

Determinants of Rural Household's Willingness to Participate in Community Based Health Insurance Scheme in Edo State, Nigeria

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ABSTRACT The study examined rural households' willingness to participate in Community Based Health Insurance (CBHI) scheme in Edo State, Nigeria. Factors that are likely to influence household participation in the scheme were specifically determined. A random sample of 360 families from the three senatorial zones of the state was taken. Their responses were analyzed using frequency tables and logistic regression. The findings revealed that 59.4% expressed willingness to participate in a community based insurance scheme. Important reasons for those not willing to participate in the scheme were lack of trust on scheme fund administrators (mean = 2.54) and government policies/programmes which are considered very unstable and unsustainable (2.53). Based on the Logistics regression results, key demographic factors found to be significant determinants of rural households willingness to participate in the insurance scheme include household size ($b = 0.507$) and membership of town association or union ($b = 0.564$), while income ($b = -0.410$), medical expenses incurred (0.316) and credit (0.277) were important economic characteristics. The study recommended the incorporation of community participation in the scheme especially in scheme management selection and awareness creation as measures to promote CBHI programme in the state.

INTRODUCTION

Rural dwellers in Nigeria constitute over 70% of the country's population, and yet are deprived of access to quality health facilities that are essential for good living (Ajilowo 2007). A major consequence of this has been the migration to urban centres for medical treatment (Ogbimi 2004). According to Alfred et al. (2008), other consequences are the loss of about 25% of their annual income treating various grades of sicknesses, increase risk of mortality of both children and adult, impaired productivity of able men and women etc. Poor access to healthcare by the poor households is not only due to inadequate or absence of health facilities but also because of their low purchasing power evidenced by their earnings and expenditure patterns. This is as a result of the nature of their predominant healthcare financing mechanism which is mostly out-of-pocket (Ataguba et al. 2006).

The catastrophic nature of this healthcare mechanism financing for the poor and often rural population has been a source of worry for the country and other low and middle income countries of Africa. Advocates therefore have been in favour of developing alternative financing scheme to cater for the unexpected nature of health care expenditure which should cover

vulnerable rural dwellers. The Community Based Health Insurance (CBHI) was advocated as a transitional mechanism to achieving universal coverage for health in low income countries especially the rural dwellers due to their inability to access quality health care services provided by their respective government (WHO 2005). CBHI is not-for-profit type of health insurance that has been used by poor people to protect themselves against the high costs of seeking medical care and treatment. In CBHI schemes, members regularly pay small premiums into a collective fund which is then used to pay for health services that they require. Many CBHI schemes are designed for people that live and work in rural areas or the informal sectors which are unable to get adequate public, private, or employer-sponsored health insurance (WHO 2005). Beneficiaries of the scheme are associated with or involved in its management, at least in the choice of the health services it covers. It is voluntary in nature, formed on the basis of mutual relationship and covers a variety of benefit packages. Any other service not covered by the scheme is usually borne by the household but the main idea is to cover the basic health care needs of the poor such as malaria and typhoid, tuberculosis and diarrhea. CBHIs can be initiated by health service pro-

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viders, NGO's, Trade Unions, local communities, local governments or cooperatives, and can be owned and run by any of these organizations (Jutting 2002).

Studies by Ajilowo (2007) observed that about 74% of rural households lacked access to health-care services in Nigeria, specifically in Ondo State. A consequence of this low accessibility is the inability of these individuals to afford the cost of the health service. This has two implications; it is either the rural dwellers are too poor (due to low income) to afford the cost of medical services or that medical treatment cost and services are too high for them to afford. Supporting this fact, Preker et al. (2002) stated that for low income countries of the world to leap-frog in their development process from the general public funding for health to private involvement, they need to implement the community based health insurance scheme especially in rural areas. It is against this background that this study seeks to enquire after potential beneficiaries interest in participating in the scheme. Presently in Edo state, such a scheme does not exist. What is prevalent is the National Health Insurance Scheme which does not focus on the rural poor but on white-collar job employees of both government and private sector. However, the government, as a measure to remedy this situation has expressed plans to promote CBHI scheme. The success of the scheme however, among other factors, will depend on rural household willingness to participate in the programme.

Objectives of the Study

The overall aim of the study is to identify the determinants of rural households' willingness to participate in CBHI scheme in Edo State, Nigeria. The specific objectives are to:

1. Profile rural household characteristics in Edo State.
2. Ascertain the health status of rural households in the study area.
3. Examine the households' willingness to participate in CBHI.
4. Determine the factors that are likely to influence rural household willingness to participate in CBHI scheme.

METHODOLOGY

The study area is Edo state, Nigeria. The state lies within the southern part of the country and

is home to about 4 million people, from three major ethnic tribes (the Binis, Ishans and Afemais). It is largely agrarian, and characterized by a tropical climate which ranges from humid to sub-humid. Three main vegetation zones are identified as one moves from the southern to the northern part of the state namely mangrove forest, fresh swamp and savannah vegetations (EDMLHS 2008). The area is politically structured into 3 political or senatorial districts namely Edo north, Edo south and Edo central. A multistage sampling procedure was employed in the selection of respondents. The 3 zones were purposively selected to give the study a state wide focus. Two Local Government Areas (LGAs) were randomly sampled per senatorial district making a total of six (Akoko-Edo, Owan-West, Igueben, Esan-Central, Ikpoba-Okha and Ovia-Northeast LGAs). Two communities per LGA were selected making a total twelve (12) communities, while thirty (30) families per community were randomly selected, making three hundred and sixty (360) families selected for the study. Respondents' responses were sought using a validated question instrument which was tested for reliability using the Cronbach Alpha method. A reliability coefficient of 0.698 (approximately 0.70) was obtained indicating that the instrument is good and reliable. Data collection period spanned over 2 months and incorporated the use of trained enumerators. Inferential statistics (logistics regression) and simple descriptive statistic (frequencies) were used in the presentation. SPSS version 17 was used for the data analysis.

The regression model tested is of the implicit form:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_nX_n + e$$

Where 'a' represents the intercept and 'b' represents the coefficients to be estimated. The regression equation of Y on X is used to describe the variation in the values of Y for given changes in X. Two models were specified each capturing the influence of respondents demographic and economic characteristics on the probability of respondents participating in CBHI scheme. The models were:

Where:

Demographic Model

Y= Willingness to participate (Willing=1, Not willing= 0)

X_1 = Gender (male=1, female = 0)

X_2 = Level of education (years)

X_3 = Age (years)

X_4 = Household Size (no. of persons living in household)

X_5 = Membership of Town Union or Association (Yes=1, No=2)

Economic Model

Y = Willingness to participate (Willing=1, Not willing= 0)

X_1 = Nature of employment (farming = 1; non-farming = 0)

X_2 = Income (naira)

X_3 = Medical expense (naira)

X_4 = Credit obtained for medical treatment (naira)

RESULTS AND DISCUSSION

Demographic Characteristics of Respondents

Table 1 shows that majority of the respondents were males (63.3%). This is important as males are responsible for key decisions at the household level. Their educational status suggests that most of the respondents were literate with only 6% having no formal education. About 36% attended secondary school, while 30% have tertiary education. The high proportion of respondents with tertiary education can be explained by the fact that in all senatorial districts of the state there is at least one or two tertiary institutions. Majority of the respondents were married (72.2%), indicating a sense of family responsibility, and having families to cater for may encourage participation in CBHI as a strategy to cater for their health needs. The modal age group of the respondents was 40-49 years, with a percentage of 34.4. About 36% were above 50 years old while 21.1% fall within 30-39 years. The average age of the respondents was 46 years. Ike (2008) and Otumara (2000) classified farmers over 45 years as old. Older individuals are known to be more prone to sickness than younger individuals because of declining immunity.

The modal household size of the respondents was 2-5 with a percentage of 40%, while respondents with a household size of 6-9 consti-

Table 1: Demographic characteristics of respondents

Characteristics	Freq	%
<i>Gender</i>		
Female	132	36.7
Male	228	63.3
Total	360	100.0
<i>Education</i>		
No formal education	22	6.1
Primary education	98	27.2
Secondary education	131	36.4
Tertiary education	109	30.3
Total	360	100.0
<i>Age (Years)</i>		
<30	29	8.0
30-39	76	21.1
40-49	124	34.4
50-59	94	26.1
60 and above	37	10.3
Total	360	100.0
<i>Household Size</i>		
<2	18	5.0
2-5	144	40.0
6-9	133	36.9
10-13	47	13.1
14 and above	18	5.0
Total	360	100.0
<i>Association Membership</i>		
Yes	258	71.7
No	102	28.3
Total	360	100.0

Source: Field Survey 2010

tuted 36.9%. Having large household may serve as an encouragement to participate in CBHI, which is likely to reduce the medical bills. Majority of the respondents (71.7%) belonged to associations in which dues were paid, suggesting that many of the respondents were already participating in some social solidarity schemes. The introduction of prepayment health scheme may therefore not be entirely strange to them. One of the success stories of CBHI is the utilization of already existing informal groups in the rural areas. Schneider (2004) and Nobel (2001) stated that people in formal and organized associations are more likely to participate in CBHI scheme than those not in associations, simply because they are already used to paying some form of levy or due.

Economic Characteristics of Respondents

The economic characteristics of the respondents are presented in Table 2. Almost 40% (39.7%) of the respondents were farmers, 19% were working with the government civil service while about 31% were self-employed. The ma-

jority of the respondents spent less than ₦5000 (40.8%) on medical expenses in the last 3 months while 30% spent ₦5000 - ₦9,999.99, with the average being ₦7,819.4. The average medical expenses incurred by the respondents may be considered high, and this may serve as an incentive for them to participate in CBHIs. One objective of the CBHIs is to reduce the cost of medical care incurred by rural dwellers. Close to 40% of the respondents accessed credit of less than ₦5000 to cope with their health medical bills in the last 3 months while 27.1% borrowed between ₦5000 – ₦10,000, the average being ₦8,278.24. This amount is an indication of the financial burden incurred by respondents during ill-health and the poverty implications of out-of-pocket payment. Ataguba (2007) reported that the amount borrowed or saved by rural households for medical treatment is very high, hence the people's acceptance of the proposed CBHIs because of its cheaper premium.

Table 2: Economic characteristics of respondents

<i>Characteristics</i>	<i>Freq</i>	<i>%</i>
<i>Monthly Income (₦)</i>		
<5,000	98	27.2
5000-9,999	75	20.8
10,000-14,999	65	18.1
15,000-19,999	50	13.9
20,000-24,999	35	9.7
25,000 and above	37	10.3
Total	360	100.0
<i>Nature of Employment</i>		
Self employed	112	31.1
Farming	143	39.7
Government employed	69	19.2
Private sectorEmployed	36	10.0
Total	360	100.0
<i>Medical Expenses (₦)</i>		
<5000	147	40.8
5000-9,999	108	30.0
10,000-14,999	53	14.7
15,000-19,999	38	10.6
20,000 and above	14	3.9
Total	360	100.0
<i>Credit Amount (N)</i>		
< 5000	106	39.4
5000-9,999	73	27.1
10,000-14,999	52	19.3
15,000-19,999	18	6.7
20,000 and above	20	7.4
Total	269	100.0

Table 2 shows that 27.2% of the respondents earned less than ₦5,000.00, about 21% earned ₦ 5,000.00 – ₦ 9,999.99, while 18.1% earned ₦10,000.00 – ₦14,999.00 per month. The av-

erage monthly earnings of respondents was less than ₦ 5,000.00, which is low. An implication of these low earnings is that they may be unable to afford high medical bills and this inability may either serve as a motivation to participate in CBHI scheme or not. Research by Desmet et al. (1999) and Feeley (2003) found low rates of enrolment in CBHIs among poor families with low income in developing countries.

Frequency of Household Illness

The frequency of illness among respondents household is presented in Table 3. The assessment was based on a 3 months period, because a policy guideline of the health insurance scheme in the country is the update of enrollees/ contributors register every quarter (that is, 3 months). One reason for this is to update enrollees' continuous participation in the scheme as well as funds available for treatment in order to reduce adverse selection. The results shows that in the past 3 months, majority (56.9%) of the respondents household have fallen ill 1-3 times, while 13.1% of them took ill 4-6 times. About 28.6% claimed no member of their household fell sick within the time period.

Table 3: Frequency of illness among respondents household

<i>Frequency</i>	<i>Freq</i>	<i>%</i>
None at all	103	28.6
1-3 times	205	56.9
4-6	47	13.1
7-9	4	1.1
>9 times	1	0.3
Total	360	100.0

Feeley (2003) found a positive relationship between the health status of respondents and their willingness to pay in CBHI scheme, that is, respondents with low or poor health status were more willing to participate in CBHIs than those with high or better health status. Contrary, studies by Wanj et al. (2003) found that rural dwellers with good health status were more willing to participate in CBHI than those in poor health. Sambo (2010) noted that an insurance scheme of any form is likely to succeed when less than 30% of the people that pooled their resources utilize the health services in a month. Since 28.6% of the respondents claimed that household members did not take ill in the last 3

months, any CBHI scheme that would be implemented is likely to be viable.

Respondents Willingness to Participate in CBHI Scheme

In order to assess respondents' willingness to participate in CBHI, they were educated or informed on the concept of CBHI. Results of Table 4 shows that almost 60% of the respondents indicated willingness to participate in CBHI, 21.7% were not, while 18.9% were unsure. The fact that majority indicate a willingness to participate in CBHI suggests that the scheme has prospect in the study area.

Table 4: Respondents willingness to participate in CBHI scheme

Status	Freq	%
Not willing	78	21.7
Willing	214	59.4
Undecided	68	18.9
Total	360	100.0

Constraints Limiting Respondents Willingness to Participate in CBHI Scheme

According to the results of Table 5, respondents' reluctance to participate in CBHI scheme is traced to two major factors namely: lack of trust in government scheme/programmes (mean = 2.53) and on those who will manage the scheme funds/capital (mean = 2.54). A poor attitude exists among the public towards government programmes in the country and state as well as the fear of fraud

Table 5: Constraints limiting respondents' willingness to participate in CBHI

Constraints	Mean	SD
Lack of trust in fund administrators	2.54*	0.98
Lack of trust in government programmes	2.53*	0.91
Lack of trust in Insurance practitioners	2.46	0.95
Multiple contributions by same household members is unfair	2.31	0.92
Lack of functional health centre(s) in my village	2.22	0.91
Health insurance is a confusing scheme	2.20	0.87
No qualified health personnel in the health centre	2.18	0.84
Contributing money for sickness in advance is a taboo	2.16	0.86
Scope of illnesses covered by the scheme is limited	2.16	0.93

-*Serious ($\bar{X} \geq 2.50$)

Demographic Determinants of Respondents' Willingness to Participate in CBHI Scheme

Table 6 show the logistic regression results for the relationship between respondents demographic characteristics and their willingness to participate in Community Based Health Insurance scheme. The omnibus test of model coefficients ($\chi^2=16.381$; $p<0.05$) indicates that the model is appropriate for the analysis since the model with explanatory variables is better than the model without the variables. The Hosmer and Lemeshow test ($\chi^2=0.097$) for the data is not significant, indicating that the model adequately fits the data. The coefficient of determination ($R = 0.374$) indicates that the explanatory variables jointly account for about 38% of respondents' likelihood to participate in community based health insurance scheme. The model predicts 73.3% of the response correctly. The Table result show that only household size ($b=0.507$) and membership of association ($b = 0.564$) were significant factors affecting rural household willingness to participate in CBHI scheme.

Table 6: Demographic determinants of respondents' willingness to participate in CBHI scheme

Variables	B	T	Odd ratio
Gender	0.388	1.33	1.47
Education	-0.031	1.00	0.97
Marital status	-0.163	0.51	0.85
Age	-0.015	1.07	0.98
Household size	0.507*	2.37	1.66
Membership of formal organization	0.564*	2.79	1.76
Constant	10.32	13.51	3033.26

*Significant at 0.05 level (critical t value = 1.960)

The results of the regression analysis revealed that, household size was positively signed ($b = 0.507$, $t = 2.37$), implying that respondents with larger families are more likely to be willing to participate in community based health insurance scheme than respondents with smaller households. This may be as a result of the high financial burden faced by large household when seeking health care services. This result agrees with the findings of Feeley (2003) and Asfaw and von Braun (2004), who reported that household size plays a positive role in the willingness of people to participate in community based health insurance scheme in low income countries. The

odd ratio of 1.7 that respondents with large household size were 1.7 times or 70% more likely to participate in CBHI scheme compared to those with smaller households.

Membership of town unions/associations ($b = 0.564$, $t = 2.79$) also is positively signed, suggesting that respondents who belong to formal association are more likely to enroll in CBHIs than those who do not. The result supports the findings of Noble (2001), who found that people in formal and organized associations are more likely to join the CBHI scheme than those not in any association. The odd ratio of 2.79 indicates that respondents who belong to association are about 2.8 or 3 times more likely to participate in CBHI scheme than those not in any association. A possible explanation for this is that those who are members of formal groups are familiar with the concept of weekly or monthly dues payment.

The positive coefficients for gender ($b = 0.388$) implies that males show more willingness (that is, about 1.5 times or 50%) to participate in CBHI scheme than females. The result is, however, not significant at the 5% level. This result agrees with the findings of Malthiyazhgan (1998) who reported a non-significant relationship between gender and willingness to participate in CBHI scheme. Dong et al. (2003b), however, found male participation in CBHI scheme to be higher than females. Ataguba (2007) also reported that males were more willing to participate in rural health insurance scheme than the female headed households in rural areas of Nigeria. Delete and explain this using descriptive statistic.

Effect of Economic Characteristic on Respondents' Willingness to Participate in CBHI Scheme

Table 7 shows the logistic regression results for the relationship between respondents' economic characteristics and their willingness to participate in CBHI scheme. The omnibus test of model coefficients ($\chi^2 = 14.327$) is significant at the 5% level, and indicates that the model is appropriate for the analysis. It implies that the model with explanatory variables is better than the model without the variables. The Hosmer and Lemeshow test ($\chi^2 = 6.253$) for all the data is not significant, indicating that the data is a good representation of real life. The coefficient

of determination (0.511) indicates that the explanatory variables jointly account for about 51% of respondents' likelihood to participate in community based health insurance scheme. The model predicts 73.3% of the response correctly.

Table 7: Effect of economic characteristics on respondents' willingness to participate in CBHI scheme

Variables	B	t	Odd ratio
Nature of employment	-0.184	0.64	0.832
Income	-0.41*	2.20	0.664
Medical expense	0.316*	2.61	1.372
Credit obtained for medical treatment	0.277*	2.80	1.319
Constant	0.68	1.54	1.974

*Significant at 0.05 level (critical t value = 1.960)

The result in the Table shows that three economic variables have a significant influence on respondents' willingness to participate in CBHI. The positive result for household medical expense ($b = 0.316$) implies that respondents with higher medical expense are more likely to participate in CBHI scheme than those with less expense. This result supports the findings of Wang et al. (2005) who asserted that rural people join the health insurance schemes to reduce cost incurred during ill-health. The odd ratio of 1.37 implies that households with higher medical expenses are 1.4 times or about 40% more likely to enroll in CBHI scheme than those with less medical expense.

Medical credit, that is, amount borrowed for medical treatment is positive ($b = 0.277$) and significant ($t = 2.80$). The implication of this on participation in CBHI scheme is that respondents who obtained credit to treat themselves are more likely to be willing to participate in CBHI scheme than those who borrow less or not at all. This result agrees with the report of Ataguba (2007), that the amount borrowed or saved by rural households in rural areas of Nigeria to treat themselves and their households is very high, hence the people will be willing to accept the proposed CBHI scheme because of its lower premium. The odd ratio of 1.32 implies those respondents who obtain credit for medical purpose are 1.3 times or 30% more likely to willingly participate in CBHI scheme than those who do not.

Income level shows a negative and significant ($b = -0.410$) relationship with respondents' willingness to participate in CBHI scheme. The

negative result means that respondents with higher income are less likely to be willing to participate in community based health insurance scheme than those with lower income. The result agrees with the findings of Asenso-Okyere et al. (1997), who reported a negative relationship between income level of respondents and their willingness to participate in CBHI scheme. The odd ratio of 0.664 implies that respondents with higher income are 0.7 times less likely to participate in community based health insurance scheme. Put differently, respondents with lower income are 1.4 times or 40% more likely to be willing to participate in CBHI scheme than those with higher income.

CONCLUSION

The findings of the study showed that most rural households in the study area are willing to participate in Community Based Health Insurance scheme. Decision to participate in the scheme was found to be significantly influenced by respondents' demographic and economic characteristics. Although concerns were expressed over the participation especially by those unwilling to participate in the scheme, but putting appropriate measures in place will alleviate the highlighted fears.

RECOMMENDATIONS

Specifically, the study recommends that:

1. There is the need for extensive mobilization and sensitization of the rural households in the state of the scheme, especially through media and health centres. Awareness creation and understanding of the scheme hopefully will encourage more interest in the scheme.
2. Lack of trust in the scheme management can be effectively addressed if community participation and selection of management is allowed without undue interference by the government.

The study result revealed that resources constraint can be a hindrance at initial stage of implementation because of the low income generating capacity of rural households in the state. The government may, therefore, need to subsidize the CBHI programme at the community level for a period of at least 3 years.

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