households which agreed to participate in the survey but however, reported a zero value for the scheme (i.e., 'protest' zeros or bidders). This behaviour may be ascribed to a variety of reasons such as free riding (loading), adverse reaction to the interview in general or in particular to the mode of payment adopted in the study (Strazzera *et al.*, 2003 & Fonta *et al.*, 2010). Of a total of 309 respondents which actually participated in the survey, 264 respondents (79.7%) provided positive responses to the valuation question while about 63 respondents (20.3%) protested against the proposed community trust fund where contributions were to be pooled to finance the scheme.

It was therefore necessary to determine whether excluding protest bidders from the econometric analysis would lead to a sample selection bias problem. As noted in Mekonnen (2000); Strazzera *et al.*, (2003); Fonta and Omoke (2008) & Fonta *et al.*, (2010), a preliminary test for sample selection bias is to compare the means of household covariates between the two groups (i.e., positive versus protest bidders) using t-statistics. Any significant difference between both groups of respondents is an early warning indicator of the presence of sample selection bias. For most of the considered variables in the study (Table 1), we found no significant differences between positive and protest bidders at both 1% and 5% levels of confidence. However, to be completely certain that the results were theoretically plausible and statistically satisfactory in terms of sample selection bias, Heckman's 2-step estimator was used for further diagnostic. The results are reported in Table 2.

Table 2: Heckman's 2-step Estimates

(1) Variable	Part. Model (2)			Val. Model (3)		
	Coef.	Robust Std. Err.	t-value	Coef.	Robust Std. Err.	t-value
Constant	-2.97	1.44	-2.07**	7.06	0.37	19.20***
Education	0.41	0.24	1.69*			
H_Hsize				0.03	0.01	2.08**
H_State3				0.21	0.11	1.91*
Ln_Distance	0.84	0.18	4.62***			
Male				0.20	0.09	2.29**
Num_Rooms				0.05	0.03	1.96**
Q_Hcentre2	-0.86	0.29	-2.92***			
Q_Hcentre3	-0.61	0.30	-2.04**			
Q_Hcentre4	-0.63	0.32	-2.01**			
Sick	0.44	0.20	2.19**			
Trust3				0.21	0.10	2.14**
Wealth_Index				0.20	0.10	1.98**
LR chi 2 (3) = 19.03; Prob > chi 2 = 0.0009						
Mills lambda (λ)				-0.52	0.67	-0.79
Pseudo R ²						0.30
Log-likelihood						-98.4
% correctly predicted		84%				
Observation.		309				264

Significance of parameters * < 0.10, ** < 0.05, *** < 0.01.

Table 3: Summary of estimated mean quarterly WTP amount (in Naira)

	Obs*	Mean	CI-Mean	Median	CI-Median
(1) All (raw observation)	309	788.09	703.3 - 872.9	550.00	488.4 - 700.0
(2) OLS 2-Step Estimation	246	1010.48	956.2 - 1064.7	852.03	806.3 - 897.8

* Number of observations.

Starting first with the Probit results to explain included versus excluded households in the participation model, sickness seems to have an effect on the probability to participate or not. In particular, being positive, implies that household members that fell sick two weeks prior to the survey had higher participation rate. This may perhaps be because implementing the scheme in the area is expected to improve health care delivery services and hence, household health status. Similarly, distance also had an effect on the decision to participate or not and being negative, implies that the further away a household is from a health facility the greater the probability to participate. Possibly because the further away a household is from the nearest health center, the higher the cost of transportation and frequency of visits is lower. This may explain why such households are more willing to pay to finance the scheme than those living closer to existing healthcare facilities. Equally, education also had an effect on the participation rate. Higher educational achievement seems to induce higher participation rate. This may perhaps be because people who are more educated are likely to be more knowledgeable about health insurance and its benefits and are therefore more willing to pay for it. Finally, individuals who perceived the quality of the available health centers nearest to them as being fair, good, and very good, had a better disposition to participate since the proposed scheme is meant to improve, supply and utilize existing health care facilities.

In the valuation equation where $\ln(\text{WTP})$ is the dependent variable, richer households are willing to pay higher amounts than poorer household heads as also reported by Dong *et al.*, (2003a), Binam *et al.*, (2004) and Asgary *et al.*, (2004) although Asenso-Okyere *et al.* (1997) reported a negative relationship. In the study reported here, the amount households are willing to pay is an increasing function of their ability to pay. *Ceteris paribus*, male headed households are willing to pay higher amounts than female headed households, a finding also reported by Dong *et al.*, (2003b). This could be linked to the roles of men in the community who have traditionally been charged with the responsibility of catering for the family financially. Similarly, larger households are also willing to pay higher amounts than smaller households. This is likely to be as a result of the potentially greater financial burden faced by larger households when they seek health care. Further, households that perceived the quality of the healthcare centres nearest to them as being 'poor' are willing to pay more than households that perceive the quality to be good. This is probably due to the deprivation suffered in accessing health care. Furthermore, household heads that have greater trust and confidence in the proposed scheme are willing to pay higher amounts than those who have low confidence in the scheme. This has also been ob-

served by Basaza *et al.*, (2008) and judged by them to be an important consideration for the success of community health financing schemes. Finally, since the coefficient on is not significantly different from zero, there is no indication of a sample selection bias.

5.3 WTP Predictions

On the basis of the fact that there is no significant evidence of sample selection bias, we used the modelling results for the sub-sample of positive respondents to predict the mean WTP estimate for the scheme. The predicted estimates are reported in Table 3. The mean and median quarterly WTP amounts for the scheme were computed as N1010 (US\$7.77) and N852 (US\$6.55) respectively. These estimates seem intuitively reasonable, although they are small compared with N763 (US\$5.87) per month spent on treatment per household as observed by Asfaw and Braun (2004). However, this is not a major problem when using the CVM device to inform the design of CHI schemes. As earlier indicated, one major advantage of using the method is that the mean or median WTP estimates obtained can be used as a basis for computing the aggregate WTP of the financing community. The aggregated amount can therefore be compared with the actual cost of financing the scheme. If, however, there is need for additional funding as in the case with the current application, then the local authorities can solicit for support from counterpart funding, grants, or subvention from the government or donor agencies.

6. CONCLUSION

The proposed policy of the Government of Nigeria to bring health care closer to the people through the new National Health Insurance Scheme (NHIS) is potentially very important. However, a major concern by many is that the new NHIS seems to focus more on the formal sector than the informal sector. While conventional wisdom suggests that it is certainly easier to reach people in formal employment than those in the informal sector, the fact still remains that many Nigerians work in the informal sector and are therefore in dire need of urgent social healthcare protection. The seeming lack of commitment by central government to provide social healthcare protection for the poor has led to calls for ways to protect the poor from the high cost of medical payments especially the increasing level of out of pocket payments (OOPs) by different levels of sub-national governments in Nigeria using CBHIS.

However, the design and implementation of successful CBHIS in many communities of Nigeria, has proven to be a very difficult task for many

healthcare policy planners in the country. This may be partly as a result of the lack of knowledge of existing participatory methodology that can help elicit important project information from host communities. The main purpose of this study was therefore, to design an improved planning methodology that could elicit household WTP for an intended CBHIS in the Nsukka Local Government Area of Enugu state, Nigeria, and to inform the local authorities in setting appropriate household insurance premiums or levies. In the application context, we find that CVM can be successfully used to support the design and implementation of CBHIS and that analysis of the valuation function can provide qualitative information that is difficult to identify using alternative health evaluation techniques. For instance, the empirical findings produced a mean quarterly WTP amounts for the scheme of about N1,010 (\$7.77). This amount could be used by the local authority to design the appropriate household insurance premium or levy for the scheme. Alternatively, it could be used as the basis for calculating the community's aggregate WTP for the scheme. The aggregated amount can therefore be compared with the actual cost of financing the scheme in the area.

We conclude that if health care financing is to meet the objectives of equity in financing and access to health care services and also to guarantee access to the delivery of quality care, such a financing mechanism must have an insurance function built into it and a higher degree of risk pooling. In the case considered in this paper, this scheme is best seen as an interim step for the poor while the National Health Insurance Scheme (NHIS) is developed more fully.

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Résumé:

Soins de santé de financement pour les pauvres est un défi majeur auquel sont confrontées populations les plus pauvres de la planète dans les pays en développement. Alors que plus de 90% de la charge mondiale de morbidité est supportée par plus de 80%, seulement environ 11% des dépenses de santé mondiale est sur les pauvres. Communauté des régimes d'assurance santé (CBHIS) ont émergé en Afrique pour mobiliser les ressources communautaires. Ils peuvent aussi être un tremplin vers une couverture plus formelle et potentiellement universelle. Dans certaines régions d'Afrique où de tels régimes existent, ils n'ont pas effectivement couvert la population cible. Le Nigeria a quelques programmes tels. Ce document utilise l'évaluation contingente d'examiner la possibilité d'adopter CBHIS utilisant des paiements en nature dans les régions rurales du Nigeria. L'étude constate que le sexe, la taille du ménage, l'état de santé, la qualité des centres de soins de santé, la confiance dans le système proposé, la distance du centre de soins de santé le plus proche et le revenu sont des déterminants majeurs de la volonté des ménages à payer (CAP) pour le régime.

Mots-clés: Financement des soins de santé, pauvres en milieu rural; CBHIS; CAP, des paiements en nature, le Nigeria.