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WILLINGNESS TO PAY FOR '*ILERA EKO*' HEALTH INSURANCE AMONG RURAL HOUSEHOLDS IN LAGOS STATE, NIGERIA

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ABSTRACT

Healthcare financing in Nigeria is dominated by private out-of-pocket payments that are not affordable to the poor. This has greatly reduced access to quality health care for the predominantly rural poor. Lagos state government introduced IIera Eko insurance schemes as options for increasing access to health care services among Lagosians. This study analysed the willingness to pay (WTP) for IIera Eko health insurance among rural households in Lagos state. Data were collected with the use of structured questionnaires administered to 120 Households selected through a multistage random sampling technique from the rural areas. Methods of data analysis involved the use of descriptive statistics and a binary equation model (logistic regression). The results showed that the average age was 44 years. The educational level was between 12 and 15 years with the average being 12 years. About 90 percent of the respondents were married with an average family size of 6. Of those who sought and got health care in the past three months, about 88% found it difficult to make out-of-pocket payments and 61% believed payment of premium for IIera Eko should rest on the government's shoulders. About 51% of the households are willing to pay below 1 per cent, 14% were willing to pay between 1 and 3 per cent of their income while about 27% were not willing to pay anything out of their income as a premium for IIera Eko health insurance. The logistic regression estimates, however, revealed that the percentage of income that a household is willing to pay for IIera Eko health insurance and the willingness to pay premiums are statistically significant at $P < 0.05$ and $P < 0.1$ respectively. The coefficient of percentage WTP from income is positive; this reveals that an increase in income will increase the proportion of income that households would be willing to pay for IIera Eko health insurance. Conversely, the coefficient of premium is negative, depicting that a premium increase will decrease the willingness of rural households to pay for Illera Eko. It is recommended, therefore, that there should be selective targeting of the vulnerable groups within the communities due to their inability to finance health care payments.

Keywords: Health Insurance, Rural areas, Willingness-to-pay

INTRODUCTION

Health insurance is a social security system that guarantees the provision of needed health services to persons on the payment of token contributions at regular intervals. As of 2018, about 97 per cent of people surveyed in Nigeria did not have any health insurance (Health in Nigeria, 2020). People with health insurance mainly had employer-based coverage. Specifically, three per cent of men and 1.9 per cent of women were provided with employer-based health insurance. Privately purchased insurance was notably uncommon. In total, only about three per cent of individuals had health insurance.

About 3.9 per cent of Nigeria's GDP is invested in the health sector, considerably below the average spending on healthcare among Organisation for Economic Co-operation and Development (OECD) countries (Olalere and Gatome-Munyua, 2020). Nigeria is currently spending a relatively small proportion of national income on health translating to about 4 per cent of Gross Domestic Product (GDP) against the agreed 15 per cent at the 2001 Abuja Declaration (Olalere and Gato-Munya, 2020). Out-of-pocket expenditure on health in the country is amongst the highest in the world at 77.23 per cent of total health expenditure and the highest in Africa (2020). Equally, a voluntary National Health Insurance Scheme, NHIS, exists in Nigeria but covers less than 5 per cent of the population, while a large proportion of about 65 per cent of the population lives in rural areas where the standard of living is poor (WHO, 2002) and are still largely uncovered.

Access to quality and affordable health care services for the rural population is reduced due to the level of poverty, sanitation and health care practices, distances to be travelled to access health care, and the absence of financial protection in the form of insurance or prepayments. Sanitation and health practices among the rural population as well as the urban population are very poor. In Nigeria as a whole, only about 6 per cent of the population uses conventional toilet facilities with over 60 per cent of the population using the pit toilet facilities (World Bank, 2016; Olowa and Olowa, 2019). The refuse disposal system is highly unsatisfactory as the bulk (over 92%) of the refuse is dumped in unauthorized dumps as well as around dwelling compounds (World Bank, 2016). Visits to the doctor are also low when compared to visits to other healthcare providers. Only about

22 per cent of the population visits a doctor when a household member is ill (FOS, 2004; Olalere and Gatome-Munyua, 2020). Due to the reduced access to health care, households often resort to leaving the illness untreated or resort to the use of low-quality care or self-medication. In the long run, this will further impoverish the households OECD/WHO, 2003). When the households decide to make out-of-pocket payments for medical bills at the point of utilization of health services this is often catastrophic, especially for the poor. This is because health care payment is not expected to exceed a certain threshold of household income. In most circumstances, poor households face actual medical bills that exceed their earnings. This has become a major source of concern and worry for Nigeria and other similar low and middle-income countries (LMICs). Advocates have been in favour of developing alternative financing schemes to cater to this unexpected healthcare expenditure such that households would not have to pay out-of-pocket at the time of utilization of health services. Where these alternative sources of financing have been instituted, they have tended to favour the higher socioeconomic groups (Ogunbekun, 1996, Adebisi, *et al,* 2019). They are often targeted at urban areas and cities where the burden of disease is low. As a solution for the poor in rural areas where the burden of disease is high, prepayment schemes and community-based insurance schemes have been advocated (WHO, 2000; Ogunbekun, 1996; Dong *et al.*, 2004; Inyang and Bassey, 2018).

Meanwhile, The World Health Organisation (WHO, 2002) has been making a global appeal to nations and encouraging them to embrace Universal Health Coverage (UHC) by implementing a sustainable financial model which can stand the test of time (Aregbesola and Khan, 2018). According to Aregbesola (2017), the UHC has, as part of its aims, an equitable increase in healthcare access of good quality and a reduction in exposure to financial risk. The NHIS is Nigeria's attempt to adopt and actualize the UHC for her citizenry at the national level and '*ilera Eko'* at the sub-national level of Lagos state (Etobe and Etobe, 2013). With about 95 per cent of Nigerians still not covered by the Nation's health insurance scheme and unable to access affordable quality healthcare delivery (Inyang and Bassey2018), the Lagos State Health Management Agency (LASHMA) launched the '*Ilera Eko'* campaign to achieve universal health coverage for all Lagosians by the end of 2021. This is a prepayment cum community health insurance scheme where

individuals are required to pay N8,500 per annum, while a family of six, comprising a father, mother and four children of less than 18 years, is to pay N40,000 per annum. Six Thousand naira would be paid as an additional amount for children below 18 years and N8,500 for additional children above 18 years. However, even with so much effort the uptakes have been relatively slow and low.

Over 500 thousand residents (out of about 15 million population (World Population Review 2022) are said to have been registered under the insurance scheme. The implication of this is that only about 0.3% per cent of the population has been enrolled in 'The health for all *Lagosian* prepayment system of health insurance scheme. While rural versus urban coverage is not yet explicit, the experience has shown that rural areas usually suffer or lag in social development indices. It is because of this that the study was carried out to examine the willingness to pay for Lagos state "*Ilera Eko*" health insurance services in the area of study

Specifically, this paper examines the willingness of rural households in Lagos state to pay for the '*Ilera Eko* community health care prepayment scheme, Socio-economics Characteristics of Respondents, Health Status and Health-Care Practice of Respondents and awareness and perception of *Illera Eko* pre-payment health insurance among rural households in Lagos state. The paper also examines the factors that determine rural households' willingness to pay to join the scheme. Most studies on health insurance have focused more on willingness to pay for National and community health insurance not much attention has been paid to health insurance among rural households, especially concerning sub-national health insurance schemes, the gap which this study seeks to fill.

METHODOLOGY

The study was conducted in Lagos state, which is one of the 36 states of the Federal Republic of Nigeria. It is located in the southwestern zone and has an estimated population of fifteen million (World Population Review 2022). It is divided into 20 Local Government Areas (LGAs); Sixteen are classified as urban and four as rural. The rural LGAs are Epe, Ikorodu, Ibeju-Leki and Badagry. (The Nigeria.com, 2014) The study was carried out in rural areas of Lagos state.

The study used primary data. The data were collected with the use of structured

questionnaires. A three-stage sampling technique was employed. In the first stage, Ikorodu and Epe were randomly selected (by balloting) out of the four rural LGAs. In the second stage, core rural areas in the two LGAs were purposively selected. They are Ikosi-Eijrin Local Council Development Area (LCDA) in Ikorodu LGA and Eredo LCDA in Epe LGA. These two LCDAs were purposively selected because they are predominantly agrarian communities. While Ikosi-Ejirin is a predominantly rice-farming community, Eredo LCDA is a predominantly fishing community. In the third stage, a systematic sampling technique was used, whereby every 5th building in both areas was sampled. About one hundred and twenty (120) households were sampled from both LCDAs. Sixty (60) households from Ikosi-Ejirin and sixty (60) from Eredo.

Descriptive statistics such as frequency distribution tables, mean and standard deviation were used to analyze the socioeconomic characteristics of the respondents. The logit model was used to determine the mean willingness to pay for '*Ilera Eko*' health insurance by households. The logit model which is based on the cumulative probability function was adopted because of its ability to deal with a dichotomous dependent variable and a well-established theoretical background. Logistic regression, according to Roopa (2000) is a uni/multivariate technique that estimates the probability that an event will occur or not through the prediction of a binary dependent outcome from a set of independent variables. The model specified by Hanemann (1989) and Whittington et al (1990) was adopted for this study as used by Branka and Kelly (2001) in a study on willingness to pay for improved conservation of environmental species in the USA and Yusuf, Ojo and Salimonu, (2005) on willingness to pay for improved household solid waste management in Ibadan North Local Government Area, Oyo State.

Willingness-to-Pay for '*Ilera Eko*' health Insurance by Households:

The logit regression model specified below (*Equ*. 1) was used to obtain the willingness to pay for *Ilera Eko's* health insurance by households. The coefficient estimates obtained were then used to calculate the mean willingness to pay of the households.

$$P_i = E(Y = 1 / X_i) = \frac{1}{1 + e^{-(b0 + b1 xi)}} \quad \ldots\ldots\ldots\ldots\ldots 1$$

Where P_i is a probability that $Y_i = 1$

Y is the dependent variable (Willingness or otherwise to pay for *Illera Eko* Health Insurance)

β_0 is the constant intercept

β_1 is the coefficient of the price that the households are willing to pay for *Ilera Eko's* health insurance.

X_i is a set of independent variables

Mean willingness to Pay (WTP) for *Ilera Eko's* health insurance by households was calculated using the formula (in *Equ.* 2) derived by Hanemann (1989) and given as:

$$MeanWTP = \frac{1 * \ln(1 + Exp^{b0})}{/ b /} \quad \text{.....2}$$

Where $ß_0$ and $ß_1$ are absolute coefficient estimates from the logistic regression and the *Mean WTP* is the mean for the *IIera Eko.*

Factors Influencing Willingness-to-Pay by Household:

To identify the factors influencing willingness to pay for *Ilera Eko's* health insurance by households, the household responses to the WTP question were regressed against the prices the households are WTP and other socioeconomic characteristics of the household using the regression logit model in equation 3:

$$Y = \frac{1}{1 + \exp^{z}} \quad \text{.....3}$$

Where Y = responses of household W TP which is either 1 for Yes and 0 for No

$Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots\ldots + \beta_7 X_7$

X_1 = Age (yrs)

X_2 = Educational level (number of years spent in the school)

X_3 = Marital status. Dummy variable (married =1, single=0)

X_4 = Household size

X_5 = Household expenditure (N)

X_6 = Percentage W TP from income

X_7 = Premiums/Enrolment fees (N)

The pseudo-*R* square and the chi-square were used to measure the goodness of fit of the model and the significance of the model used.

RESULTS AND DISCUSSION

Socio-economics Characteristics of Respondents

Table 1 presents the distribution of the respondents by socioeconomic characteristics.

Table 1: Socioeconomic Characteristics of Respondents in the Study Area n=120

Variables	Frequency	Percentage	Minimum	Maximum	Mean	Standard Dev
Age (years)			25	87	44.1	11.04
Sex						
Male	69	57.5				
Female	51	42.5				
Education (years)			12	16	12	5.03
Marital Status (Married=1,0, otherwise)					0.9	0.22
Primary occupation						
Civil service	23	19.2				
Teaching	39	32.5				
Farming	43	35.8				
Trading	15	12.5				
Family Size			5	11	6	2.04
Monthly Expenditure (#) 21564.35			18,304	105,2255	52,815.33	

Table 1 shows the minimum and maximum ages of respondents were 25 and 87 years respectively. The average age was 44 years. This average age showed that sampled respondents are in their prime working age hence, they are more likely to be willing to pay for *IIera Eko* prepayment health insurance. This aligns with Babatunde's (2012) findings which reveal that willingness to pay for health insurance is more pronounced among the middle-aged working class. The result revealed that male and female-headed households sampled were 57.5 and 42.5 Percent respectively. Female-headed households could mean single mothers or widows. It has been opined that households with the existence of adversity (i.e. with a higher ratio of sick members and widows) were more likely to purchase insurance (Ito and Kono, 2010). However, this did not fall within the scope of this study. Table 1 further shows that average education (years) was 12 years indicating 6 years in primary and 6 years in secondary school. Thus, the majority have attended secondary school up to their final year. The lowest and highest levels of education were 12 and 15 years respectively. The more educated the respondents, the more likely they would

be willing to adopt prepaid health services or health insurance. This was attested to in the study conducted by Adepoju, and Omonona, (2009) on the determinant of willingness to pay for improved water supply in Oshogbo Metropolis.

About 90 Percent of the respondents were married and this increases the health services needs of each household. Also, the household size of the respondents as shown by the results indicated that the average household size was about 6 while the minimum and maximum household sizes are 5 and 11 respectively. The relatively low average family sizes may be attributed to the level of education and this may be connected with the high cost of keeping a family in Lagos state. Household expenditure on food and non-food was used as a proxy for income as most respondents would otherwise not divulge the real value of their monthly income. The average household expenditure was about N52,815.33 (US$75.45), with the lowest and the highest being **N**18,304 (US$26.15) and **N**105,225 US$150.32)/month/household respectively. The result reveals the level of earnings of respondents as they are not likely to spend above their income. As the level of income increases, the probability that households would adopt prepaid/health insurance also increases. The Table also indicates that the majority (51.7%) are engaged in salaried occupation (Civil service or Teaching) while the rest (48.3%) are either engaged in farming or trading as their occupation.

Table 2 presents the summary of the health status and Healthcare practice of the sampled respondents in the rural areas of Lagos state. As the Table shows, more than half (55%) of the respondents rated their perceived health status as good while the remaining 45% split between poor status (10%) and fair health status (35%). Eighty-two (68%) of them indicated that they encountered illness during the past 3 months. Of the 82 respondents, 63 (77%) sought and got medical care. There is diversity among the respondents in terms of where they received treatment or medical care. The majority of them (75%) indicated that they got treatment from public health centres and hospitals while 25% got treatment from private facilities and other sources. As per the payment for the health care treatment, 70 participants (85%) out of the 82 who visited health care facilities for treatment, considered out-of-pocket payment for treatment to be either difficult or very difficult for them. Of these 70 respondents, the majority (54%) either borrowed or sold their assets before they

Health Status and Health-Care Practice of Respondents

Table 2: Health Status and Healthcare Practice of Rural Households in the Study Area

Variables	Frequency	Percentage
Perceived health status of the HHs (n=120)		
Poor	12	10.0
Fair	42	35.0
Good	66	55.0
Chronic illness or disability (n=120)		
Yes	30	25.0
No	90	75.0
Experience of illness during the past three months (n=120)		
Yes	82	68.0
No	38	32.0
Seek and get medical care (n=82)		
Yes	63	77.0
No	19	23.0
Place of treatment (n=82)		
Public health centre	48	58
Private health facility	16	19.0
Public hospital	14	17.0
Others	5	6
Payment for the health care expense (n=82)		
Very difficult	13	16.0
Difficult	57	69.0
Not difficult	12	15.0
Sources Support for payment of health care expenses if difficult (n=70)		
Assisted by relatives	32	46.0
Borrow from someone	14	20.0
Sell capital assets	24	34.0

could pay for their treatment. While the rest 46% were assisted by relatives to pay for treatment.

Awareness and Perception of *IIera Eko* Health Insurance Among Rural Dwellers in Lagos State

Table 3 shows the respondent's knowledge or awareness of the *Ilera Eko* health insurance scheme and their perception of it. Table 3 reveals that the majority (73%) of the respondents were aware of *IIera Eko* health insurance. The majority of those who are aware (55.7%) indicated that they received their knowledge of the scheme through radio and television while the rest got their knowledge of the scheme through the internet and newspaper/flyer. Among those who had the information, 61 (69.1%) of them had the perception that the premium for the insurance scheme should be paid fully by the Government or shared between individuals and the government. Meanwhile, nearly one-third (30.7%) believed that individuals alone should pay for the *IIera Eko* scheme. The Table shows further that the majority (80.7%) of the respondents had not participated in any community insurance before this study, while 17 of them representing 19.3% indicated otherwise.

Table 3 Awareness of and Perception of *IIera Eko* among Rural Households

Variables	Frequency	Percentage
Ever heard Information about *Ilera Eko*		
Yes	88	73
No	32	27
Source of Information (n=88)		
Health Extension Workers	2	2.3
Radio/TV	49	55.7
Internet	18	20.5
News Paper/Flyer	19	21.5
Who Should Pay Premium (n=88)		
Individual/Household	27	30.7
Individual and Government	32	36.4
Government	29	32.9
Ever participated in an indigenous Community Insurance before		
Yes	17	19.3
No	71	80.7

Table 4: Household Willingness Potential for *IIera Eko* Premium

Household W T P (% of income)	Frequency	Percent
None	32	27.0
0.01-1.00	61	50.8
1.01- 3.00	17	14.2
3.01-5.00	4	3.3
5.01- 7.00	2	1.7
7.01- 9.00	2	1.7
9.01 and above	2	1.7
Total	120	100.00

Table 4 presents the proportion of income that the respondents are willing to pay for *IIera Eko* health insurance scheme. About 27 per cent of the respondents indicated that they were not willing to pay anything from their income as a premium for the health insurance scheme. The majority, about 51 per cent were willing to pay below 1 per cent and 14.2 per cent agreed to pay between 1.01 - 3.00 per cent of their monthly income as a premium for the *IIera Eko* Health Insurance scheme, while about 1.7 per cent indicated that they were willing to pay nine per cent or more as premium for the insurance scheme for the benefit of their households. This is in line with Haile et al (2014),) and Kebede et al (2014) whose findings reveal that most households are willing to pay as much as ten per cent or more out of their income on health insurance.

Determinants of Willingness to Pay for Ilera Eko Health Insurance Scheme

Table 5 presents the logit regression analysis of the factors that determine the willingness to pay for *Ilera Eko* pre-payment health insurance. The factors that determine the willingness to pay for *Illera Eko* health insurance were examined using equation (3). Table 3 shows the estimated coefficients, their standard error values, x^2 statistics and other parameter statistics The x^2 statistics test the overall explanatory power of the exogenous variables and indicate that the model as a whole is highly statistically significant.

The results showed that respondents' age, level of education, marital status, household size and household expenditure do not significantly influence willingness to pay for *Ilera Eko* pre-payment health insurance. However, the percentage of income that a household is willing to pay for *Ilera Eko* pre-payment health insurance and the willingness to pay premiums are statistically significant at $P < 0.05$ and $P < 0.1$ respectively. Age and educational level are positively related to WTP for *Ilera Eko* pre-payment health

insurance. If their coefficients are significant. It would have indicated that as the age and the level of education increases the tendencies to adopt and pay for *Ilera Eko* pre-payment health insurance will also increase. The coefficient of household expenditure, a proxy for income and the proportion of income that a household is willing to pay for *Ilera Eko* pre-payment health insurance are positive and significant, these indicate that an increase in income will increase the probability and the proportion of income that households would be willing to pay for *Ilera Eko* pre-payment health insurance respectively. This was confirmed by Adedeji, et al (2017) and Gobir *et al* (2016), whose findings suggest that an increase in household income would increase the probability that a household would choose health insurance. The coefficient of payment for premium for *Ilera Eko* pre-payment health insurance is negative and significant at 10%. This shows that as the premium increases, the willingness to pay for *Ilera Eko* pre-payment health insurance by a household would decrease. This outcome is in alignment with the findings of Bukola (2013) in the study of Willingness to Pay for Community-Based Health Care Financing Scheme among urban and rural dwellers in Osun state. The findings showed that among two sets of premiums, Urban households were willing to pay ₦1798.90k per year while rural ones were willing to pay ₦ 721.70k, a confirmation of rural households to pay lower premiums.

Table 5: Logit Regression Analysis of Determinants of Willingness to Pay for *Ilera Eko* Health Insurance

Variables	Coefficients	T-value	P(Z/Z)
Constant	-1.653	-0.721	0.471
Age	0.171	0.553	0.581
Educational level	0.407	-0.050	0.960
Marital status	1.809	1.639	0.101
Household size	-0.139	-1.057	0.291
Household expenditure	0.128	-0.770	0.441
Percentage WTP fromincome	1.990**	4.872	0.000
Premiums	-1.010*	-1.733	0083
Log-likelihood	-41.48679		
Restricted log-likelihood	-83.22830		
Chi-square	84.48301		
Degrees of freedom	7		
Significance Level	0.0000		
**Significant at	5%		
*Significant at	10%		

CONCLUSION AND RECOMMENDATIONS

With the nature of healthcare financing and the increased burden of diseases facing the rural poor in Nigeria, Voluntary health insurance combined with quality healthcare services is highly effective in increasing hospital deliveries in rural Nigeria, by improving access to healthcare for insured and uninsured in the programme area. Lagos state government health insurance scheme is a community health pre-payment scheme with designated public health centres as points of utilization. To be eligible, an individual is expected to pay a specified amount (premium) for a year to be able to receive health services for one year. This study estimated factors that determine the willingness to pay premiums for the *Ilera Eko* pre-payment health insurance among households in rural areas of Lagos state using the logistic regression model. The result of the study shows that the demand for *Ilera Eko* pre-payment health insurance is significantly related to the income of the household members. A household that has very low monthly expenditure (income) or depends on minimum wage, may find it pretty difficult to pay for the premium bearing in mind the proportion of income that would be paid per head. Under the scheme for instance, an adult is required to pay N8,500 per annum, while a family of six, comprising a father, mother and four children of less than 18 years, is to pay N40,000 per annum. Willingness to pay for pre-payment health insurance will be low in rural areas where the poorest reside.

The study has shown that the majority of the respondents were not willing to pay for the *Ilera Eko* prepayment health insurance as they believe that the financial burden of the insurance scheme should be borne by the Government alone. This could result from the expectation that existing health services should be improved, in terms of the quality, quantity, and reliability of the service. Lagos state is a tax-efficient state in the sense that taxes and the tax net have been spread so wide even into the rural environment. The expectation could be that tax-payer money should be used to provide good quality health service rather than charging users through a pre—payment health insurance scheme. Two factors were discovered to be the determinants of household willingness to pay for *Ilera Eko* prepayment health insurance and these are household income and the premiums. Therefore, the government should heighten efforts at springing more economic boosting

activities in the rural areas of Lagos state. Booming economic activities will mean or in turn, evolve improved households' income. Also, ensuring good management of the *IIera Eko* health insurance scheme would make the scheme sustainable, and able to scale up its activities in the rural areas such that special status, aimed at reducing the premiums payable by rural dwellers, lower than the urban dwellers, would be accorded the Rural areas. This will also contribute to guaranteeing dwellers of rural areas access to quality health services without facing financial hardship, to achieve universal health coverage for all by the end of 2035.

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