Determinants of Households Expenditures on Health Risks in Nigeria

Ezenekwe, Uju R.[1], Asogwa T. Henry [2], Ezebuilo R. Ukwueze[3], Iwuamadi, Kelechi[4]

[1]Department of Economics, Nnamdi Azikiwe University Awka
[2]Institute for Development Studies, University of Nigeria, Enugu Campus
[3,4]Department of Economics, University of Nigeria Nsukka

Abstract

The trends of unavoidable and increasing health risk largely funded through out of pocket expenditures among different socioeconomic groups especially in rural areas now form part of Nigeria social issues which have increasingly heated public debate on health risk. This and many more have influenced the household expenditures on health risk, and using data from the National Living Standard Survey (NLSS) 2015 to estimate the extents households' inequality have been Worsen by the distribution of health risk as well as the determinants of Households expenditures on health risk in Nigeria. The findings revealed that health risks have created huge disparities among households in Nigeria which include the financial burden among households given the severity of health risk variation as evidenced in the result have deepen huge gap among different households groups. And those reasonable numbers of Nigeria households are deprived when it comes to accessing health care insurance (hlinsur), medication (hlmedc), and other health care facilities. Hence, recommended that public health priority be placed in rural and regional zones of the country with fragile health facilities as this will reduce huge expenditure burden on health risk, medication, hospitalization and cost so as to alleviate increasing health risk noticeable among certain income groups alongside healthcare interventions in Nigeria.

Key words: Disparity; Financial Burden; Health Access; Health care; and Health Insurance.

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Purpose/Objectives

A lot of discussions have been centered on the overall benefits of health insurance. Some researchers argued that households with health insurance are more likely to be healthy and get medical care than uninsured households. They are also more likely to have improved outcomes related to education and economic safety net that benefit society as a whole. Nevertheless, the global effort and debate on universal health coverage for all income groups which ordinarily is targeted to provide equitable access to quality health care and services have been grossly limited in Nigeria going by the outcome of several studies in that regards.

The trends of unavoidable and increasing health risk largely funded through out of pocket expenditures among different socioeconomic groups especially in rural areas now form part of Nigeria social issues as studies by Olaide (2006), Onah and Govender (2014) among others have indicated. The growing demand for health care services among all classes of the population have created a huge market for health care services in Nigeria given our demography, environment, and political structure and further supported by households participation in private health services due to the public sector failure on public health provision and management which also is responsible to the huge medical terrorism abroad on those who could afford the cost, inequity in patronage of patronize privately owned hospitals and clinics at point of emergency, choice on alternative or standard medicine and frequent call at conventional or standard medicine for those with insurance.

Interestingly, with the growing demand for health care services among households spiked by the trajectory population growth in Nigeria without a sustainable public health care provision, studies have revealed the pressure this circumstance have generated among households who are uninsured partly because they are unemployed, or underemployed by firms who take advantage of the surplus labour in Nigeria thereby causing households to pay hugely to access and use health services through private medication where attention is largely determined by finance in Nigeria.

More importantly, the study by Fiscella and Williams (2004) further sustained this argument by showing that health is unevenly distributed across socioeconomic status as persons of lower income, education or occupation status experience worse health and die earlier than do their better-off counterparts. Also, given the growing level of risk associated with ill health among households and the huge burden these have generated through private health care spending which have shown to be among leading determinates of poverty and inequality.

Alongside, the draft evidence by the Nigerian National Health Financing Policy 2006 reporting that private health spending accounts for about 64% of total health expenditure and could be more than US\$ 23 per capita. The report provide evidence on the impoverishing effect of health care payments on households such that on average, about 4% of households are estimated to spend more than half of their total household expenditures on healthcare and 12% of them are estimated to spend more than a quarter. This study is determined to investigate the estimate the extents households inequality have been Worsen by the distribution of health risk as well as the determinants of Households expenditures on health risk in Nigeria. And this study will be different from what other study have done in the past by looking at the indicators differently and using multidimensional mythology from two data sets to estimate the specified objectives.

Methodology/Approach

The Heckman's model lays the groundwork for understanding the treatment effect model so, in other to estimate objective one of the study which is to analyze the determinants of household expenditure on health risk. The study employs the Heckman selection model which assumes that there is an underlying relationship between factors that determine that households incurred ill health expenditure as well as the extents of inequality created by the distribution of health risk among households in Nigeria. Hence, to estimate the determinants of Households expenditures on health risk in Nigeria, the Heckman model is employed as presented in model one below;

$$Y_j = X_j \beta + \mu_3 \qquad\qquad\qquad 1$$

Where   is health expenditure of the   household; are health expenditure covariates   and   is the error term which is indicated in model four as:

$$healthrisk(insurance) = \beta + \beta hlhospt + \beta hlmedc + \beta hlt \exp + \beta hhsive + \beta i.region + \delta_\phi > 0 \qquad 2$$

While, to estimate the extents inequality created by the distribution of health risk among households in Nigeria, the study adopts the Gini model number 3 where xi stands for health risk of person i and n for households.

$$Gini = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n} / x_i - x_j /}{2\sum_{i=1}^{n}\sum_{j=1}^{n} x_j} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n} / x_i - x_j /}{2n\sum_{i=1}^{n} x_i} \qquad 3$$

To measure inequality using probability distribution, we find that model 4 gives a better estimation as represented below;

$$Gini = \frac{1}{2\mu} \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} P(x)P(y)/x - y/dxdy \qquad 4$$

In most theoretical studies, Health sector variables are seldom continuous and fully observed. For example, they can be discrete (e.g., death), censored (e.g., health care expenditure), integer counts (e.g., visits to doctor), or durational (e.g., time to death). Multivariate analysis of such dependent variables requires nonlinear estimation. In this study, we consider the main (parametric) nonlinear estimators that are of relevance to the analysis of the determinants of household expenditure on health risk. Therefore, the study employ the 'Heckman two step' selection model to control for sample selection bias as the only standard measure to capture the objective of the study.

The source of data was drawn from the General Household Survey (GHS) 2015 which provides information on the average Nigerian household's livelihoods. And given that Heckman two step' selection model can control for sample selection bias which allows for estimating study objectives alongside descriptive statistics. STATA 13 econometric software was used for our analysis.

Findings/Results

Table 1: The Determinants of Households Expenditures on Health Risk in Nigeria:

	health risk	Coefficient	z-calculated	P>(z)
Regression	hlhospt	1.251589	5.22	**0.002**
	hlmedc	1.373391	3.52	**0.001**
	hlcons	2.4448	2.35	**0.004**
	hltexp	1.337586	1.98	**0.005**
	hhsize	2101.47	4.11	**0.000**
	Zone(Northcentral)			
	Northeast			
	Northwest	-1062.157	-0.03	**0.976**
	Southeast	30019.95	0.14	**0.890**
	Southsouth	39148.52	0.12	**0.903**
	Southwest	60077.07	0.13	**0.895**
	_cons	-322583.3	-0.13	0.894
Selection	**hlhospt**	**-4.61e-06**	-1.90	**0.058**
	hlmedc	**-4.90e-06**	-4.89	**0.000**
	hlcons	**-.0000126**	-1.90	**0.058**
	hltexp	**4.81e-06**	5.13	**0.000**
	hhsize	**0.033303**	1.29	**0.199**
	Zone(Northcentral)			
	Northeast	**-11.24695**		
	Northwest	**-.0045439**	-0.01	**0.989**
	Southeast	**.3619968**	1.13	**0.260**
	Southsouth	**.5574404**	1.89	**0.059**
	Southwest	**.7965122**	2.83	**0.005**
	_cons	**-3.737245**	-12.47	**0.000**
Mills	Lambda	82278.36		
Rho = 0.23892	Wald chi2(9)=54.64	Prob> chi2 = 0.0000	Lambda = 82278.36	Sigma = 82278.358
No of obs = 34900	**Censored obs =34873**	**Uncensored obs = 27**		

Table 1. show results from the Heckman Selection model which shows the indicators that determines Households expenditures on health risk in Nigeria as hospitalization (hlhospt),

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medication (hlmedc), healthcare consultation (hlcons), total monetary value of health (hltexp), household size (hhsive) due to ill risk coming from sickness, accidents, nutrition, environment, hazards, education, sanitation among others are create huge health risk expenditutres and they are more in South-South, and South West. The size of Households with health risk on medication (hlmedc), and total monetary value of health (hltexp) are more among households associated with health risk than households with no health risk given that households in urban areas spend less on ill health due to better health facilities, higher per capita consumption expenditure and access to information on better living standard among others.

The result however, showed that households in urban areas are more likely to spend less on 1.37 per cent on medication that households in rural areas 4.90 per cent. While in total monetary value of health (hltexp) households in urban areas spend less as in 1.34 per cent when compared to rural households at 4. 81 per cent. Though this differ in healthcare consumption (hlcons) as rural households spend less at 0.0000126 per cent when compared to urban households at 2.44 per cent due to concentration of better health care system in most urban areas thereby making it easier for better health care access in urban areas.

At the regional level, the result further showed that both Southwest and South-South spend less on household expenditure on health risk when compared to North central and other regions. However, not all the indicators are statistically significant at 5 % level except for few indicators that was not statistically significant at 5% level. The result also shows that the absolute rho value to be less than 1 indicate that the Heckman model was appropriate for the analysis. While out of the 34900 households sampled 23907 had zero mean on health risk and were censored while the remaining 27 households were uncensored.

And given the test Wald chi-square statistics of 54.64 which has a probability value of 0.000, the result is hence, statistically significant at 5% level. This findings aligned with the study earlier investigated by Geotzel, Anderson, Whitmer, Ozminkowski, Dunn, & Wasserman (1998) on health risk behaviors and measures and their impact on health care expenditures. Alongside the

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study by   Aregbeshola, and Khan (2018) that argued financial risk protection is often incurred by households who have to pay out of pocket for health care services that are not affordable.

Table 2. The Extents of inequality created by the Distribution of Health Risk among Households in Nigeria:

Indicators/index	hlinsur	hlmedc	hlhospt	hlcons
Relative mean deviation	0.99922637	0.77416002	0.96535819	0.84103776
Coefficient of variation	103.99929	4.0378644	8.3191399	3.9214172
Gini coefficient	0.99987282	0.90359556	0.98403374	0.9191697
Kakwani measure	0.99869294	0.69427559	0.94375899	0.77007756
Theil entropy measure	8.8392819	2.1452756	3.8724239	2.2952731

The result on table 2 above indicates huge disparities among households in Nigeria as shown by the coefficients variation. The result showed that Theil entropy indices measure the proportion of disparity among households by 0.99869294. The extent of disparity is considered to be reasonably high given the severity of variation index of 104 per cent. The result indicates that with the huge disparity incidence, the evidence point that many Nigerian households are deprived when it comes to accessing health care insurance (hlinsur).

The result also indicate levels of disparities in accessing health medication (hlmedc) among Nigeria households by 0.69427559 as depicted by 40 per cent coefficient of variation, alongside households hospitalization (hlhospt) disparity by 0.94375899 as evidenced by 83 per cent

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variation. The proportion of household disparity when it comes to health care consumption in terms of utilization (hlcons) is depicted by 0.77007756 at 39 per cent variation. This study however, agrees with the outcome similar study outcome by Ibukun and Komolafe, (2018) that hold that there is incidence and intensity of catastrophic health expenditure among households in the poorest quantile, households located in rural areas, female headed households, households with uneducated household heads, households with unemployed heads, and those without health insurance.

Conclusion/Implications/Recommendations

This study investigated the determinant of household expenditures on health risk, using data from the National Living Standard Survey (NLSS) 2015 to estimate the extents of inequality created by the distribution of health risk among households in Nigeria and the determinants of Households expenditures on health risk in Nigeria. The major findings of the study are that the extent of disparity is considered to be reasonably high given the severity of health risk variation such that Nigeria households are deprived when it comes to accessing health care insurance (hlinsur). More so, that Households' expenditures on health risk in Nigeria are hospitalization (hlhospt), medication (hlmedc), healthcare consultation (hlcons), total monetary value of health (hltexp), household size (hhsive) and they are more in South-South, and South West. The result also revealed that the size of Households with health risk on medication (hlmedc), and total monetary value of health (hltexp) are more among households associated with health risk than households with no health risk given that houeholds in urban areas spend less on ill health while, at the regional level, the result further showed that the both Southwest and South-South spend less on household expenditure on health risk when compared to North central and other regions. The findings revealed that health risks have created huge disparities among households in Nigeria given the increasing total monetary value of health expenditure and medication among rural households.

In line with the findings, the researchers however, make the following recommendations: that public health priority be placed in rural and regional zones of the country with fragile health facilities as this will reduce huge expenditure burden on health risk, medication, hospitalization and cost so as to alleviate increasing health risk noticeable among certain income groups alongside healthcare interventions in Nigeria. There is urgent need of inclusive health care program supported by the public sector to assist health risk created by health facility gap in rural and regional areas of Nigeria. More sanitation and advocacy program need to come into play on reproductive health and family planning so as to cultivate manageable family size in other to avert increasing health risk from family members.

References

Aregbeshola, B.S., and Khan, S.M. (2018). Determinants of Catastrophic Health Expenditure on Health in Nigeria. Eur J Health Econ, 19(4):521-532. doi: 10.1007/s10198-017-0899-1.

Akanni, O.L. and Olaide, S.O. (2016). Inequity in Healthcare Utilization: Analysis of the Nigeria Situation. International Journal of Business and Social Science, 7(5)

Bhabesh, Sen and Himanshu, Sekhar Rout (2007): Determinants of Household Health Expenditure: Case of Urban Orissa. Published in: Utkal Economic Papers, 13(1):17-23.

Chomi, E.N., Mujinja, P.G., Enemark, U., Hansen, K., & Kiwara, A.D. (2014). Risk distribution across multiple health insurance funds in rural Tanzania. The Pan African Medical Journal, 18:350

Fiscella, K., and Williams, D.R. (2004). Health Disparities based on Socioeconomic Inequalities: Implications for Urban Health Care. Journal of Academic medicine, 79(12):1139-1147.

Geotzel, R.Z., Anderson, D.R., Whitmer, R.W., Ozminkowski, R.J., Dunn, R.L., & Wasserman, J.(1998). The Relationship between Modifiable Health Risks and Health care

Expenditures. An Analysis of the multi-employer HERO Health Risk and cost database. J Occup Environ Med, 40(10):843-54.

Ibukun C. and Komolafe, E. (2018). Household Catastrophic Health Expenditure: Evidence from Nigeria. Microeconomics and Macroeconomics, 6(1):1-8

Ichoku, H.E. and Okoli, C.I. (2015). Fiscal Space for Health Financing in Nigeria. African Journal of Health Economics, 2(18).

Li, Y., Wu, Q., Xu, L., Legge, D., Hao, Y., Gao, L., Ning, N., & Wan, G. (2012). Factors Affecting catastrophic Health Expenditure and impoverishment from medical expenses in China: policy implications of Universal Health insurance. Bulletin of the World Health Organization.

OECD (2015), Out-of-pocket medical expenditure, in Health at a Glance 2015: OECD Indicators, OECD Publishing, Paris.

Onah, M.N. and Govender, V. (2014). Out-of-Pocket Payments, Health Care Access and Utilisation in South-Eastern Nigeria: A Gender Perspective. Research Article, https://doi.org/10.1371/journal.pone.0093887

Onotai, L.O. and Nwankwo, N.C. (2012). A Review of the Nigerian Health care Funding System and how it Compares to that of South Africa, Europe and America. Journal of Medicine and Medical Sciences, 3(4):226-231.

Oriakhi, H.O. and Onemolease, E.A. (2012). Determinants of Rural Household's Willingness to Participate in Community Based Health Insurance Scheme in Edo State, Nigeria. Ethno Med, 6(2):9 5-102.

Saksena, P., Hsu, J., & Evans, D.B. (2014) Financial Risk Protection and Universal Health Coverage: Evidence and Measurement Challenges. PLoS Med,11(9): e1001701. https://doi.org/10.1371/journal.pmed.1001701

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The National Health Services (NHS) Scotland report (2018). The Health Scotland Theory of Causation of Health Inequalities,

Ulldemolins, A.R., Lansingh, V.C.,Valencia, L.G., Carter, M.J., & Eckert, K.A. (2012). Social inequalities in blindness and visual impairment: A review of social determinants. Indian Journal of Ophthalmol, 60(5):368-375. doi: 10.4103/0301-4738.100529.

Yusuf, T.O., Gbadamosi, A. & Hamadu, D. (2009). Attitudes of Nigerians towards insurance Services: an empirical study. African Journal of Accounting, Economics, Finance and Banking Research,4(4).

Zhu, X., Cai, Q., Wang, J., and Liu, Y. (2014) Determinants of Medical and Health Care Expenditure Growth for Urban Residents in China: A Systematic Review Article, Iran J Public Health,43(12): 1597–1604.