

Critical Determinants of Demand for Services in the Nigeria Formal Sector Social Health Insurance Programme

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Abstract: Introduction: Social health insurance programme was initiated in Nigeria with one of the aims being to improve the demand for quality healthcare services with a resultant reduction in catastrophic spending among the citizenry. Unfortunately, in this programme, healthcare providers who offer quality healthcare services still witness poor enrollee demand for services which has led to inability of the programme to achieve its set out objectives. Hence, the need to study the effects of selected critical determinants on demand for health insurance services and how much these determinants can collectively account for the demand for services in the programme. Design/Methodology: The study adopted a cross sectional design with a quantitative approach. The sample size was calculated using G - Power 3.1 software and the determined sample for the study was one thousand four hundred and thirty five (1435). Multistage sampling method was adopted. Data was analyzed using descriptive statistics and linear regression method with the aid of SPSS version 11. Result: The critical determinants of provider ownership, distance to healthcare provider, enrollee educational level have significant positive effect on the demand for health insurance services (<0.05) but the effect of enrollee income was positively insignificant (>0.05). Similarly, 75% of the changes in demand for health insurance services can be accounted for by the predictor variables in this study. Conclusion: The inability of the programme to address these selected critical determinants significantly will lead to out of pocket spending for healthcare services with a resultant catastrophic effect on families' finances. Therefore, there is a need to take into account the effects of these determinants during policy formulation, reviews and process implementation in the programme.

Keywords: Demand for Health Insurance Services, Distance to Healthcare Provider, Provider Ownership, Enrollee Educational Level, Enrollee Income

1. Introduction

Health insurance is a process of prior payment for healthcare costs through contributions in form of premiums or taxes that is paid into a common pool to offset the bill for part or all healthcare services as specified by a policy or plan [1]. The main thrust of health insurance is to achieve equity in health financing through adequate pooling of resources

and judicious utilization of pooled resources so as to provide protection from catastrophic spending and bring about solidarity among the insured [2].

Many countries in the world have implemented various forms of health insurance as a means of protecting their citizens from financial risks and equally ensured that demand for healthcare services were guaranteed [3, 4]. Also, many African countries have implemented different forms of health

insurance programme and these are all in attempt to promote healthcare demand among their citizens [5, 6].

Unfortunately, many years after the initiation of social health insurance programme in Nigeria, the challenges bedeviling the programme which includes but not limited to progressive decline in demand for health insurance services has not been adequately addressed by the relevant authorities [7, 8]. This demand for health insurance services is influenced by those factors that will eventually determine how and when an enrollee identifies that there is illness and is able to procure the needed healthcare services [9].

Enrollees in the health insurance programme have different expectations from the providers and this will greatly determine the extent of their demand for services. The demand for health insurance service is influenced by the enrollees' level of awareness about the programme [10] which will include whether they know the quality of different alternatives available to them, how well they are able to assess the quality of health insurance services rendered and the advice and information they receive from healthcare providers. Hence, level of awareness of the enrollees is very important in explaining why the demand for health insurance services maybe poor. Therefore, any activity that promotes awareness creation will invariably increase demand for services [10]. Usually, the enrollees do not have the information needed to determine the appropriate services they require and as a result they hand over the responsibility of these choices to a provider (agent) [11, 12]. The knowledge of the agent may be imperfect and therefore may not advice the enrollee correctly on which services to take and on how to take it thereby resulting in poor demand for services.

In the analysis of health insurance market, the inefficiencies in the demand for healthcare maybe due to a range of socio-demographic characteristics of the enrollees which will include gender, education, age, income [13, 14]. Other socio-demographic characteristics of the enrollees which may influence demand for health insurance services will include enrollee poverty level, lack of trust in both the third party managers and government solidarity arrangements, conflicts in cultural and religious belief system [15, 16].

Similarly, several other factors have equally been reported to have contributed to poor demand for health insurance services and they include improper attention by medical workers in the hospitals, unauthorized payment for drugs, x-ray investigations and cost of transportation to the hospital [17, 18], health facilities not being distributed equitably among the populace [19, 20] and the health care professionals having a poor knowledge of the guidelines regulating the operations of social health insurance market in the country.

In addition, the benefit packages in the Nigeria social health insurance programme caters mostly for curative services and pays less attention to preventive and rehabilitative health insurance services and this has been shown to have contributed to poor demand for services [21, 1]. Also, the programme takes care of a principal, the spouse and only four biological children with hospitalization limited

for only the first 21 days for non-surgical and non-cerebrovascular accident (CVA) cases and this invariably tend to influence families' demand for health insurance services [1].

Apart from the notion enrollees have about the best brains in the medical profession having left for greener pastures [20, 22-24] and non-availability of standard diagnostic equipment in this health insurance market, the enrollees also expresses reservation in demanding for healthcare services because of long waiting hours they experience while seeking for healthcare services, poor attitude of healthcare workers and these have impacted negatively on prospective users demanding for these services [24], cost of procuring healthcare services, hospital protocols and timely and easy accessibility to procuring alternative medical services are other factors that may have influenced the demand for health insurance services.

As a result of these challenges faced by enrollees in the course of demanding for health insurance services in Nigeria, hundreds of people leave the shores of the country every month for treatment abroad which has led to leakage of revenue [25, 26]. The wealthy individuals in the healthcare market in Nigeria prefer the USA or European market for treatment, while some others prefer Middle Eastern [23, 26] or South African market for treatment. Most of these patients travel abroad for major surgeries, treatments relating to cardiology, orthopedics, cancer and organ transplant; these treatments are mostly on the exclusion list of social health insurance operational guideline [1].

Expectedly, enrollees who are satisfied with the quality of health insurance services rendered to them will definitely return again for further clinical consultation and may recommend the provider to other enrollees. Therefore, any health insurance market that renders quality healthcare services and satisfies the yearnings of the enrollees will be judged to be efficient and will attract high enrollee demand for services [27]. However, some hospitals with apparent quality service delivery still witness poor enrollee demand for health insurance services.

Hence, this study which sets out to look at the effect of identified critical determinants on enrollee demand for health insurance services and how far these determinants can collectively account for this demand for services. The result from this study will serve as a template for formulating policies by the regulators and other stakeholders and provide evidence-based recommendations on how to improve demand for health insurance services which will eventually lead to a decrease in out of pocket payments with resultant reduction in catastrophic effects on families' finances and consequently achievement of the targeted universal health coverage in Nigeria.

2. Method

2.1. Study Area

The Study was carried out in Enugu State which had an estimated population of 3,257,298 million with a land mass

of 7,618 km according to the last census figure. The state is bounded by Imo and Abia states on the southern part, Ebonyi state on the eastern part, Anambra state on the western part while Kogi and Benue states bounded it on the northern part [28].

2.2. Study Design

The study adopted a cross sectional design with a quantitative approach in exploring the variables in this study. This approach was appropriate for this study because it aided the estimation of the effect of the predictor variables on the criterion variable and also showed how much of the criterion variable that can be predicted in the study.

2.3. Population of Study

The study population comprised the eighty six thousand (86,000) enrolled employees of the federal government working in Enugu state whose names were on the hospital register for the past one year [29].

2.4. Sample Size

The sample size was calculated using G - Power 3.1 software. This method is indicative here because it helped in determining the smallest sample size in the study that was suitable in detecting the maximum effect of a given variable at the desired level of significance. A sample size of 1292 was computed for the study based on 95% confidence interval and power of 95%. The sample size was increased by 10% to take care of non-response or attrition, thereby giving us a sample size of 1435.

2.5. Inclusion Criteria

1. Enrolled respondents whose names appeared on the hospital list.
2. Enrolled in the formal sector social health insurance programme for one year.
3. Enrollees who have been using the NHIS accredited healthcare provider for one year.
4. Willingness to participate in the study.

2.6. Sampling Procedure

A multi-stage sampling technique was adopted and the study population was 86,000 enrollees. The first stage involved stratifying the hospitals into privately-owned, mission-owned and government-owned hospitals. After the stratification, the total hospitals for the study were seventy-five private hospitals, five government hospitals and four mission hospitals. The government hospitals had a total of 58,000 enrollees, mission hospitals had a total of 19,000 enrollees while the private hospitals had a total of 9,000 enrollees.

The second stage involved the use of simple random method to select one hospital from each group of stratified hospitals. The randomly selected government-owned hospital had 34,790 enrollees and 968 respondents were allocated

proportionately to it for the study, the mission-owned hospital selected randomly had 10,800 enrollees and 317 respondents were allocated proportionately to it. 150 respondents for the study were allocated proportionately to the privately-owned hospitals. The first randomly selected privately-owned hospital had 42 enrollees. A second privately-owned hospital with 1080 enrollees was selected from the privately-owned hospital group and the remaining samples were then drawn from it. The proportion allocated was gotten using the formula; sample fraction times relative sizes of each stratum.

Finally, the third stage involved the use of systematic sampling method to select the respondents for the study. The selection in each stratum was every 60th enrollee (as shown in the hospital register) who visited the hospital on the days of the study and the first enrollee in each stratum was selected by simple random sampling method.

2.7. Validity of Instrument

Face and content validity were used to assess the instrument for ambiguous statements which were removed and similarly relevance of the items was evaluated using a rating scale

2.8. Reliability of Instrument

A test retest technique at interval of 2 weeks was used to pre-test the instrument on respondents from one randomly selected privately owned (15 respondents), mission (30 respondents) and Government owned (90 respondents) hospitals respectively in Awka. The responses were computed using Pearson product moment correlation coefficient formula and a coefficient reliability of 0.70 was obtained.

2.9. Procedure for Data Collection

Five (5) trained research assistants were recruited for the administration of the questionnaires to the selected enrollees in the study. The purpose of the study was properly explained to the respondents that met the study criteria at the Out Patients Department and whom were drawn by the systematic sampling method (every 60th enrollee on the attendance list) with the aid of the attendance register. The administration of the questionnaire was through self administered approach and it lasted for six weeks.

2.10. Method of Data Analysis/Ethical Consideration

Linear regression Statistical method was used in this study to determine the coefficient of individual variables and the prediction of the dependent variable by the independent variables. The linear regression method therefore tends to show how the changes in the independent variables were associated with the changes in the dependent variable. The statistical significance in this study was set at $p < 0.05$. Data were analyzed using SPSS version 11.

The linear regression model was specified for this study. Similarly, this study adopted and modified the models of

Ayorinde [30] and Gertler, Locay and Sanderson [31] to come up with the final model that was used in explaining the critical determinants of demand for health insurance services. The modeling approach was used to determine whether the coefficients of the independent variables fulfilled the theoretical postulations as stipulated in the modeling framework. The sign and significance of the coefficients in the modeling framework showed the direction of the correlation between the independent and the dependent variables.

The model is denoted as follows:
 Model: The Demand function:

$$\text{Log } X_1 = B_0 + B_1 \log X_2 + B_2 \log X_3 + B_3 \log X_4 + B_4 \log X_5 + U \quad (1)$$

Where:

- Log X₁: Enrollee demand for services as prescribed by NHIS (dependent variable)
- Log X₂: Distance to healthcare provider
- Log X₃: Provider ownership (Government, Mission or Private)
- Log X₄: Enrollee educational level
- Log X₅: Enrollee income
- B₀: Intercept
- U: Error term

On apriori, it is expected that the signs and magnitude of the coefficients will be positive such that B₁, B₂, B₃ and B₄ > 0 (2)

The Enugu State Ministry of Health Ethics Committee approved this study and informed consents were gotten from each of the respondents. The administrative permit was obtained from the Management of the hospitals to administer the questionnaires with the aid of Ethics Committee approval letter and introduction letter from the Head of Department of health administration and management.

3. Result

Out of the 1435 questionnaires administered to the enrollees, the return rate was 90%. The results are presented below.

3.1. Descriptive Analysis of the Demographic Characteristics of Enrollees

Table 1. Descriptive analysis of demographic characteristics of enrollees.

Variables	n =1426 (%)
Gender	
Female	755 (52.95)
Male	671 (47.05)
Marital Status	
Single	456 (31.98)
Married	881 (61.78)
Widowed	60 (4.21)
Divorced	29 (2.03)
Educational Qualification	
FSLC	10 (0.70)
WAEC/SSCE	195 (13.67)
OND/NCE	283 (19.85)
HND/BSc/MBBS	602 (42.22)
PGD/MSc/MA	246 (17.25)
PhD	90 (6.31)
Income Per Annum	
< N 400,000	670 (46.98)
< N 500,000	220 (15.43)
< N 600,000	143 (10.03)
> N 600,000	192 (13.46)
None of the above	201 (14.10)
Age	
17-30	353 (24.75)
31-40	362 (25.39)
41-49	310 (21.74)
50-59	268 (18.79)
60-69	129 (9.05)
70-79	4 (0.28)
(Age) Mean (SD)	2.63 (1.30)

Table 1 showed that majority of the respondents earned less than 400, 000 naira per annum as salary and similarly majority of the respondents had first degrees while only very few of the respondents were very old (70 -79 years).

3.2. Enrollee Demand for Health Insurance Services Prescribed by NHIS Operational Guidelines

Table 2. Enrollee demand for health insurance services prescribed by NHIS operational guidelines.

Variables	Enrollees; n = 1426				
	SA	A	D	SD	$\bar{X}(\sigma)$
Enrollee demand for 24 hours services	720 (50.5)	528 (37.0)	128 (9.0)	50 (3.5)	3.35 (0.79)
Enrollee demand for Laboratory services in the hospital	50 (3.5)	22 (1.5)	1152 (80.8)	202 (14.2)	1.94 (0.54)
Enrollee demand for Emergency services in the hospitals	20 (1.4)	15 (1.1)	210 (14.7)	1181 (82.8)	1.21 (0.52)
Admission services demand by enrollees in the programme	24 (1.7)	102 (7.2)	1294 (90.7)	6 (0.4)	2.1 (0.36)
Enrollee demand for prompt referral for secondary and tertiary care	4 (0.3)	128 (9.0)	1282 (89.9)	12 (0.8)	2.09 (0.32)
Enrollee demand for provision of all the prescribed drugs	20 (1.4)	4 (0.3)	100 (7.0)	1302 (91.3)	1.12 (0.44)
Enrollee demand for Politeness during provision of services	421 (29.5)	962 (67.5)	30 (2.1)	13 (0.9)	3.26 (0.54)
Enrollee demand for healthcare providers with requisite medical skills	302 (21.2)	1103 (77.3)	13 (0.9)	8 (0.6)	3.19 (0.45)
Enrollee demand for healthcare provider understanding of their plight while providing services	450 (31.6)	940 (65.9)	20 (1.4)	16 (1.1)	3.28 (0.54)
Enrollee demand for promptness in attending to those on health insurance	32 (2.2)	20 (1.4)	1124 (78.8)	250 (17.5)	1.88 (0.52)
Grand Overall Mean (Standard Deviation)	2.342 (0.50)				

Table 2 showed that majority of the enrollees disagree that they demand for laboratory services, emergency services, admission services, referral to specialist centers, all prescribed drugs and promptness in attending to them.

3.3. Determinants of Demand for Health Insurance Services

Table 3. Determinants of demand for health insurance services.

Variables	Demand side (n = 1426)				
	SA	A	D	SD	$\bar{X}(\sigma)$
Distance to Health Providers	662 (46.4)	738 (51.8)	20 (1.4)	6 (0.4)	3.44 (0.55)
Provider ownership	411 (28.8)	826 (57.9)	179 (12.6)	10 (0.7)	3.15 (0.65)
Enrollees educational level	371 (26.0)	961 (67.4)	54 (3.8)	40 (2.8)	3.17 (0.62)
Enrollees income	962 (67.5)	444 (31.1)	15 (1.1)	5 (0.4)	3.66 (0.52)
Grand Overall Mean (Standard Deviation)	3.36 (0.59)				

Table 3 shows that the most of the enrollees indicated that all the independent variables studied influenced their demand for health insurance services.

3.4. Linear Regression of Demand for Health Insurance Services and Determinants of Demand for Health Insurance Services

Table 4. Linear regression of demand for health insurance services and determinants of demand for health insurance services.

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	.404	.039			10.433	.000
Distance to Health Providers	.117	.015	.169		7.578	.000
Provider ownership	.272	.017	.444		15.863	.000
Enrollees educational level	.189	.017	.295		11.164	.000
Enrollees income	.022	.015	.029		1.474	.141

Table 4 shows that all the independent variables in this study which comprises distance to health providers ($p=0.000$), provider ownership (government-owned, mission-owned and privately-owned hospitals) ($p=0.000$), enrollees educational level ($p=0.000$) were critical in the determination of demand for health insurance services except enrollee income (0.141) which was not significant in the demand for health insurance services.

3.5. Model Summary of Linear Regression Analysis

Table 5. Model summary of linear regression analysis.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.867 ^a	.752	.752	.19748	.752	1078.540	4	1421	.000

a. Predictors: (Constant), Enrollees income, Enrollees educational level, Distance to Health Providers, Provider ownership.

Table 5 shows that 75% of changes in demand for health insurance services can be explained by the independent variables and this effect on the dependent variable was significant ($p=0.000$).

Model: The Demand function:

$$\text{Log } X_1 = B_0 + B_1 \log X_2 + B_2 \log X_3 + B_3 \log X_4 + B_4 \log X_5 + U \quad (3)$$

Where:

Log X_1 : Enrollee demand for services as prescribed by NHIS (dependent variable)

Log X_2 : Distance to health provider

Log X_3 : Provider ownership (Government, Mission or Private)

Log X_4 : Enrollee educational level

Log X_5 : Enrollee income

$$\text{On Apriori it is expected that } B_1, B_2, B_3, B_4 > 0 \quad (4)$$

The theoretical postulations in the model for this study showed that the coefficients of the criterion variables should be greater than zero. The regression analysis therefore showed that all the coefficients were greater than zero thereby indicating that the criterion variables have a positive effect on the dependent variable hence fulfilling the theoretical postulations.

4. Discussion

One of the most conspicuous and unusual features of the medical economy is the prevalence of health insurance. In this industry, for several good reasons, health insurance has done considerably more than just transfer purchasing power from the lucky to the unlucky; it has fundamentally shaped the structure of the healthcare market itself. Again, one of the peculiarities of health insurance, one that has received a great deal of theoretical and empirical attention is how to reduce catastrophic spending among the populace. Catastrophic spending usually arises whenever an enrollee fails to demand for health insurance services and then pays for health services from out of pocket and which consequently tilt the enrollee into poverty [32, 33].

In the course of examining the selected critical determinants of demand for health insurance in the formal sector social health insurance programme in Nigeria, it was observed that all the variables were positive and significantly related to the demand for health insurance services except enrollee income (X_5) whose effect is insignificantly related to the demand for health insurance services.

The ownership structure (government, mission and private) of hospitals in Enugu state was highly implicated significantly in influencing the demand for healthcare services in the formal sectors social health insurance programme. This means therefore that as the disaggregation of the hospital ownership increases then the influence in the demand for health insurance services increases. This is in contrast to the findings in the study done by Aremo and Ibukun in Nigeria which explored the factors that determine pattern of health insurance demand and in their study, age of the respondents was the variable that was highly implicated [34]. Similarly, Nurgadi and Artawan Elia Putrain Indonesia examined the demand analysis of the Osing community for

first level health facility service of the National health insurance programme and the study revealed in their findings that level of education and knowledge were the only independent variables that were significantly implicated [35].

Enrollee Income had the expected positive sign but insignificant effect on the demand for health insurance in this study, however, the positive sign implies that as income grows, the demand for health insurance would increase. The results of this study does not tally with the findings of Ajemunigbohun, Sogura and Azeez in Nigeria [36], Nanu in Ethiopia [37], Ali and Norman in Bangladesh [38] and Musyoka, Korir, Omolo and Nzai in Kenya [39] whose studies showed that income does significantly determine the demand for health insurance services. The insignificance of the variable might not be unconnected with the fact that salary levels were low, majority of the respondents in this study were in the lower income bracket, enrollees only pay 50% co-insurance for expensive investigations and 10% co-payments for drugs.

The distance to provider variable had a positive relationship with the demand for health insurance and it is in line with the findings of Musyoka et al in Kenya [39], Tsegay et al in Ethiopia [40] and Nanu in Ethiopia [37]. The health insurance providers in the formal sector social health insurance programme in this study offer specialized services at the reference level and hence, charge higher prices. Thus, their services were perceived as being specialized and of high quality (having good/superior equipment) and as a result specialist health personnel will receive high demand irrespective of the distance. However, Ayorinde obtained a negative sign in conformity with a priori expectation [30]. According to the justification for the obtained and expected sign, distance is probably one of the most important 'price' factor from the perspective of the consumer, since it is directly related to the magnitude of out-of-pocket and time costs for travelling to a health insurance providers, thus the longer the distance, the lower the demand for health insurance provider

The enrollee level of education was also found to be positively related to demand for health insurance. This positive relationship between the enrollee level of education and the demand for health insurance tallies with Ajemunigbohun et al in Nigeria [36], Tsegay et al in Ethiopia [40], Ali and Norman in Bangladesh [38], Musyoka et al in Kenya [39] and Nurgadi et al in Indonesia [35]. This therefore means that the higher the level of education, the higher the demand for health insurance. In terms of the quality dimension of the healthcare provided, the more educated respondents might have predicated their preferences based on shorter waiting time in the hospitals, healthcare providers with 24hrs services, laboratory services, emergency services, empathetic and polite to them.

In summary, the positive (coefficient) relationship between the provider ownership, distance to provider, enrollee level of education and enrollee income from the regression with the demand for health insurance and the positive signs and magnitude of the independent variables on modeling

framework confirmed the presence of out of pocket payment which may lead to some level of catastrophic spending by the enrollees. The implication therefore is that any increase in the explanatory variables of provider ownership, enrollee income, distance to healthcare provider and enrollees' level of education would result in considerable out of pocket payment.

5. Conclusion

This study revealed that the critical determinants of demand for health insurance services studied had significant effect except enrollee income which has a positive insignificant effect. Similarly, these studied determinants which include provider ownership, distance to provider, enrollee level of education and enrollee income were shown to have accounted for 75% of the poor demand for health insurance services by the enrollees in the programme.

These studied determinants might have caused the increased out of pocket spending on healthcare with attendant catastrophic effects on families' finances in the country. This situation is worrisome because it has led to non-achievement of the universal coverage as envisioned by the Nigeria government. Therefore, the findings in this study will form the template which will enable the regulatory bodies and other stakeholders enact laws and strengthen the extant policies that will check other forms of financing healthcare that might lead to catastrophic spending by the enrollees.

Also, encourage other means that will enhance tracking and identification of enrollees so as to enable them use any healthcare provider nearest to them. Similarly, this study will serve as a guide while reviewing and implementing the relevant educational resources in the programme with a bid towards addressing the knowledge gap in the operational guideline.

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