



EFFECT OF HEALTH SHOCKS ON PER CAPITA INCOME: A CASE STUDY OF ADO-EKITI LOCAL GOVERNMENT AREA, EKITI STATE, NIGERIA

Ilori, Isaac A.

Department of Economics, Ekiti State University, Ado Ekiti, Ekiti State, Nigeria

isaaceco.52@gmail.com

Abstract

Households with health shocks are faced with problem of how to pay for medical treatment and income loss from inability to be productive are now identified as obstacle to development in local government areas most especially in developing countries (Nigeria inclusive). On this premises, this paper examined the effect of health shocks on per capita income in Ado-Ekiti local government area (L.G.A.), Ekiti State, Nigeria. The study used micro analysis involving primary data sourced from respondents across population sampled from L.G.A. study area. Estimation techniques of descriptive statistics and ordinary least square (OLS) regression method were used. Result of the study showed adverse effect of health imbalances on welfare of households in Ado Ekiti L.G.A. Findings from the study showed that out-of-pocket health expenses exhibits a positive influence on per capita income and statistically significant at 10% level. Based on the findings, it is recommended that government should provide better health care services which in turn improve economic development of Ado-Ekiti L.G.A. and by extension to Nigerian economy at large.

Keywords: Health shocks, Per capita income, Descriptive statistics, Ado-Ekiti L.G.A.

INTRODUCTION

More attentions are continuously increasing from academia and policy makers on the economic consequences of health shocks basically in developing countries (Nigeria inclusive) (Khan, Bedi & Sparrow, 2014). First and foremost, what are health shocks?. Health shocks are unexpected negative changes in the general wellbeing of an individual which could leads to unproductive

and incapability of not only the concerned person but also to the growth of the economy. Some of these shocks in question involve direct cost such as medical health care expenditure and indirect cost like loss of income (Dhanaraj, 2016). Similarly, Okunogbe, 2012 also gesticulated that health shocks stands as unpredictable illnesses that reduces health agility which in turn forms part of the factors associated with poverty across the globe. To this end, households or individuals with health shocks may face with problem of how to pay for medical treatment and the income loss from inability to be productive at that period. Therefore, the problem of health shock isn't only about the instability of human health but also how much of income is loss during this period (Wakeel & Alani, 2014). In a related development, Khan, 2010 as cited by Dhanaraj, 2016 gesticulates that a household is said to face a health shock when an illness or infirmity weakens the health status of its member and thus generates a welfare loss for the household.

Evidently, there has been a strong nexus between health and income across countries within countries and across individuals. The total wellbeing of an individual is very important in an economy since individuals make a nation; therefore healthcare could be regarded as an important requirement for achieving sustainable long term growth and development (Matthew, Adegboye & Fasina, 2015). While increasing cost of health care system in both the developed and developing countries have been a platform for debate, only few studies have attempted to study the relationship between per capita income and health shocks (Gwatain, Rustein, Johnson & Wagstaff, 2007) with an over increasing health expenditure. It is important to evaluate the effectiveness of such expenditure in terms of improvement in health outcome.

In a theoretical version, if healthcare is a normal good, an increase in per capita income would be expected to increase the demand for health services. Thus, the role of income to the wellbeing of the people in an economy is undoubtedly paramount. High income earners have access to various needs which in turn improve health status of the people unlike low income earners as per capita income depicts the economic activity attributed to each citizen.

Further, the effect of health shocks on household per capita income became pronounced when households are unable to deploy informal coping strategies (e.g. asset sales, loans, and saving withdrawal) in response to health shocks (Chetty & Looney, 2006). To this end, rural dwellers are wallowing in impoverished circle as a result of lack of out-of-pocket health spending that can be traced to socio-economic conditions (Alenoghena, Abejegah & Ejemai, 2014). Further, to corroborate the earlier speakers, Okunogbe (2018) also asserted that health shocks affect per capita income of an individual depending on the structure, progression, and macro-economic milieu within which the shocks take place. Given the above, the debate apropos the effect of health shocks on per capita income still remains a great issue to contend with in literature. Therefore, this study seeks to examine the effect of health shocks on per capita

income and the extent to which different measures can be taken by the public in protecting household consumption from health shocks. And above all, the potential of informal strategies which households may use in coping with these health shocks are accessed in the study.

Earlier study in developing countries (Nigeria inclusive / or studies on local government basis) investigated on the impact of out-of-pocket health expense on per capita income, nexus between health inequality and income as well as health shocks and household welfare with less emphasis on health shocks and per capita income at the period of this study. Again, it is however worthy to note that in developing countries, people with low income may not have opportunity to access better health status which according to Cutler, Deaton and Llera-muney (2006) worsen mortality rate as regards to health shocks and vice versa.

Premised on the foregoing gaps pinpointed in the literature, this study is out to investigate the effect of health shocks on per capita income as evidence in Ado Ekiti local government, Ekiti State which can be used to typify Nigerian economy. However, to achieve some of the objectives of the study including but not limited to analyze significant effect of health shocks on per capita income. Micro data analysis involve descriptive statistics from the local respondents was employed in contrast to other estimation techniques employed by past studies (e.g. Cutler, *et al.*, 2006; Shariful, *al.*, 2018; Khurshid & Ajay, 2014). Thus, the remaining part of this study is organized as follows, section two concentrates on review of literature. Section three presents methodology which includes theoretical framework, model specification and estimation technique for the study. Section four analyzes and discusses empirical results while the concluding remarks and policy recommendations are presented in section five.

LITERATURE REVIEW

Conceptual Review

Health shock whether an event of death or disease, can cause significant adverse on economic outcomes for households in low-and-middle-income countries (Alam & Mahal, 2014). In one hand, many scholars have defined health in different ways but the most encompassing of this is a state of physical, mental and social well-being in which disease and infirmity are absent. The World Health Organization (1948) proposed a definition that aimed higher; linking health to well-being in terms of "physical, mental, and social well-being, and not merely the absence of disease and infirmity". Although this definition was welcomed by some as being innovative, it was also criticized as being vague, excessively broad and was not construed as measurable.

Further, health is a direct source of human welfare and also an instrument for raising income levels (Bloom & Canning, 2008). There exist a large number of mechanisms through which health can affect income, focusing on worker productivity, children's education, savings

and investment, and demographic structure. As well as the impact of current illness, health may have large effects on prospective lifespan and life cycle behavior.

In another hand, Adeyemi, Krammer, Pradhan, Jager and Jassens, (2018) defined health shock as unexpected negative changes in the wellbeing of an individual. Thus, this phenomenon can be controlled and prevented by conducive health structure that will allow the total wellbeing of an individual, physiologically, psychologically and anatomically (Wagstaff, 2014).

Per capita income is a measure of the average wealth that each person of a country holds, if all of the income of that country were equally divided among its entire people. Per capita income (PCI) is among the tools classical and neoclassical economists used in the development of an economy. High income economies are termed developed economies while low income economies are termed as developing economies (Wikipedia; 2011). However, when an economy is growing, there is a responsive change with an increase in per capita income, since one of the measures of testing the growth ratio of an economy by Classicalist and Neo-classicalist was by the level of per capita income, which is gross domestic product divided by the total population of the Nation. Again, Devatta and Mikael (2016) also defined per capita income as a measure of the average wealth that each person of a country holds, if all of the income of that country were equally divided among its entire people, in simpler terms per capita income (PCI) is income per person, which is usually measured by gross domestic product (GDP) over entire population.

Summarily, the conceptual review suggests that health shocks can be controlled and prevented through a conducive health structure for an individual. However, if not properly handled this can cause significant adverse on economic outcomes for households in most especially in low-and-middle-income countries. Also note that when an economy is growing, there is a responsive change with an increase in per capita income through a qualitative healthy of an individual.

Stylized Fact in Health and Income

Improvements in health may be as important as improvements in income, majorly when thinking about development and human welfare. Thus, good health can be thought of as a goal in its own right, independently of its relationship with income. (Geoffrey, Barbara and Robert, 2016) However, there is a link between health and income that is important for policy purposes. To the extent that health follows income, income growth should be the priority for developing countries. To the extent that income is a consequence of health, investments in health, even in the poorest developing countries, may be a priority. Therefore, this argument of health as an investment

good is particularly relevant since there are cheap and easily implementable health policies that can improve health dramatically even in the poorest countries. Empirically, high levels of population health go hand in hand with high levels of national income. Liu *et al.*, (2003) submits that an increase in medical expenditure reduced the level of poverty or increased GDP per capita in the rural areas of China in a significant way. However, countries whose health expenditures are very low are likely to be associated with low productivity rates across all the sectors of the economy which in turn may stagnate economic growth. Health expenditure compliments economic growth and any attempt to re-allocate health labour force to other sectors of the economy negatively hampers economy. This is not unexpected. Higher incomes promote better health through improved nutrition, better access to safe water and sanitation, and increased ability to purchase more and better quality health care. However, health may be not only a consequence but also a cause of high income (Bloom & Canning, 2000).

Theoretical Underpinning

The Grossman Model of health demand is a model that studied the demand for health and medical care put forth by Michael Grossman in a monograph in 1972 entitled “The demand for health: a theoretical and empirical investigation”. The model is base on demand for medical care on the interaction between a demand function for health and a production function. The model was called “founding father of demand for health models” by some scholars like Andrew Jones, Nigel Rice and Paul Contoyannis. Further, in this model, health is a durable capital goods which is inherited and depreciates over time. Investment in health takes the form of medical care purchases and other inputs and depreciation is interpreted as natural deterioration of health over time. In the model also, health enters the utility function directly as a good people derive pleasure from and indirectly as an investment which makes more healthy time available for market and non-market activities. In addition, the model creates a dynamic system of equations which can be cast as an optimization problem where utility is optimized over gross investment in health in each period, consumption of medical care, and time inputs in the gross investment function in each period. In this way, the length of life of the agent is partially endogenous to the model. It is believed in this theory that the reason why people invest by themselves through education and health is to increase earnings.

Mathematically, cost of capital (C)

C = Opportunity cost (cost of foregone alternative, that is, interest rate) + rate at which capital goods depreciates

$$C = r + \delta$$

MEI – Rate of return vs amount of resources invested

If rate of return on capital good is greater (less) than cost of capital, then the good will (not) be purchased. Capital goods will be purchased only up to point where:

Rate of return = cost of capital

Dynamic optimization problems are often optimized using comparative statics, setting partial derivatives of the outcome function of interest. In this case the utility function equal to zero. When the partial derivative of the utility function with respect to health consumption is assumed to equal zero, the resulting sub-model is the investment model. Solutions to the problem of this sub-model generally shows that the rate of return on health capital must equal the opportunity cost of said capital. Thus, increases in the depreciation rate over time causes the optimal stock of health to decrease. If the marginal efficiency of capital curve is inelastic, gross investment grows over time. In practical terms, this model thus predicts that older people will have more sick time and time spent on increasing health and has higher medical expenditures than younger people. Another implication is that since increase in wages shift the marginal efficiency of capital curve to the right and also increase the curve's slope. Thus, an increase in wage will increase the demand for health capital.

Empirical Evidences

Extant empirical literature on the relationship between health shocks and per capita income had produced mixed results. Some of the studies that examined this relationship includes Devatta and Mikael (2016) examined the nexus between health inequality and income using a simultaneous model in the globe. A simultaneous three-equation model was specified between GDP per capita level, infant mortality rate and health expenditure for 194 countries between 1990 and 2014 using secondary data. Results showed that simultaneous decreasing infant mortality rate and increasing GDP level effects are found in sample with three income level country groups, while health expenditures have larger than one elasticity when effects from GDP level and number of doctors per capita are summed together. They concluded that in the poorest countries Kuznets hypothesis and low-income-high-inequality trap may still be present but these can be avoided by breaking the possible negative relationship between income inequality and raising health status for better productivity and sound health.

Khurshid and Ajay (2014) reviewed economic impact of health shocks on households in low and middle income countries using recent empirical literature. The study identified 105 relevant articles, reports and books excluding pre-2000 literature. Reviewed result showed that households in LMICs bear a high burden of OOP health expenditure. In addition, health shocks exhibits a significant reduction in labour supply among households in LMICs, and households (especially in low-income country) . The study suggests additional research on measurement

and harmonization of health shocks as well as economic outcomes indicators. Thus, non-health system interventions such as access to credit and disability insurance are needed to be included in policy decision by policymakers.

Geoffrey, Robert and Barbara (2016) examined changes in health over the retirement years and also the effects of health changes on wealth during retirement years in United States. The study used a dynamic panel data model with a framework of item response theory. Findings from the study showed that large negative shocks to the health of male retirees and their spouses are frequent during retirement and that when such shocks do occur, recovery to the pre-shock level of health is rare. The study concluded that when large decline in health occurs, they have a measurable effect on wealth accumulation of the retiree.

Shariful, Nazrul and Nafiz (2018) analyzed the correlates of healthy life expectancy in low and middle income (LMI) countries; examined the factors that are associated with health life expectancy at birth in Sierra-leone. Secondary data from the United Nations was employed to carry out the survey and descriptive statistic was used to describe the situations of the LMI countries income after which the Pearson's correlation analysis was performed to see the relationship amongst each selected variables.

Adeyemi, Berber, Menna and Wendy (2018) investigated the incidence of health insurance and informal coping mechanism in Nigeria looking at the means through which the burden of out-of-pocket health expenditure can be reduced and how families cope during health shocks. Dataset was sourced from weekly financial diaries of 121 households in central Nigeria and it was discovered that there are no effect of health shocks on earned income during the week. The results showed that OOP health expenditure increases during health shocks compared to when there are no health shocks.

Alenoghena, Abejegah and Ejemai (2014) analyzed the primary health care system in Nigeria from conceptualization to implementation using secondary data, it reviewed the historical concept that have driven primary health care in Nigeria and current efforts and programs to revitalize the primary health care schemes in Nigeria. It was concluded that the concept of primary health care is still relevant to achieving equitable and quality health care, however a persistent effort at implementation at all levels is necessary to maximize the benefits.

Oyedeji, Ukemenam, Mohammed and Ojediran (2016) examined the effect of out-of-pocket health expenditure (OOP) on welfare of rural households in Kwara State Nigeria. Using a Two-stage sampling technique and primary data was collected from 180 rural households of which 175 households were used for the analysis of the study. The study employed ordinary least square (OLS) regression in analyzing the data collected for the study. Findings showed that out-of-pocket health expense has a positive significant effect on both per capita calorie

intake and income at 10% statistical level. The result of the study also showed adverse effect of OOP on welfare of households. The study therefore recommends that government should promote and sustain alternative health care financing mechanism like insurance schemes to assist poor households in benefiting from health services for possible reduction of OOP. In addition, government should also encourage establishment of private health insurance schemes by creating enabling environment for them to thrive.

From the review of theoretical literature, it can be deduced that the effect of health shocks (increase or decrease) depends on the demand for health capital of a nation. However, an increase in wages will shift the marginal efficiency of capital curve to the right, thereby enable the nation to develop in terms of human capabilities. Further, if the marginal efficiency of capital curve is inelastic, gross investment grows over time and vice versa. The review of empirical literature identified lack of consensus among the relationship between variables and series employed. Majority of past studies on the theme made use of secondary data that could not generate cost of medical treatment and income loss by households rather than local government focus like this study employing micro analysis; with the exception of Oyedele *et al.*, 2016 who employed primary data focusing on rural households.

Methodology

Theoretical Framework

This study considered micro data method of research which include research design, population sample and sampling technique, research instrument and validity of the instrument among others.

Research Design and Population

The study employed the descriptive research of survey type. The research work will be limited to all type of independent or working age group in Ado-Ekiti Local Government Area of Ekiti state, Nigeria. This includes the formal and informal jobs. In line with the design adopted from this study, questionnaires became imperative as a means of obtaining micro data. Further, questionnaire was designed and well-structured with different research questions so as to know in details, the different opinions and view of the respondents towards the research question.

Sample and Sampling Techniques

The sample for this study comprises of one hundred respondents from the Local government area. The study also uses purposive sampling technique to select the respondent for the well-structured questionnaire. Random sampling was used to select twenty respondents from each

types of employment (i.e skilled, unskilled, semi-skilled, formal, informal etc.). The study was carried out with a Two-stage sampling technique to be used in selecting sampled households for the study. In the first stage, 50 households with higher income were selected which consists of teachers in higher institutions, managers of companies, experienced brokers and industrialists. In the second stage, 50 households with lower income were randomly selected from each of the selected ward units provided from the complete household listing made available by the LGA. Thus, a total of two hundred households were sampled for the purpose of the study. However, only 100 questionnaires were used for the analysis of this study.

Research Instrument

Primary data was employed through the use of questionnaires method in which trained enumerators administered well-structured questionnaires to elicit information from sampled households. Information collected were based on the socio-economic characteristics of rural households in the study area such as age of household head, gender of household head, years of schooling of household head, household farm size, total household asset among others.

Administration of Research instrument

The research instrument was administered directly to the respondents. The questionnaires were taken to the selected households in different employment level for administration.

Model Specification

Model specification adopted in the study follows the work of Oluwafemi, Miriam, Abdullahi and Ezekiel (2016), which took its root from the Harrod-Domar Growth Model. The econometric model consisting implicit and explicit form respectively are stated thus:

$$Y_t = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7)$$

$$Y_t = \varphi_0 + \varphi_1 X_1 + \varphi_2 X_2 + \varphi_3 X_3 + \varphi_4 X_4 + \varphi_5 X_5 + \varphi_6 X_6 + \varphi_7 X_7 + \psi_t$$

Where: Y_t = Per Capita Income of Household

X_1 = Sex of the Household

X_2 = Age of Household (Years)

X_3 = Nature of Job (private, public, self-employed, skilled, services etc.)

X_4 = Family Size

X_5 = Locality (living condition)

X_6 = Higher level of educational attainment

X_7 = Gender

ANALYSIS AND DISCUSSION OF RESULTS

Descriptive Analysis

The bio-data analysis such as age distribution, gender distribution, marital status, educational qualification distribution, size of households, resident location, occupation, monthly income, number of hours of work and source of income are presented in tables. To analyze the data, frequency and percentage were used in analyzing the variables for the questions as stated thus:

Table 1. Sex Distribution of the Respondents

SEX		Frequency	%	Valid %	Cumulative %
Valid	Male	184	46.0	46.0	46.0
	Female	216	54.0	54.0	100.0
Total		400	100	100	

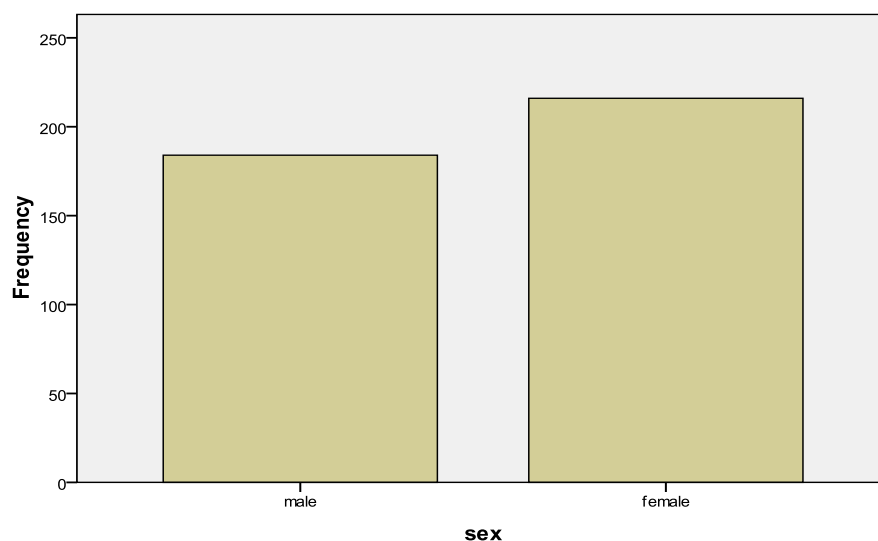


Table 1 shows that 184 (46%) of the respondents are males while 216 (54%) are females which probably reflects that more females are prone to health shocks than the male counterpart.

Table 2. Age Distribution of the Respondents

AGE		Frequency	Percent	Valid Percent	Cumulative %
Valid	18 - 25 years	184	46.0	46.0	46.0
	26-60 years	198	49.5	49.5	95.5
	61 and above	18	4.5	4.5	100.0
Total		400	100.0	100.0	

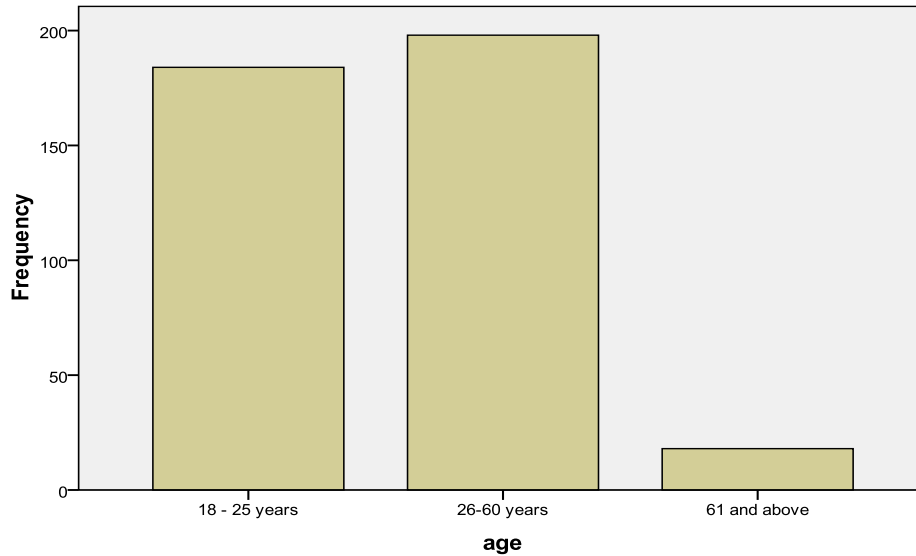


Table 2 shows that 184 (46%) of the respondents are between ages 18 – 25 years while 198 (49.5%) are between the ages 26 – 60 years which probably reflects the independent age bracket of the labor force while 18 (4.5%) are of the aged bracket of 61 and above.

Table 3. Marital Status

MARITAL STATUS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	single	103	25.8	25.8	25.8
	married	272	68.0	68.0	93.8
	widowed	24	6.0	6.0	99.8
	divorced	1	.3	.3	100.0
	Total	400	100.0	100.0	

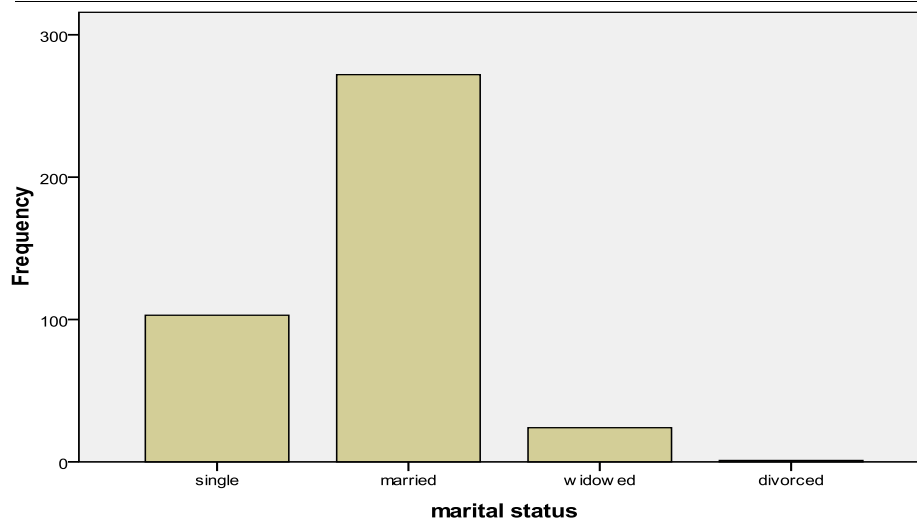


Table 3 shows that there are 103 (one hundred and three) single respondents, which signifies 25.8 % of the total population, the married respondents constitute 272 (Two hundred and seventy two) which is about 68% of the population. There were only 24 (twenty four) widowed respondents which represents 6% of the total population and Only 1(one) respondent indicated Divorced with 0.3%.

Table 4. Size of Household

SIZE OF HOUSEHOLD		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2-5	196	49.0	49.0	49.0
	6-9	201	50.3	50.3	99.3
	10 and above	3	.7	.7	100.0
Total		400	100.0	100.0	

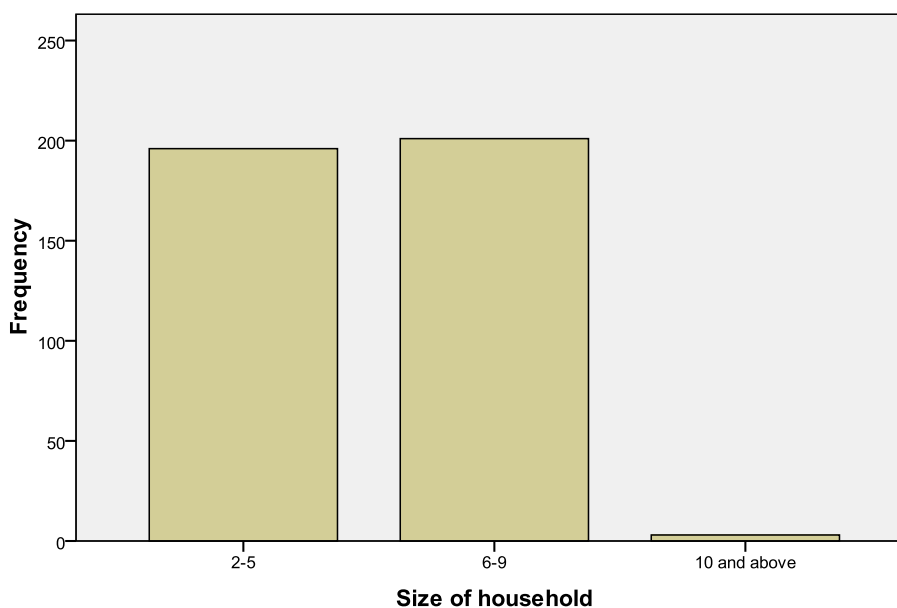
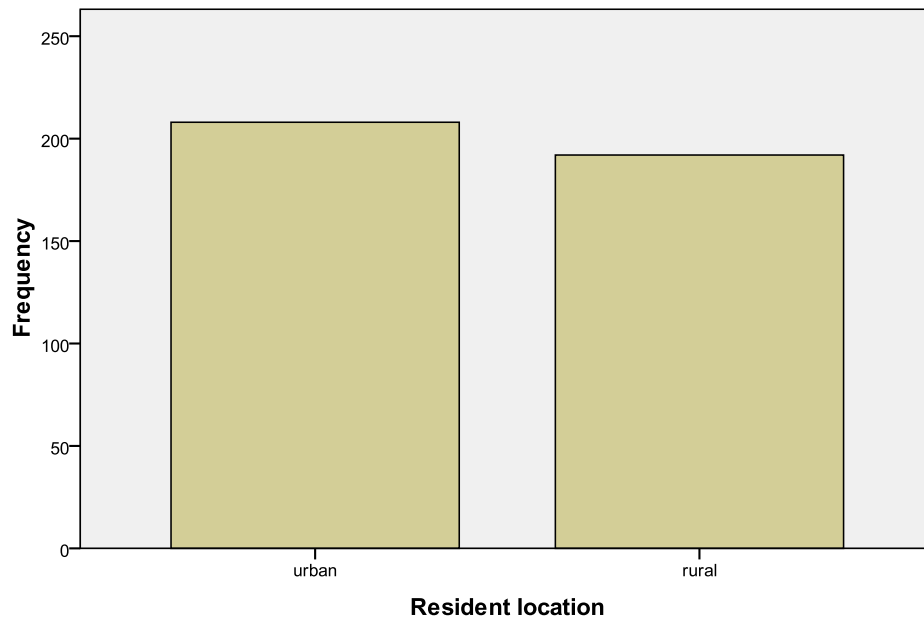


Table 4 showed that the number of respondents between 2-5 households are 196 (one hundred and ninety six) signifying 49%, while 201 (two hundred and one) respondents are belong to 6 -9 Households representing 50.3% and the number of respondents between 10 and above households are just 3 (three) signifying 0.7% of the total population. This purports that large households aren't popular again due to modernization and child birth control measure.

Table 5. Resident Location

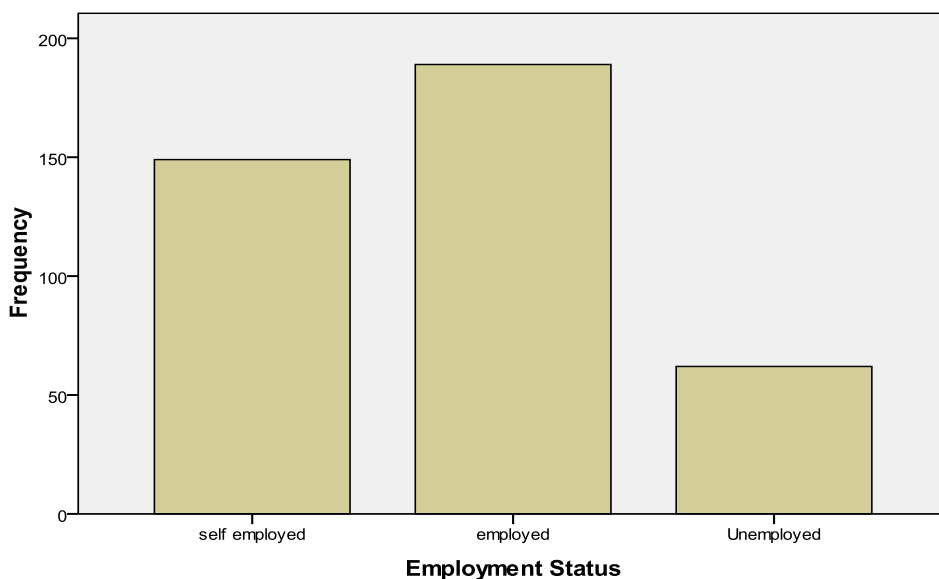
RESIDENT LOCATION					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Urban	208	52.0	52.0	52.0
	Rural	192	48.0	48.0	100.0
Total		400	100.0	100.0	



Total 208 (Two hundred and eight) respondents reside in urban areas of the Local Government representing 52% percent while 192 (one hundred and ninety two) respondents reside in rural areas of the local government representing 48%.

Table 6. Employment Status

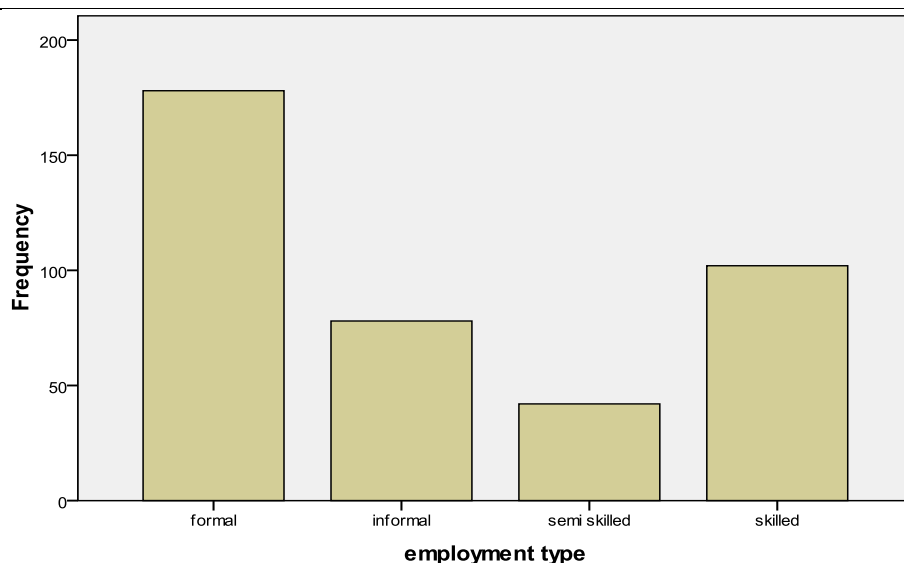
EMPLOYMENT STATUS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	self employed	149	37.3	37.3	37.3
	Employed	189	47.3	47.3	84.5
	Unemployed	62	15.5	15.5	100.0
Total		400	100.0	100.0	



The table above explains 149 (one hundred and forty nine) respondents are self employed representing 37.3%, while 189 are employed and 62 unemployed representing 47.3% and 15.5% respectively.

Table 7. Employment Type

EMPLOYMENT TYPE					
		Frequency	Percent	Valid Percent	Cumulative %
Valid	Formal	178	44.5	44.5	44.5
	informal	78	19.5	19.5	64.0
	semi skilled	42	10.5	10.5	74.5
	Skilled	102	25.5	25.5	100.0
	Total	400	100.0	100.0	



The table explains 178 respondents are into formal employment representing 44.5%, while 78 respondents are engaged in informal jobs representing 19.5%, with 42 respondents engaged in semi-skilled employments and 102 respondents in skilled jobs representing 10.5% and 25.5% respectively.

Table 8. Highest Educational Attainment

HIGHEST EDUCATIONAL LEVEL		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary school leaving certificate	14	3.5	3.5	3.5
	Secondary school leaving certificate	80	20.0	20.0	23.5
	Ordinary national diploma	78	19.5	19.5	43.0
	Higher national diploma	52	13.0	13.0	56.0
	Bsc/B.A/B.Eng/B.Edu	132	33.0	33.0	89.0
	Msc/ M.BA/M.A	33	8.3	8.3	97.3
	PhD	11	2.8	2.8	100.0
	Total	400	100.0	100.0	

Highest educational level

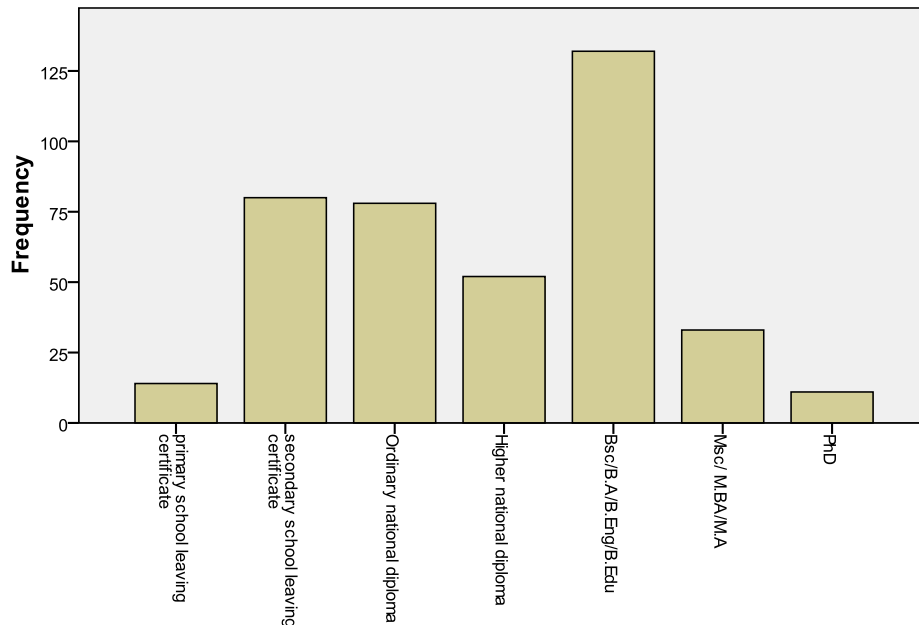
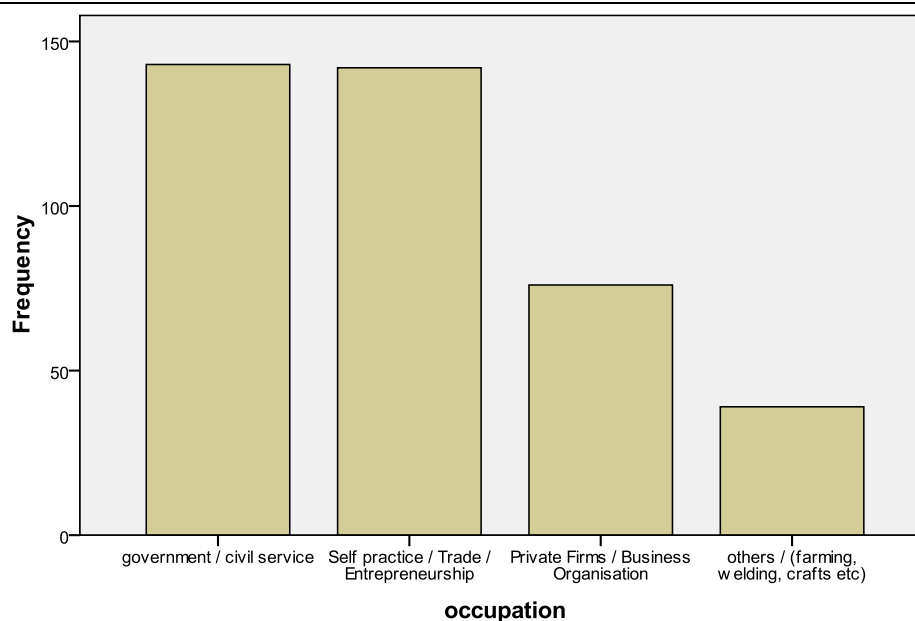


Table 8 indicates that 14 (3.5%) of the respondents are primary school leaving certificate holders, 80 (20%) are secondary school leaving certificate holders, 78 (19.5%) are Ordinary

diploma holders, 52 (13%) are Higher diploma holders, 132 (33%) are first degree holders, while 33 (8.3%) are masters holders and 11 (2.8%) are doctorate degree holders from different recognized institutions of learning.

Table 9. Occupation

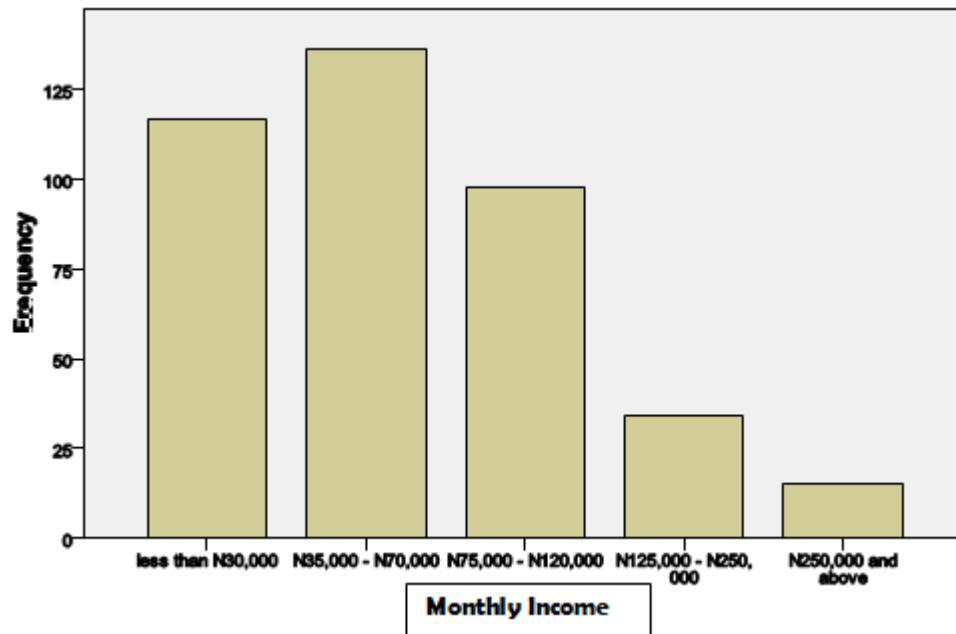
OCCUPATION		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	government / civil service	143	35.8	35.8	35.8
	Self practice / Trade / Entrepreneurship	142	35.5	35.6	71.4
	Private Firms / Business Organization	76	19.0	19.0	90.5
	others / (farming, welding, crafts etc)	39	10	9.5	100.0
Total					
Total		400	100.0	100.0	



The table 9 indicates the various groups of occupation respondents are engaged in. 143 (35.8%) are employed into the civil service or are government workers. 142 (35.5%) are into self-practice or trade, this implies that trade is a popular daily engagement in the local government. 76 (19%) are professionals employed by private firms or business organizations, while 38 (9.5%) are engaged in other informal jobs like farming, welding, tie and dye among others.

Table 10. Monthly Income

MONTHLY INCOME					
		Frequency	Percent	Valid Percent	Cumulative %
Valid	less than N30,000	117	29.3	29.3	29.3
	N35,000 - N70,000	136	34.0	34.0	63.3
	N75,000 - N120,000	98	24.5	24.5	87.8
	N125,000 - N250,000	34	8.5	8.5	96.3
	N250,000 and above	15	3.8	3.8	100.0
Total		400	100.0	100.0	



Total 117 (29.3%) receive a monthly income less than N30,000, 136 (34%) receives a monthly income between N35,000 – N70,000, 98 (24.5%) respondents receives income between N75,000 – N120,000, 34(8.5%) respondents receives income between N125,000 – N250,000 and 15 respondents representing 3.8% receives income higher than N250,000.

Table 11. Numbers of hours of work

Number of hours of work					
		Frequency	Percent	Valid Percent	Cumulative %
Valid	4 hours	48	12.0	12.0	12.0
	6 hours	92	23.0	23.0	35.0
	8 hours	165	41.3	41.3	76.3
	12 hours	95	23.8	23.8	100.0
Total		400	100.0	100.0	

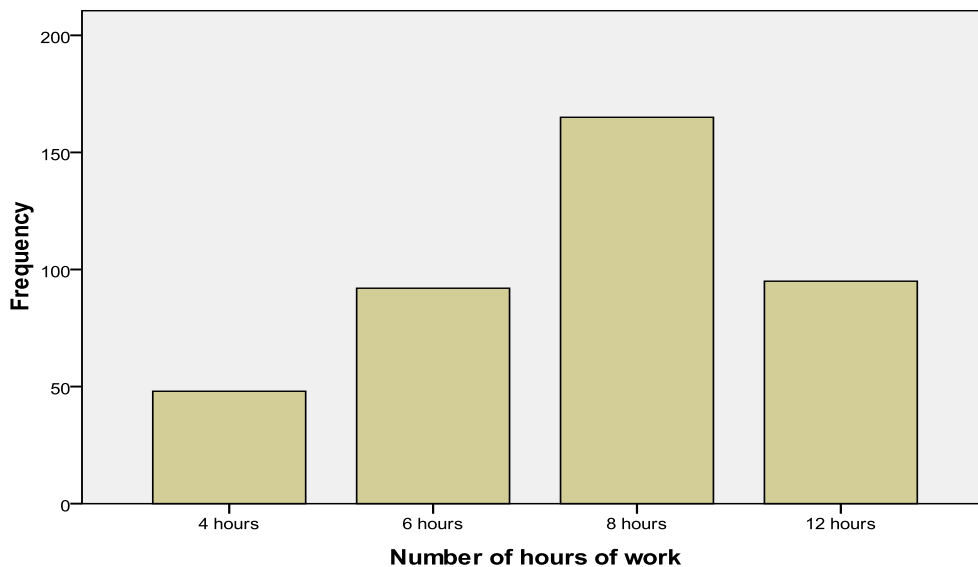


Table 11 indicates that 48 (12%) of the respondents works for 4 hours daily, 92 (23%) work for 6 hours daily, 165 (41.3%) work for 8 hours daily and 95 (23.8%) work for 12 hours daily.

Table 12. Source of Income

Source of income		Frequency	Percent	Valid Percent	Cumulative %
Valid	Agricultural services	23	5.8	5.8	5.8
	trade and commerce	104	26.0	26.0	31.8
	Services	141	35.3	35.3	67.0
	Others	132	33.0	33.0	100.0
	Total	400	100.0	100.0	

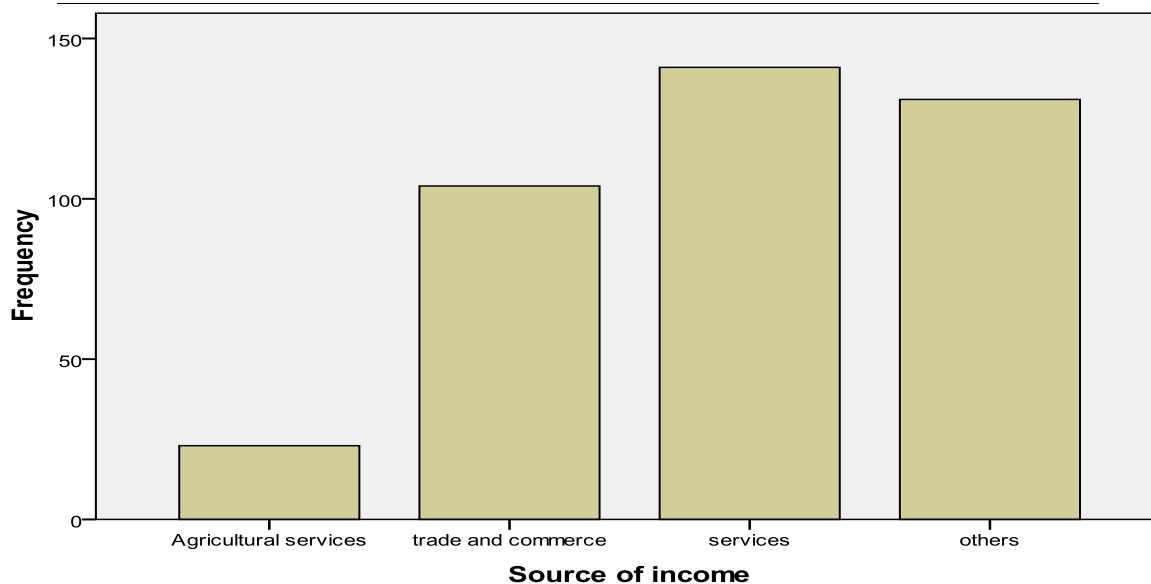


Table 12 showed that 23 (5.8%) of the respondents are engaged in agricultural activities, 104 (26%) are engaged in trade and commerce, 141 (35.3%) are engaged in providing services, while 131 (32.8) are engaged in other work for 6 hours daily, 165 (41.3%) work for 8 hours daily and 95 (23.8%) work for 12 hours daily.

Regression Analysis

Table 13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.371 ^a	.137	.097	1.025

a. Predictors: (Constant), Affordability, HealthWealth, livingCond, OOP, absent, EXPconsume, jobabsenteeism, illMoney, Productive, lowSavings, welfareStra, DeConsume, socialAmenities, Loan, Healthstat, Desave, foodwater, Medics

From the model summary Table 13, we have a multiple correlation coefficient of 0.371. Further, the Adjusted R² indicates that only 9.7% of the variance can be predicted from the independent variables.

Table 14: ANOVA^b

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	63.719	18	3.540	3.370	.000 ^a
	Residual	400.191	381	1.050		
	Total	463.910	399			

a. Predictors: (Constant), Affordability, HealthWealth, livingCond, OOP, absent, EXPconsume, job absenteeism, ill-Money, Productive, low Savings, welfareStra, DeConsume, socialAmenities, Loan, Healthstat, Desave, foodwater, Medics

b. Dependent Variable: monthly income

ANOVA Table 14 indicates that the combination of the variables significantly predicts the dependent variable as significant value $p(0.000) < 0.001$.

Table 15: Ordinary Least Square (OLS) Regression Method

Coefficients ^a		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.070	.343		11.879	.000
	Ill-Money	-.260	.056	-.240	-4.679	.000
	Absent	.052	.062	.043	.834	.405
	Productive	.021	.081	.015	.261	.795
	Desave	.045	.077	.036	.590	.555
	Health status	-.225	.084	-.156	-2.675	.008
	Job absenteeism	-.109	.074	-.083	-1.466	.143
	Living Cond	-.093	.114	-.049	-.815	.415
	Medics	-.059	.109	-.036	-.543	.588
	Foodwater	.095	.104	.055	.906	.365
	WelfareStra	-.089	.092	-.061	-.961	.337
	Social Amenities	-.274	.101	-.160	-2.719	.007
	Health Wealth	-.008	.034	-.013	-.246	.806
	EXPconsume	.040	.078	.028	.511	.609
	Low Savings	-.008	.076	-.006	-.108	.914
	Loan	-.087	.083	-.060	-1.042	.298
	OOP	-.013	.006	-.099	-1.956	.051
	DeConsume	.063	.086	.043	.728	.467
	Affordability	-.035	.076	-.027	-.463	.643

a. Dependent Variable: monthly income

Result from the table 15 indicates that social amenities, health status and ill-money justified the most significant variables. This implies that people agree that if their locality have access to social amenities (that is, electricity, water, good roads, hospitals, among others), thus, it will improve their productivity due to the fact that health status is necessary to enhance job productivity or business.

Policy Implications of the Results

The following are the policy implications of the result so as to enhance policy formulation:

- Result of the OLS regression showed that standard medical facilities are indispensable towards health shocks reduction such as mortality and morbidity rates. By implication, policy makers should leave not any stone unturned for more health policies towards procurement of medical facilities needed to improve healthcare services and well-being

of the people in Ado-Ekiti and by extension to the development of Nigerian economy at large.

- Result further indicates that social amenities, health status and ill-money exhibits most significant influence on per capita income. This is a pointer to policy makers to further develop framework that will improve social amenities such electricity, good road networks amongst others, most especially in rural areas.

CONCLUSIONS AND POLICY RECOMMENDATIONS

The study concluded from the survey that a large percentage of respondents do not make more money when they were ill or rather have any imbalances in their health status. This implies that health shock has an effect on income of households as earlier submitted by Dhanaraj, 2016 that a household is said to face a health shock when an illness or infirmity weakens the health status thereby leads to a welfare loss for the household. Again, the study showed that many respondents are not economically productive when they fall ill thereby posed difficulty for them to pay medical expenses. Hence, they resulted borrowing from past savings, seek funds from family members, and sometimes even go to the point of selling off assets to pay for immediate health needs as a result of unexpected health shocks.

The study also finds evidence of long run inverse relationship between health shock and consumption pattern, which implies that many people in Ado Ekiti Local Government Area can't afford their normal consumption pattern during health shocks upsurge. However, they have to cut down some other expenses enjoyed but are not necessities like entertainment amongst others.

In addition, the study also showed that health shocks and monthly health expenditure either out-of-pocket or affordable exhibits significant impact on productivity of households. This implies that combination of variables significantly predicts the dependent variable (per capita income) as value indicates $p(0.000) < 0.001$. This is consistent with the work of Oyediji *et al.*, 2016 who affirmed that positive relationship between out-of-pocket health expense and per capita calorie intake and income in the country. Again, result also showed that women are more prone to be affected by series of health shocks as a result of genetics and anatomical makeup on their body.

Based on the aforementioned findings therefore, the following policy recommendations are proffer to enhance appropriate policy formulation in a bid to achieve a sustained economic development in Ado Ekiti and by extension to Nigeria at large.

- ❖ Government should promote and sustain alternative health financing scheme like National Health Insurance Scheme (NHIS) to assist the poor households to have

access to good health care so as to reduce their out-of-pocket expenditure. This could further reduce mortalities related cases and also improve life expectancy of the citizenry, most especially in rural areas.

- ❖ Rural households should be provided with better living conditions, industries, infrastructures and welfare packages to help them overcome inferiority and give access to making income.
- ❖ Households should be given access to periodic medical checkup by the government to avoid sudden health breakdown which could have a negative effect on their productivity sequence.
- ❖ Finally, to ensure adequate health care services for poor rural people, government and health insurance providers should make available hospitals in rural areas and not just in urban regions.

LIMITATIONS OF THE STUDY

Major limitations of this study rest squarely on the use of only micro data (questionnaire preparation) without considering secondary data. However, most of the population sampled are not highly educated members of the society. Thus, they represent low earning workers such as artisans, petty traders, welders, bricklayers, farmers among others. To this end, response rate was low because they are not educated. Further, financial constraint is another major factor of limitation during the process of questionnaire distribution. Moving from one household to other required transport fare and feeding cost of investigators. Again, there exists a dearth of literature on the subject matter especially recent contributions from developing countries of the world. However this study is been conducted in a manner that irrespective of the limitations, the objective of the study will not be jeopardized.

REFERENCES

- Alam, K., & Mahal, A. (2014). Economic impacts of health shocks on households in low and middle-income countries: A review of the literature. *Global Health*, 10, 21, doi: 10.1186/1744-8603-10-21.
- Arrow, K. J. (1964). The role of Securities in the optimal allocation of risk-bearing. *The Review of Economic Studies*, 31(2), 91–96.
- Asfaw, A., & Braun, J. von. (2004). Is consumption insured against illness? Evidence on Vulnerability of Households to Health Shocks in Rural Ethiopia. *Economic Development and Cultural Change*, 53(1), 115– 129.
- Babatunde, R. O., Oyediji, O., Omoniwa, E., & Adenuga, A.H. (2016). Effect of Community Based Health Insurance on the Livelihood of Rural Households in Kwara State, Nigeria. *Journal of Agricultural Faculty of Gaziosmanpasa University*,33 (2): 19-27.
- Bales, S. (2014). *Impact of health shocks on household welfare in Vietnam-Estimates using fixed effects estimation* (W/P No. 18). Rotterdam: HEFPA.
- Bloom, D. E. & David, C. (2000). *The health and wealth of Nations*, Science, Vol.287, No.18, pp.1207-1209.

- Bloom, D. E., & Canning, D. (2003). „The health and poverty of nations: from theory to Practice“. *Journal of Human Development*, Vol.4, No.1, pp.47-71.
- Bolaji, S.A, & Amina, M.K, (2018). Out-of-pocket payments, catastrophic health expenditure and poverty among households in Nigeria. *International Journal of Health Policy Management*. 2018, 7(9), 798–806.
- Cochrane, J. H. (1991). A Simple Test of Consumption Insurance. *Journal of Political Economy*, 99(5), 957–976.
- David, E., Michael, K., & Klaun P. (2018). Health and economic growth. *Health Econ.*, PGDA Working Paper No. 153.
- Deaton, A. (1992). *Understanding consumption*. Oxford: Clarendon Press.
- Dehejia, R. H., Beegle, K., & Gatti, R. (2005). Why Should We Care About Child Labor? *The Education, Labor Market, and Health Consequences of Child Labor* (No. W/P 3479). Washington DC: SSRN.
- Dercon, S., & Krishnan, P. (2000). In Sickness and in Health: Risk Sharing within Households in Rural Ethiopia. *Journal of Political Economy*, 108(4), 688–727.
- Dhanaraj, S. (2015). *Health Shocks and Short Term Consumption Growth* (W/P No. 112/2015). Chennai: MSE.
- Dhanaraj, S. (2016). Effects of parental health shocks on children’s schooling: Evidence from Andhra Pradesh, India. *International Journal of Educational Development*, 49, 115–125.
- Dhanaraj, S. (2016). Economic vulnerability to health shocks and coping strategies: evidence from Andhra Pradesh, India. *Health Policy and Planning*, Volume 31, Issue 6, July 2016, pp. 749–758,
- Genoni, M. E. (2012). Health Shocks and Consumption Smoothing: Evidence from Indonesia. *Economic Development and Cultural Change*, 60(3), 475–506.
- Gertler, P., & Gruber, J. (2002). Insuring Consumption Against Illness. *American Economic Review*, 92(1), 51–70.
- Gertler, P., Levine, D. I., & Moretti, E. (2009). Do microfinance programs help families insure consumption against illness? *Health Economics*, 18(3), 257–273.
- Grimm, M. (2010). Mortality Shocks and Survivors’ Consumption Growth. *Oxford Bulletin of Economics and Statistics*, 72(2), 146–171.
- Hangoma, P., Aakvik, A., & Robberstad, B. (2017). Health Shocks and Household Welfare in Zambia: An Assessment of Changing Risk. *Journal of International Development*, 30(5), 790–817.
- Ichoku HE, Fonta WM. (2009). Catastrophic health care financing and poverty: Empirical evidence from Nigeria. *Journal of Social and Economic Development*. 2009;11(2):1-16.
- Idowu, D.O, & Olanrewaju, O. (2018). Health shocks and household welfare in Nigeria. *Amity Journal of Economics*, 3 (1), (41-60).
- Islam, A., & Maitra, P. (2013). Health shocks and consumption smoothing in rural households: Does microcredit have a role to play? *Journal of Development Economics*, 97(2), 232–243.
- Kadiyala, S., Rogers, B., Quisumbing, A., & Webb, P. (2011). The effect of prime age adult mortality on household composition and consumption in rural Ethiopia. *Food Policy*, 36(5), 647–655.
- Kazeem, A., Olusegun, A., & Caleb, W. (2015). “Social and environmental determinants of malaria in under five children in Nigeria”; A review. *International Journal of Community Medicine and Public Health*, 2(4):345-350.
- Khan, F., Bedi, A. S., & Sparrow, R. (2015). Sickness and Death: Economic Consequences and Coping Strategies of the Urban Poor in Bangladesh. *World Development*, 72(1), 255–266.
- Khan. (2010). “Economic consequences of health shocks and coping strategies: Evidence from urban poor households in Bangladesh” (*Master’s Thesis, Erasmus University, Graduate School of Development Studies, Institute of Social Studies, Netherlands*). Retrieved from <https://academic.oup.com/heapol/article/31/6/749/1750125>
- Khurshid, A & Ajay, M. (2014). Economic impacts of health shocks on households in low and middle income countries: a review of the literature. *Journal of Globalization and Health*, <http://www.globalizationandhealth.com/content/10/1/21/Pp1-18>
- Kochar, A. (1995). Explaining household vulnerability to Idiosyncratic Income Shocks. *American Economic Review*, 85(2), 159–164.
- Lindelow, M., & Wagstaff, A. (2005). Health Shocks in China: Are the Poor and Uninsured Less Protected? (Working Paper No. 740). Washington DC: World Bank Group.
- Mesike, C., & Mojekwu, J.N.(2012). Environmental determinant of child mortality in Nigeria. *Journal of Sustainable Development*. Vol. 5, No. 1.

- Mitra, S., Palmer, M., Mont, D., & Groce, N. (2016). Can Households Cope with Health Shocks in Vietnam? *Health Economics*, 25(7), 888–907.
- Modena, F., & Gilbert, C. L. (2011). Shock Responses of Rural Households in Indonesia: A Multinomial Logit Analysis. *SSRN Electronic Journal*.
- Ogundeji YK, Jackson C, Sheldon T, Olubajo O, Ihebuzor N (2016). Pay for performance in Nigeria: the influence of context and implementation on results. *Health Policy Plan*. 31(8):955-963. doi:10.1093/heapol/czw016
- Oladele, A.O. (2015). "Exploring the effect of health on economic growth in Nigeria: a vector error correction model approach". *International Journal of Economics, Commerce and Management United Kingdom* Vol. III, Issue 9.
- Olalekan, S., Olawuyi, S. ., Fola, O., & Oyedapo, M. (2011). Shocks and Coping Strategies of Rural Households: Evidence from Ogo-Oluwa Local Government, Oyo State, Nigeri. *International Journal of Agricultural Management & Development*, 1(4), 259–266.
- Oyekale, T. O., & Yusuf, S. A. (2010). Multidimensional Poverty of Shock-Exposed Households and Coping Mechanisms in Rural Nigeria. *The Social Sciences*, 5(3), 254–263.
- Ravallion, M., & Chaudhuri, S. (1997). Risk and Insurance in Village India: Comment. *Econometrica*, 65(1), 171–184.
- Shehu, A., & Sidique, S. F. (2015). The Effect of Shocks on Household Consumption in Rural Nigeria. *The Journal of Developing Areas*, 49(3), 353–364.
- Solow, R. M. (1956) "A Contribution to the Theory of Economic Growth". *Quarterly Journal of Economics*, Vol.70, No.1, pp.65-94.
- Sparrow, R., de Poel, E. Van, Hadiwidjaja, G., Yumna, A., Warda, N., & Suryahadi, A. (2013). Coping with the Economic Consequences of Ill Health in Indonesia. *Health Economics*, 23(6), 719–728.
- UNDP. (2014). Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience. (*Human Development Nigeria 2014*).
- Wagstaff, A. (2007). The economic consequences of health shocks: Evidence from Vietnam. *Journal of Health Economics*, 26(1), 82–100.
- Wagstaff, A., & Lindelow, M. (2014). Are Health Shocks Different? Evidence from a Multishock Survey in Laos. *Health Economics*, 23(6), 706–718.
- Wagstaff, A., and Doorslaer, E.V (2003). Catastrophe and impoverishment in paying for health care: With applications to Vietnam 1993-1998. *Health Econ.*, 12: 921-933
- Wakeel, A., and Alani, R.I. (2009). "Human capital development and economic growth: Empirical evidence from Nigeria," *Asian Economic and Financial Review*, Asian Economic and Social Society, 2(7):813-827.
- WHO. (2014). Global Health Expenditure Database. Retrieved from <http://apps.who.int/nha/database/Select/Indicators/en>
- World Health Organization (1998). *Health, Health Policy and Economic Outcomes*, prepared by the Health and Development Satellite, WHO Transition Team.
- World Health Organization. (2005). *Sustainable health financing, universal coverage and social health insurance: World Health Assembly Resolution WHA 58.33*. Geneva: World Health Organization.
- Yamano, T., & Jayne, T. S. (2004). Measuring the impacts of Prime-Age Adult Death on Rural Households in Kenya. In T. Yamano (Ed.), *The IAAE Conference* (pp. 1–16). Kenya: GRIPS

APPENDIX

Variables Description

VARIABLE	EXPLANATION
1. illMoney	When I am ill I make more Money?
2. Absent	I am always absent from my work or Business whenever I fall ill?
3. Productive	I am not economically productive whenever I fall ill
4. Desave	in respect to some kind of medical expenses my income cant cater for I borrow or take from my past savings
5. Healthstat	My health status is necessary for my job or business
6. jobasenteeism	whenever I fall ill and am absent from work, it can affect my job or business
7. livingCond	I am more productive in better living conditions
8. Medics	access to good periodic medical checkup makes me work effectively
9. Foodwater	if I have access to good food and water, I would work well?
10. welfareStra	if my employer provides better medical welfare strategies, it would enhance my productivity
11. socialAmenities	if my locality has access to social amenities (that is, electricity, water, good roads, hospitals) it will improve my productivity
12. HealthWealth	Health is wealth to me cause it means a fortune to me
13. EXPconsume	whenever I am sick I spend more
14. lowSavings	My medical expenditure whenever I or any member of my family falls ill, takes a substantial part of my income.
15. Loan	whenever I am sick and don't have enough money, I can borrow to fund my medical expenses
16. OOP	there are some medical expenses I have incurred that are higher than my income
17. DeConsume	when medical expenses occurs, I reduce other consumptions that I enjoy but are not necessary (for example, entertainment)
18. Affordability	I can't afford my consumption pattern whenever I am sick