

# THE ECONOMIC VALUE OF THE WILLINGNESS TO PAY FOR A COMMUNITY-BASED PREPAYMENT SCHEME IN RURAL CAMEROON

Hermann Pythagore Pierre  
Donfouet and  
Ephias M. Makaudze

**RESEARCH**  
PAPER No. 3

MAY 2011

# THE ECONOMIC VALUE OF THE WILLINGNESS TO PAY FOR A COMMUNITY-BASED PREPAYMENT SCHEME IN RURAL CAMEROON<sup>1</sup>

HERMANN PYTHAGORE PIERRE  
DONFOUET AND EPHIAS M.  
MAKAUDZE

## ABSTRACT

In rural areas of Cameroon, many poor people do not have access to health care services. While many attribute the limited access to health care to an inability to pay out-of-pocket costs for health care services, a community-based health insurance scheme developed specifically to overcome this barrier and increase access to health care has received limited take-up among rural households in Cameroon. We use a willingness-to-pay approach based on the contingent valuation method. This study seeks to assess the economic value of this scheme using a willingness-to-pay approach based on the contingent valuation method. The results indicate that rural households on average are willing to pay FCFA 1010 or \$2.15/person/month. With 58.1% willing to pay for the second bid higher, evidence suggests that there is great demand for a community-based health insurance scheme in rural Cameroon. The results of this study have important policy implications showing that the rural poor are willing to pay insurance premiums to protect themselves and their families from the economic shocks associated with social disasters such as chronic disease.

---

<sup>1</sup> Hermann Pythagore Pierre Donfouet is at the Department of Public Economics, University of Yaounde II and Ephias M. Makaudze is at the Department of Economics, University of Western Cape.  
E-mail: [donfouetz@yahoo.fr](mailto:donfouetz@yahoo.fr)

This work was carried out with financial and scientific support from the International Labor Organization (ILO) under the Microinsurance Innovation Facility. The authors would like to thank Pierre-Alexandre Mahieu, Amjath Babu, T.S. Joseph H. Cook and the EUDN's resource persons for useful discussion as well as Armand Beleck Match for research assistance. Any errors or omissions remain our responsibility.

## INTRODUCTION

Good health is necessary for well-being and essential in striving to achieve the Millennium Development Goals with the ultimate goal of eradicating poverty. As implied by the theory of endogenous growth, a healthy general population underlies higher productivity, an essential factor for economic growth. As a result, many governments in developing countries have increased efforts to improve the provision of health care in both urban and rural areas. Despite these efforts, many developing countries are still far from achieving universal coverage. The situation is worse in rural areas where the standard of living is very low (WHO, 2000) and access to quality health care services is limited due to the absence of formal financial protection in the form of insurance schemes. As affirmed by Khan (2001), a majority of rural households (more than 90%) in many developing countries not only face limited access to health care but also poor quality water and unsafe sanitation.

It is not surprising that compared to their urban counterparts, rural households tend to suffer disproportionately from higher levels of ill health, mortality, malnutrition and inadequate health care (Gwathin et al.2005). In order to reach the poor in rural areas with quality health care services, many policymakers and international organizations have been advocating for alternative health care insurance schemes. Given the current state of health care services for the rural poor, NGOs, policymakers, and health practitioners have turned their attention to proposals for community-based health insurance schemes. Community-based health insurance can form an important source of health security, especially for the rural poor. Examining the demand for health care by rural households using a willingness-to-pay technique in the form of community-based health insurance can provide important clues to help

policyholders and microinsurance practitioners in improving access to quality health care.

Historically, social protection and risk management in developing countries has been examined from the supply side. More recently, many authors have begun to focus their analyses on the demand side. For example, researchers have started to explore the potential of community-based health insurance as an effective instrument to improve access to health care and alleviate poverty in rural areas. In several countries, community-based prepayment schemes have proven to increase access to health care services, especially among children, pregnant women, rural households, and informal workers, a majority of whom are excluded from formal insurance (Shaw and Griffin, 1999; Dror et al. 2006).

Recently in Cameroon, the government initiated an awareness campaign to create and expand community-based prepayment schemes with the goal of helping at least 40% of the population to gain improved access to health care by 2015. Currently, very few studies have been conducted in rural areas with the objective of assessing the willingness-to-pay (WTP) for a community-based health care prepayment scheme among rural households. The overall objective of this study is to assess the willingness-to-pay (WTP) of rural households in Cameroon for a proposed community-based health care prepayment scheme. More specifically the study aims to:

- Find the determinants that influence rural households' WTP for a community-based health care scheme; in other words, what are the major determinants influencing households' choice for the proposed health care scheme?
- Understand the reasons behind households' rejections of this proposed scheme.

- Based on the research findings, draw some useful insights and recommendations for policymakers.

The remainder of the paper is organized as follows: Section 2 discusses the literature of the willingness to pay for a community health care prepayment scheme. Sections 3, 4 and 5 examine the elicitation format, econometric estimation, survey design and sampling, respectively. Section 6 discusses the empirical results of the study, and Section 7 concludes with some policy implications.

## PREVIOUS RESEARCH

Ascribing a value to public goods such as health care has been a serious problem for economists. In fact, according to consumer theory, the law of supply and demand states that the equilibrium market price and quantity of a good is at the intersection of consumer demand and producer supply. However, health care is not a good traded on the market. Consequently, determining the value of health care can be complex. To solve this problem, economists have developed the contingent valuation method (CVM), which mainly consists of estimating the value a person places on a good, usually one that is not sold in the market. The CVM was pioneered by Davis in 1963 and has been used extensively in a number of fields. In recent years, most contingent valuation (CV) studies have adopted the closed-ended format in which the respondents are asked whether or not they would be willing to pay a specified price for a given health insurance package. The closed-ended format also called referendum or the 'take-it-or-leave-it' approach was first introduced by Bishop and Heberlein (1979). This approach, well developed by Hanemann (1984), is recommended by the NOAA panel (Arrow et al. 1993), Hanemann and Kanninen (1999) as a good way to elicit individuals' preferences for the following reasons: (i) It closely mimics a real market situation where a consumer has to decide whether or not to purchase a good based on the observed price; (ii) It facilitates the individuals'

task who just need to answer yes or no to the valuation question and (iii) It reduces strategic bias. This method is now the most widely accepted approach for assessing WTP for services in the health sector.

As community-based health insurance has become an important issue, a number of empirical studies have been conducted to assess the WTP of households for such a scheme:

Mathiyazhagan (1998) reports the results of a survey conducted in Karnataka (India) where the main objective of the study was to examine the willingness to pay for a viable rural health insurance scheme through community participation in India. Using the contingent valuation approach (logit model), the results show that insurance/saving schemes are popular in rural areas. In fact, people have a relatively good understanding of insurance schemes (especially life insurance) as opposed to saving schemes. Most of the people stated that they would be willing to join and pay for the proposed rural health insurance scheme.

However, the probability of willingness to join was greater than the probability of willingness to pay. Indeed, socio-economic factors and physical accessibility to quality health services appeared to be significant barriers to willingness to join and pay for such a scheme. Dong et al. (2003, 2004) also used the CVM to assess the WTP of households in Burkina Faso (West Africa.) The amount that respondents were willing to pay ranged between US \$ 3.17 and US \$ 4.25 per individual per year and between US \$ 8.6 and US \$ 13.03 per household per year.

In addition, Dong et al. (2003) used the CVM to compare heads of households' WTP for community-based health insurance for themselves with their WTP for other household members. A random sample of 698 heads of households was interviewed in the North West region of Burkina Faso and a bidding game approach was used to elicit WTP. The mean

WTP by heads of households for insurance for themselves (3575 FCFA) was twice their mean WTP per capital for the household as a whole (1759 FCFA). The old have a lower WTP than the young; females have lower WTP than males. The poor have a lower WTP than the rich; those with less education have a lower WTP than those with more years of education. The authors suggest that when setting the insurance premium, the differences in household heads' WTP for themselves and their WTP to insure their households as a whole needs to be considered. Lastly, Asgary et al. (2004) examine willingness-to-pay for health insurance in rural Iran, and they find that households are willing to pay on average US\$2.77 per month for health insurance.

Motivated by the aforementioned literature, this paper seeks to contribute to the existing literature by including the consequentialism of the design of the CVM and the motives behind the WTP (or refusal to pay). In most of these CV studies, many authors have omitted the introduction of consequentialism which may bias the results as observed in many CV surveys. On the other hand, they have neglected to underlie the motives (reasons) behind the WTP (or refusal to pay). To the best of our knowledge, this study is the first which integrates the consequentialism script in the area of a community health care prepayment scheme. In fact, the 'consequentialism' developed by Bulte et al. (2005), inspired by the work of Carson et al. (2004), explicitly tells the respondents they should consider that the results of the study will be made available to policymakers and could serve as a guide for future decisions. This type of script seems to be effective in reducing the hypothetical bias.

## WILLINGNESS TO PAY ELICITATION FORMAT

In this study, we use the double-bounded dichotomous choice format proposed by Hanemann et al. (1991) to elicit WTP by rural households for the proposed community-based health care prepayment scheme.

The scholars of the CVM recommend the use of this format because it has properties for incentive-compatible or truthful revelation of preferences. Furthermore, the use of this format minimizes the occurrence of many biases which sometimes occur in contingent valuation. The double-bounded dichotomous choice contingent valuation method (DCCVM) has the advantage of higher statistical efficiency in welfare estimates over the single-bounded model. In the double-bounded DCCVM, two sequences of bids are offered to the respondents. First, a respondent is asked whether he or she would be willing to accept or reject an initial bid; thereafter, a second bid is offered. Depending on the respondent's answer to the first bid, the second bid could be moved downwards or upwards. In other words, a respondent is asked if he or she would be willing to pay an initial

$$L_j(\mu, t) = \Pr(t^2 - \mu > \varepsilon_j > t^1 - \mu)^{YY} \cdot \Pr(\mu + \varepsilon_j > t^2)^{YY} \times \Pr(\mu + \varepsilon_j < t^2)^{NN} \cdot \Pr(t^1 - \mu > \varepsilon_j > t^2 - \mu)^{NY}$$

bid of a set amount for perceived improved access to health care services via the introduction of a newly proposed community-based health care prepayment scheme. If he or she accepts the initial bid, a second higher bid (double the first bid)  $B_n^u$  will be offered. If he or she rejects, a second lower bid lower (half of the first bid)  $B_n^d$  will be offered. There are four possible responses: 'yes-yes'; 'yes-no'; 'no-yes' and 'no-no'.

## ECONOMETRIC ESTIMATIONS

The interval data model is the initial formulation of Hanemann et al. (1999). Let us assume that  $t^1$  is the first bid and the  $t^2$  is the second bid. The bounds on the WTP are:

$$t^1 \leq WTP < t^2 \text{ for the yes - no responses;}$$

$$t^1 > WTP \geq t^2 \text{ for the no - yes responses;}$$

$$WTP \geq t^2 \text{ for the yes - yes responses;}$$

$$WTP < t^2 \text{ for the no - no responses;}$$

The general form the Double-bounded model is:

$$(1) WTP_{ij} = \mu_i + \varepsilon_{ij}$$

$WTP_{ij}$  represents the  $j^{\text{th}}$  the respondent's willingness to pay, and  $i = 1, 2$  represents the first and the second answers.  $\mu_1, \mu_2$  are the means for the first and the second responses. To construct the likelihood function for the Interval data model, Hanemann et al. (1999) assumed that  $\mu = \mu_1 = \mu_2$ , where  $\mu$  is a parameter. Furthermore, they assumed that the model in all its parts is the same for each question that is for the  $j^{\text{th}}$  individual:

$$(2) WTP_j = \mu + \varepsilon_j$$

Written with the error as normal the likelihood function

Where:

YY=1 for yes-yes answer, 0 otherwise

NY=1 for a no-yes answer, 0 otherwise

YN=1 for a yes-no answer, 0 otherwise

NN=1 for a no-no an

To analyze the effects of the explanatory variables on the WTP for a proposed community health care prepayment scheme, the interval regression model was used. First, the responses to the valuation question were listed in interval form - that is having a lower limit and upper limit.

For instance, for the 'yes-yes' responses, the lower limit is the second bid and the upper limit is positive infinity (or the disposable income of the respondent if available); for the 'yes-no' responses, the lower limit is the first bid and the upper limit is the second bid; for the 'no-yes' responses, the lower limit is the second bid and the upper limit is the first bid; for the 'no-no' responses, the upper limit is the second bid and the lower limit is either minus infinity or zero (depending on the nature of the good). An interval regression model was chosen over a binary logit model primarily

because the former exploits more information and thus increases efficiency with the least ambiguity regarding the recovered preferences (Haab and McConnel, 2002).

Table 1 shows the different variables that were used in the analysis.

**Table 1: Description of the variables used in the analysis**

Variables	Description of the variables	Values
Bid1	Initial Bids	FCFA 250, 350, 450, 550, 650,800
Bid2	Follow-up Bids	
WTP2	A dummy variable representing the willingness to pay of the respondent when the second bid is presented	1 if Yes and 0 otherwise
Gender	A categorical variable representing the gender of the Respondent	1 for the male; 0 otherwise
HHnumber	Total number of household members living together usually as a nuclear family unit (Household size)	Continuous (count)
Hfamily	Family health status	Percentage of individuals in the household who were ill 9 months prior to the survey as proxy of household Family illness rate in percentage
Profession	Profession of the respondent	1 if farmers/sellers and 0 otherwise
Religion	Religion of the respondent	1 if Catholic and 0 otherwise
Meanstreatment	The general and often 'usual' means of seeking treatment when any member of the household falls sick.	1 = orthodox and 0, otherwise
Education	A categorical variable representing the average educational level of the respondent	1 if the respondent has at least 7 years of schooling; 0 otherwise

**Table 1: Description of the variables used in the analysis (continued)**

Knowledge	community health insurance is all about or the basic concept of community health insurance	1 = know and 0, otherwise
Involvement	Indicating whether or not the respondent or any household member has participated in any health policies before or are currently enrolled in any association which aims at improving the health state of his member	1 if yes and 0, otherwise
Income	Income of the respondent	1 if equal or above average income and 0 otherwise

## SURVEY DESIGN AND SAMPLING

A thorough face-to-face survey was administered to 410 rural households in Bandjoun (Western province of Cameroon) in November 2009. These rural households were selected using the multistage sampling technique. Data collection was conducted using a two-step cluster sampling procedure. The first step was the selection of clusters representing villages (six villages were selected, selection was based on population size and availability of health centres). The second step involved sampling of households within clusters. There were two reasons for this: First, the absence or poor quality of households or addresses listings (which is the case in most rural areas in Sub-Saharan African countries) in Bandjoun makes it necessary to first select a sample of geographical unit. Secondly, the use of multistage designs controlled the cost of data collection.

The interviews were conducted by eight trained enumerators and targeted the heads of the households. The questionnaires were administered in French as well as the local language with some visual aids. The questionnaire included a short introduction explaining the reasons for conducting the survey. The questionnaire consisted of four parts. Part I, which started with some warm-up questions, was aimed at

establishing a friendly social relationship with the respondent (Whittington, 1996). In addition, in Part I of the questionnaire, some specific questions related to

the community health care prepayment scheme were asked. Part II mainly focused on information related to the availability and the quality of health centers in the respondent's vicinity, respondent's health status and his or her knowledge and prior participation in any health policy or association which aims at improving the health of rural households and alleviates the poverty in their communities.

Part III consisted of the valuation scenario; this is the most important part of the CV survey. Guidelines for a valid contingent valuation analysis suggested by Carson (2000), Carson et al. (2001), and Arrow et al. (1993) were followed as much as possible. Here, the community health care prepayment scheme was presented to the respondent, the 'consequentialism' script was integrated and the respondent was asked whether he or she would accept the proposed bid. In other words, the scenario of the pre-payment scheme was described in detail to the head of the household.

This included the nature of the scheme, the organization, the membership criteria, and the expected benefits. This insurance scheme was similar to ones currently being offered through an NGO-led initiative to provide insurance to the uninsured in rural areas in Cameroon. Visual aids in this section were effectively used to better transmit the message to the respondent. In addition, in the third part of the questionnaire, we included some debriefing questions. The purpose of the debriefing questions was to try to determine whether a respondent has interpreted and answered the valuation question in the way intended by the CV investigator. The following 10-point scale proposed by Champ et al. (1996) was also incorporated in this part of the survey instrument. Finally, Part IV was the last part which contained sensitive or personal questions such as the respondent's age, gender, income, profession, etc.

Before undertaking the final survey, the survey instrument was pre-tested in order to hone the questionnaire of the study and adopt the bids. Hence, the following six (6) start bids were adopted from the questionnaire pre-test: FCFA 250, 350, 450, 550, 650 and 800 that were respectively distributed to six (6) sub-samples 68, 64, 63, 69, 67 and 68. The bid levels were assigned randomly across respondents to avoid starting point bias (Mitchell and Carson, 1989). These starting bids were obtained via one reputed NGO near Bandjoun (the study area) called SAILD (Service d'Appui aux Initiatives Locales de Développement)

From the sample, the average age of the household heads that participated in the survey is about 42 years. The average household size is 6 members living in most cases in houses where wood is the main source of energy (90 %). In Western rural areas of Cameroon, wood is the main source of energy. About 62 % of the respondents are male-headed households while the remainder is female-headed, which is typical of most African household settings in rural areas. Most of the

household heads interviewed (76%) are married, identify as Catholic (59 %) and had attained a primary school education (39 %). In the study, most of the households interviewed (52.63%) are either employed as farmers/sellers or self-employed (47.37%) or employed in the public/private sector. 38% of the household heads had a monthly income of less than FCFA 15 000 (\$32) for their living. This is equivalent to one dollar per day (1\$/day). This shows the extent of poverty in rural areas of Cameroon.

## RESULTS AND DISCUSSIONS

### DESCRIPTIVE STATISTICS

Tables 2, provides summary statistics describing the sample population. In the warm-up questions of the questionnaire, 40% of sampled household heads reported health care as an expensive service. They also reported (43%) that the problem of inadequate health care services in their community was very serious. A majority (74%) of the sampled households indicated that they cannot afford health care services due to poverty.

**Table 2: Summary statistic of the variables**

Variable	Mean	Std. Dev.	Min	Max
Bid1	510.401	184.8831	250	800
Bid2	850.3133	422.2809	125	1600
WTP1	.8070175	.3951348	0	1
WTP2	.5764411	.4947426	0	1
Gender	.6240602	.4849727	0	1
Hfamily	.1668897	.4523147	0	5
Knowledge	.2706767	.4448672	0	1
HHnumber	6.180451	3.814482	1	30
Religion	.5914787	.4921776	0	1
Age	42.38847	12.42169	22	82
Profession	.5263158	.4999339	0	1
Meantreatment	.8295739	.3764788	0	1
Education	.9448622	.2285357	0	1
Involvement	.5488722	.4982305	0	1
Income	.1578947	.3651001	0	1

On average each of the surveyed area is serviced by two health centers. Also about 59% of the respondents indicated a household member falling sick within nine months prior to the interview. 26.39 % of the household heads reported a health status above 'good' as at the time of interview. On the average across the whole sample, a rural household consisting of 6 family members spend monthly US\$62.85 (FCFA29507.8) for treatment. This cost of treatment is considerably high for most of the rural poor. Besides, 89% of households go to health centers/clinics/hospitals when they get sick. 35% of rural households are highly implicated in associations or any health policies which aim at improving their health and alleviating the poverty in their community. Most households (54 %) live in houses where the floor is bare, that is, the floor is not made of cement/tiles/concrete. This is not a surprise in Western rural areas of Cameroon. In these areas, the floor of poor people is bare whereas the rich people in communities usually use cement/tiles/concrete to cover up their floor. Regarding the knowledge of community health insurance, we found that the rate is very low (27.07%) in the study area.

Accordingly, public awareness campaigns may be increased to better inform the rural communities about what a community health care prepayment scheme is all about.

First bid	Percentage
No	19.30
Yes	80.70
<b>Total</b>	<b>10000</b>

Table 4: Selected bids responses

Response to the first bid	Response to second bid		Total
	No	Yes	
No	34	43	77
	44.16	55.84	10000
Yes	135	187	322
	41.93	58.07	10000
<b>Total</b>	<b>169</b>	<b>230</b>	<b>399</b>
	<b>42.36</b>	<b>57.64</b>	<b>10000</b>

Table 3 and 4 illustrate that 80.70 % of the respondents are willing to pay the first proposed bid, while of those that accepted the first bid, 58.07% declare that they are willing to pay the second higher bid. Of the 19.30 % that refused to pay the first bid, 55.84% were willing to pay the lower second bid. These results show that many rural households are willing to pay for the community health care prepayment scheme.

In Table 5, we examine reasons why a typical household would be willing to pay for the proposed scheme. From results, the main reason (as indicated by about 42% of sampled households) for paying for the scheme would be to guarantee health security to family

## ECONOMETRIC RESULTS

The demand of households for health insurance depends not only on the quality of care offered by the health centers, on the premium and benefit package, but also on socio-economic and cultural characteristics members and protect themselves against any health-related shocks or disasters (chronic diseases or even death). On the other hand, as shown in Table 6, the main reason for not paying for the scheme (35.3%) is mainly due to the financial constraints of households in the rural areas.

Table 5: Reasons for paying

Response category	Percentage
I consider this programme as a means to improve my health and alleviate poverty in my community	27.81
I really want my family and I to be protected against any social disasters such as chronic diseases which may lead to death	42.25
I would like to have a health insurance as other citizens in urban areas	18.72
I am always sick, hence via this programme my health will improve	10.16
Other reasons	1.06
<b>Total</b>	<b>100.00</b>

Table 6: Protesting responses

Response category	Percentage
I doubt the management of the fund	29.41
Out-of-pocket payment is better	14.71
It is the responsibility of the government to pay for such a programme	5.88
I am always in good health	2.94
I cannot because of lack of income/money/I am so poor	35.3
Other reasons	11.7
6	
<b>Total</b>	<b>100.00</b>

Table 7: Results of the interval regression model

Variable name	Coefficient	Standard error
Age	-8.857757	2.770668 **
HHnumber	9.929397	9.199265
Religion	178.4559	7407891 **
Gender	57.45673	75.85111
Involvement	177.5624	72.93417 **
Hfamily	10.5429	88.49063
Knowledge	141.993	83.11063*
Meanstreatment	217.2122	93.78894 *
Education	135.9962	114.705
Income	212.2527	105.427*
Profession	-1206.793	71.76694*
Intercept	767.7033	199.9457 **
$\sigma$	602.6532	35.45478
		34 left-censored observations
		0 uncensored observations
		187 right-censored observations

The regression results for the interval regression of the double bounded model are shown in Table 7 (see following page). Given the higher number of respondents (58.07%) who were willing to pay for the second bid higher, the regression results may be good for extrapolation.

The coefficient on age is statistically significant, implying that age is an important factor in determining WTP for the community health care prepayment scheme. The negative sign on the coefficient implies that the younger ones are more willing to pay as compared to older individuals. The coefficient on religion is positive and statistically significant implying that Catholic household heads are more willing to pay than those identifying with other religions. The more the household heads have been involved in associations/policies such as 'tontines' or 'jangy', the more they are willing to pay. The positive and significant coefficient of this variable reveals the strong degree of community solidarity which is an important factor in establishing a community health care prepayment scheme. There seems to be in agreement with finding by other researchers that social cohesion and solidarity are some of strong factors influencing willingness-to-pay for community-based health insurance.

The households in the rural areas of Bandjoun who are more knowledgeable about community health insurance tend to be more willing to pay than their counterparts. In addition, the positive and significant coefficient of the usual means of seeking treatment implies that the household heads who regularly use the orthodox means of seeking treatment (clinics/hospitals) when they get sick are more willing to pay than those who use other means (traditional healers, herbalists). This variable is a key factor for establishing a community health care prepayment scheme since the establishment of the community health care prepayment scheme requires the regular use of

orthodox means of treatment. Heads of the household who are farmers/sellers are less willing to pay than those who are self employed or working in the private/public sector. This may be due to the financial constraints of the farmers/sellers who most often lack money to make ends meet.

An important variable in explaining the decision of respondents to pay for community health care prepayment scheme is the income. The positive sign of the coefficient of the income is in conformity with theory. In fact, according to theory, there must be a positive relationship between the income and the WTP. Income has a positive, consistent, and statistically significant impact on the willingness of households to pay; this implies that the more the income of the household heads increases, the more they are willing to pay for the community health care prepayment scheme. Lastly, the health status indicator variable does not affect the decision of the respondents to pay for community health care prepayment scheme.

One of the key aspects of CV studies is to determine the mean of the WTP. In interval regression, the calculation of the mean is given by the predict function in STATA. In table 8, the mean WTP is approximately FCFA 1010 or \$2.15/person/month. This information is important for the government and health practitioners to set premiums that will not exceed the amount households can afford to pay.

Mean	Std. Err.	[95% Interval]	Conf.
1011.356	108.7901	989.9686 1032.744	

## CONCLUSIONS AND POLICY IMPLICATIONS

In many CVM on health insurance and community health care prepayment schemes, many authors have disregarded the reasons for paying. Another contribution of the current study is the inclusion of debriefing questions to understand the respondent's motivations for his/her answers to the valuation question, that is, to know the motives of the rural household's willingness or refusal to pay for the community-based health insurance. Including this turns out to be very important to policymakers and micro-assurance practitioners.

The community-based health care prepayment scheme is increasingly being recognized as a potentially powerful instrument for giving the rural poor access to health services in a more equitable way. Hence, the overall objective of the study was to assess the willingness-to-pay (WTP) of rural households in Cameroon for a proposed community-based health care prepayment scheme. The results of the study reveal that the age, religion, usual means of seeking treatment when the rural populations get sick, profession, knowledge of the basic concept of community health insurance, the income and the involvement of the rural households in association or any health policy are key determinants of WTP. Moreover, the most important reason for paying was that such a policy will protect the rural household and its family members from any health-related shocks. The rural households are willing to pay on average FCFA 1010 or \$2.15/person/month. The study shows that there is a potential demand for a community health care prepayment scheme in the study due to the fact that 58.1% of rural households are willing to pay for the second bid higher.

As a result, this type of low-cost health insurance schemes can be well accepted in rural areas of Cameroon and has the potential to protect the rural households from any health risks. Since there is lack of data in setting premiums in community health care prepayment schemes, policymakers can refer to the

current study for setting premiums for the rural poor in developing countries.

The limited knowledge of the community health care prepayment scheme within communities in Cameroon may be attributed to the lack of information via campaigns or mass media. As a result, policymakers need to reinforce and intensify public awareness campaigns in order to better inform the rural poor about community health care prepayment schemes. This may encourage them to be involved in such schemes and improve their wellbeing. Finally, given that the farmers/sellers (who are most often exposed to poverty) are less willing to pay than those who are self employed or working in the private/public sector, policymakers must be aware that the poorest can be excluded from such a scheme. Accordingly, a policy option is necessary to subsidize/reduce their premiums.

## REFERENCES

- Asgary, A., K. Willis, A. Akbar Taghvaei, and M. Rafeian. 2004. Estimating rural Households' willingness to pay for health insurance. *European Journal of Health Economics* 5:209-215.
- Arrow, K., P.R Solow., E.E., Leamer, R. Radner, and H.Shuman (1993), "Report of NOAA Panel on Contingent Valuation Method", Technical Report, 58(10) P. 4601-4614.
- Alberini, A., B. Kanninen, and R.T. Carson (1997), "Modelling Response Incentive Effects in Dichotomous Choice Contingent Valuation Data", *Land Economics*, 73 (3), 309-324.
- Bishop, R., and T. Heberlein (1979), "Measuring the Values of Extra-Market Goods: Are Indirect Measures Biased?", *American Journal of Agricultural Economics*, 61:926-30.

Bureau International du Travail (2002), *Micro-assurance santé. Guide d'Introduction aux Mutuelles de Santé en Afrique*. Genève BIT, Programme Stratégies et Techniques contre l'Exclusion Sociale et la Pauvreté (STEP).

Bulte, E., Gerking, S., List, J.A., de Zeeuw, A., 2005. The effect of varying the causes of Environmental problems on stated values: evidence from a field study. *Journal of Environmental Economics and Management* 49, 330-342

Cameroon, T.A, and J. Quiggin (1994), "Estimation Using the Contingent Valuation Data a 'Dichotomous Choice with Follow up' Questionnaire", *Journal of Environmental Economics and Management*, vol. 27, 218-234.

Carson, R., Groves, T., List, J.A., Machin, M., 2004. Probabilistic Influence and Supplemental Benefits. A Field Test of the Two Key Assumptions Underlying Stated Preferences. Unpublished manuscript.

Carson, R.T (2000) 'Contingent Valuation: A User's guide', *Environmental Science and Technology* 34, 1413-1418

Carson, R.T., Flores N.E and Meade N.F. (2001) 'Contingent Valuation: Controversies and Evidence', *Environmental and Resource Economics* 19(2): 173-210

Carrin G., Waelkens, M.P., and Criel B. (2005) "Community-Based Health Insurance in Developing Countries: A Study of its Contribution to the Performance of Health Financing Systems". *Tropical Medicine and International Health*, Vol. 10, No 8, PP. 799-811

Champ, P.A., Bishop, R.C., Brown, T.C., McCollum, D.W. (1996), 'Using Donation Mechanism to Value Non-use

Benefit from Public Goods', *Journal of Environmental Economics and Management*, 33, 151-162.

Davis, R.K. (1963), "Recreation Planning as an Economic Problem", *Natural Resources Journal*, 3, pp.239-249.

Dong, H., Kouyate, B., Caims, J., Mugisha, F. and Sauebron, R. (2003) "Willingness to pay for Community-Based Insurance in Burkina Faso", *Health Economics*, 12, 849-862

Dong, H., Kouyate, B., Caims, J., and Sauebron, R. (2004) "Differential Willingness to Pay of Household Heads to Pay Community-Based health Insurance Premia for Themselves and Other Household Members", *Health Policy and Planning*, 19(2), 102-6 (11)

Dong, H., Mugisha, F., Caims, J., Mugisha, F., Kouyate, B., and Sauebron, R. (2004) "The Feasibility of Community-Based Health Insurance in Burkina Faso", *Health Policy*, 69, 45-53.

Dror, D.M, Radermacher R., and Koren, R. (2006), "Willingness to Pay for Health Insurance among Rural and Poor Persons: Field Evidence from Seven Micro Health Insurance Units in India", *Health Policy* doi: 10.1016/j.healthpol.2006.07.011

Dror, D.M., and Preker A., S. (2002), *Socila Reinsurance. A New Approach to Sustainable Community Health Financing*, The World Bank, Washington D.C.

Gaag, V.J. (2007), *Health Care for the World's Poorest: Is Voluntary (Private) Health Insurance an Option?*, 2020 Focus Brief on the World's Poor and hungry People, IFPRI.

Gwatkin, D.R., Wagstaff, A., and Yazbeck, A.S. (2005) *Reaching the Poor with Health, Nutrition and*

Population Services. What Works, What Doesn't, and Why. The World Bank, Washington D.C.

Haab, T. C. and K. E. McConnell. (2002), *Valuing Environmental and Natural Resources: The Econometrics of Non-Market Valuation*, Edward Elgar, Cheltenham, UK.

Hanemann, W.M. (1984), "Welfare Evaluation in Contingent Valuation Experiments with Discrete Responses", *American Journal of Agricultural Economics* 66: 332-341.

Hanemann, M. W., J. Loomis and B. Kanninen (1999). Statistical Efficiency of Double-Bounded Dichotomous Choice Contingent Valuation. *American Journal of Agricultural Economics*. 73: 1255-6

Hanemann, W.M. and B.Kanninen (1999), 'The Statistical Analysis of Discrete-Response CV Data.' In Bateman, I.J et Willis, K.C. eds, *Valuing Environmental Preferences: Theory and Practice of the Contingent Valuation Method in the US, EC, and Developing Countries*, Oxford: Oxford University Press.

Hsiao, W. C. (2001). Unmet health needs of two billion: Is community financing a solution? HNP Discussion Paper. World Bank, Washington, DC.

Kanninen, B. J. (1995), "Bias in Discrete Choice Response Contingent Valuation", *Journal of Environmental Economics and Management*, 28, 114-125.

Khan, M. H. (2001) 'Rural Poverty in Developing Countries: Issues and Policies', IMF Working Papers 00/78

Klose, T. (1999), The Contingent Valuation in Health Care, *Health Policy* 47, 97-123

Luchini, S. (2002), "De la singularité de la méthode d'évaluation contingente ", *Economie et Statistique*, n° 357-358.

Mathiyazhagan, K. (1998), "Willingness to Pay for Rural Health Insurance through Community Participation in India", *International Journal of health Planning and Management*, 13, 46-47

McFadden, D. (1994), "Contingent Valuation and Social Choice", *American Agricultural Economics*, 76, 689-708.

McFadden, D. and G. Leonard, (1993), *Issues in the Contingent Valuation of Environmental Goods: Methodologies for Data Collection and Analysis, in Contingent Valuation: A Critical Assessment*, 165-215, New York: North-Holland: Hausman.

Mitchell R. C and R. T. Carson (1989). *Using surveys to value public goods: the Contingent Valuation method*. Washington DC: Resources for the Future

Preker, A., Carrin, G., Dror, D., Jakab, M., Hsiao, W. and Arhin-Tenkorang, D. (2001), A Synthesis Report on the Role of Communities in Resource Mobilisation and Risk Sharing, Commission on Macroeconomics and Health (CMH), working Papers Series No.WG3:4, WHO, Geneva.

Shaw, R. P., and Griffin, S.C. (1995) Financing Health Care in Sub-Saharan Africa through User fees and Insurance. The World Bank, Washington D. C.

Whittington, D. (1996), Administering Contingent Valuation Surveys in Developing Countries. Economy and Environment Program for South East Asian (EEPSEA), International Development Research Centre. WHO (2000) World health report, the World Bank, Washington D.C

Wright G. E. Asfaw, A. and van der Gaag J. (2009)  
"Willingness to Pay for Health Insurance: An Analysis  
of the Potential Market for New Low Cost Health  
Insurance Products in Namibia" [Social Science and  
Medicine](#), 69, 1351-1359

Zhang, L., Wang, H., Wang, L., and Hsiao, W. (2006).  
"Social capital and farmer's Willingness-to-join a newly  
established community-based health insurance in rural  
China". *Health Policy*, 76(2), 233-242.

## MICROINSURANCE INNOVATION FACILITY

Housed at the International Labour Organization's Social Finance Programme, the Microinsurance Innovation Facility seeks to increase the availability of quality insurance for the developing world's low income families to help them guard against risk and overcome poverty. The Facility was launched in 2008 with the support of a grant from the Bill & Melinda Gates Foundation.

See more at: [www.ilo.org/microinsurance](http://www.ilo.org/microinsurance)

## EUROPEAN DEVELOPMENT RESEARCH NETWORK

The European Development Research Network (EUDN - [www.eudnet.net](http://www.eudnet.net)) links members of different development research institutions, particularly in the field of development economics, from Europe with the rest of the world. EUDN research fellows have an extensive background in investigating risks, poverty and vulnerability issues in developing countries.

## RESEARCH PAPER SERIES

The *Research Paper series* seeks to stimulate further knowledge on microinsurance. The Facility has provided a number of research grants for academics, particularly from developing countries, to conduct research on microinsurance and answer key questions in the Facility's research agenda. The Research Papers present results from those research grants as well as other working papers from relevant studies conducted by partnering organizations.

