UNIVERSITY OF CAPE COAST

PERCEPTION OF MORAL HAZARD IN GHANA'S HEALTH INSURANCE SCHEME: A STUDY OF THE SEKONDI-TAKORADI METROPOLITAN ASSEMBLY

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:…….. Date:…….……

Name: Annita Nanita Allotey

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

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ABSTRACT

Ever since the implementation of the National Health Insurance Scheme (NHIS) by the government of Ghana in 2003, cost of financing has been increasing from time to time, to the extent that some of the schemes have encountered financial distress. Though subjective reports exist that show high expenditures made on the health insurance schemes by the service provided, it is not clear if such high expenditures can be attributed to the incidence of moral hazards. The study sought to examine healthcare consumer's perception of moral hazard in Ghana's NHIS.

A household survey was carried out within the Sekondi-Takoradi Metropolitan Assembly in the Western region. Questionnaires were used. Cross-sectional primary quantitative data and probit model was used for this study.

The outcome of the study shows that, Ghana's NHIS is also suffering from moral hazard. The insured tend to utilize the hospital more than their uninsured counterparts. However, the probability that an individual perceives the existence of moral hazard in Ghana's NHIS's depends on age, sex, income, health status, insurance status, and out-of-pocket payment.

The study recommends that scheme managers should facilitate in marketing and publicizing the scheme within the metropolitan. Also, there is the need to consider the potential to use risk rated premiums in order to reduce moral hazard. However, co-payments could be introduced as an incentive mechanism to steer healthcare demand and it is important to impose them on healthcare services with elastic demands.

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DEDICATION

To my mum, Ms. Florence Yawson, to Mr. Joseph A. Amihere and to my siblings, Brian, Annette, Beatrice, Vivian, and Daniella.

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LIST OF ACRONYMS

AERC	African Economics Research Consortium
AIDS	Acquired Immune Deficiency Syndrome
CHPS	Community-based Health Planning and Services
DMHIS	District Mutual Health Insurance Scheme
DWHIS	District Wide Health Insurance Scheme
EA	Enumeration Area
FB	First Best
GLSS	Ghana Living Standard Survey
GNA	Ghana News Agency
HH	Household Head
HIV	Human Immune Virus
ISSER	Institute of Statistical, Social and Economic Research
MB	Marginal Benefit
MC	Marginal Cost
MDGs	Millennium Development Goals
MLE	Maximum Likelihood Estimation
NDC	National Democratic Congress
NGO	Non-Governmental Organization
NHIA	National Health Insurance Authority
NHIS	National Health Insurance Scheme
NLC	National Liberation Council
NPP	New Patriotic Party

OLS	Ordinary Least Squares
OPD	Out-Patient Department
PNDC	Provisional National Defence Council
RHIE	Rand Health Insurance Experiment
SAHS	Self-Assessed Health Status
SPSS	Statistical Product and Service Solutions
SSNIT	Social Security and National Insurance Trust
STMA	Sekondi-Takoradi Metropolitan Assembly
UNDP	United Nation Development Programme
VAT	Value Added Tax
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION

Background to the study

Improving the health status of citizens is an important social objective for all nations in the world today. Improved health status does not only lead to longer and better life directly Becker (1974) but also can have indirect payoffs through accelerating economic growth as it constitutes an investment in human capital. Barro (1996a) argued that better health can reduce the depreciation of education capital, and thus increases the favourable effect of education on growth. Better health enhances the effective and sustained use of the knowledge and skills that individuals acquire through education (Schultz, 1999).

A country with healthy population contributes to society by enhancing individual's productive capacity for current as well as future production. Good health is an aspect of life that does not benefit only the individual, but families, society and facilitate social networks as well. One's ability to work, to adapt and to relate socially within a family or society is greatly influenced by his or her health status. Healthy population is very vital for economic development of every nation. Efficient and quality healthcare delivery system that is made accessible to all ensures a healthy people in a country. Healthy people also serve a labour force bank desirable for development. As Bloom and Canning (2003) have shown,

healthier individuals might affect the economy in four ways, thus a healthy population might be

- more productive at work and so earn higher incomes;
- spending more time in the labour force, since less healthy people take sickness absence or retire early;
- investing more in their own education, which will increase their productivity; and
- saving more in expectation of a longer life, for example, for retirement- increasing the funds available for investment in the economy.

A more recent study by Gyimah-Brempong and Wilson (2004) finds a positive and robust link between investment in health and growth in both sub-Saharan African and OECD countries.

Health is indeed closely intertwined with economic growth and sustainable development. Hence if individual's health is compromised, there will be serious adverse consequences on the individual, his family, community, society and the entire process of economic and social development. There is evidence that investing in health brings substantial benefits for the economy. According to the WHO (2000) increasing life expectancy at birth by 10 percent will increase the economic growth rate by 0.35 percent (0.35%) a year. On the other hand, ill health is a heavy financial burden. Fifty percent of the growth differential between rich and poor countries is due to ill-health and life expectancy (Commission on Macroeconomics and Health, 2001). Poor health however, has destructive effects on economic development and has been proved

by Sub-Saharan Africa and South Asia; hence there is the need to extend coverage of crucial health services to save millions of lives. This will go a long way to reduce poverty, spur economic development and promote global security.

Due to the immerse contribution of good health status to the individual, the society, and development, most countries are doing their very best, implementing various policies aimed at improving the health status of its citizens and Ghana is no exception. However, in the direction of improving human development by the year 2015, the UN Millennium Declaration was approved in the year 2000 to illustrate an unprecedented commitment on the part of both rich and poor countries. This was summarised in the Millennium Development Goals (MDGs) that set targets in areas of health improvements, poverty reduction, education attainment, gender equality, environmental sustainability, and fostering global partnerships (National Development Planning Commission, 2009). The eight goals of these MDGs are: eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria, and other diseases; ensure environmental sustainability; and develop a global partnership for development. The focus on MDGs has however triggered critical debates on several issues, including the choice of policy options for attaining the MDGs. More so, the finance for the realization of these goals has become a big problem and issue for debate.

Funding of health services has often been cited as a major constraint for governments to be good stewards of health systems in their countries. Financing

health care has become major issue and priority for the health sector throughout the world, and particularly in the Sub-Saharan African region, it has remained a pressing concern despite the rapid socio-economic transformations in the health sector that has occurred since the early 1980s (Mwabu, 2007). Governments conversely are faced with diverse challenges making health care financing a very difficult task. There was therefore the need for reforms in the health sectors to make healthcare financing easier. The choice of method of financing is one of the basic economic decisions a government has to make concerning the health care sector. It is interesting, therefore, that different countries have developed quite different systems for raising the finance, paying doctors and other health care professionals, and exerting influence over the amount and direction of health care expenditure.

Health insurance has now become the most common means of health care financing in both the developed world and its now been adopted by most developing world too. It's regarded as probably the most common form of financing healthcare worldwide. In the arena of health insurance, an insurer is able to pool sufficient premium(s) of many insured to cover the expected costs of treatment for those insured, plus administrative costs and probably a given level of profit. It is a system for advanced financing of medical expenses by means of contributions or taxes paid into a common fund to pay for all or part of health services specified in an insurance policy or law. The key elements in health insurance are advance payment of premiums or taxes, pooling of funds and eligibility for benefits on the basis of contributions or employment.

Health insurance may apply to a limited or comprehensive range of medical services and may provide for full or partial payment of the costs of specific services. Health insurance is to make health care relatively less expensive and lead to more health care consumption. The crucial feature of insurance has been that, once one has the cover, the money price paid at the time of receiving health care may be close to zero. Insured individuals get health care services when required by not paying fully at the time of need because payment has been made by a fixed regular contribution by the insured or his/her employer or both. This is a way of spreading the risks of incurring health care cost over a group of individuals and or households. Healthcare costs are often unaffordable to individuals if they have to pay the full cost of treatment as it occurs, hence by way of overcoming this, individuals' pool resources to take care of such needs. Through this, individuals (contributors) with higher resources are able to subsidize those with less and also those with low incidence of ailment subsidize those who require frequent care.

The world's first national health insurance started in Germany. In Britain, the National Insurance Act 1911 marked the first steps there towards national health insurance, covering most employed persons and their financial dependents and all persons who had been continuous contributors to the scheme for at least five years whether they were working or not. Most countries started implementing national health insurance systems in the period following the Second World War as a process of healthcare reform, which is intended to make health care affordable to all, in the spirit of Article 25 of the Universal

Declaration of Human Rights. In Africa, in 1949 Algeria adopted a statutory health insurance programme, followed by Libya in 1957, Tunisia in 1960 and Egypt in1967. The Sub-Saharan African region implemented a series of reforms in which governments encouraged the use of health insurance, even at community level, to promote equity in the use of health services (Mwabu, 2007). Guinea was the first to establish social security for health care in Sub-Saharan Africa. The first attempt at adopting a health insurance system in Nigeria started in 1962 during the first republic.

Ghana, in its quest to improve the health status of its people and to provide a universal equitable and accessible healthcare to its citizens has implemented several policies. Its development plans in the early days of independence, as well as socio-economic policies in recent times contain diverse measures to reduce the burden of disease, particularly focusing on morbidity, mortality and malnutrition among the vulnerable groups. However, funding for health services has been a major constraint for governments in Ghana. Healthcare in Ghana was heavily financed by donor fund.

Healthcare financing in Ghana has travelled a long and winding road from colonial times through the first republic, through the 'Cash and Carry' era under the Provisional National Defence Council (PNDC) and the National Democratic Congress (NDC) governments, to the present health insurance regime of healthcare financing promulgated under the New Patriotic Party (NPP), and is still seeking refinement under the guide of NDC Government, to meet the aspirations of Ghanaians. Financing healthcare in Ghana, from the late 1950s up

to 1966, under the First Republic was virtually free as was education and other social services. However, there was a "U-Turn" in Ghana's healthcare financing after the overthrow of the First Republic. Under the military-cum-civilian junta- the National Liberation Council (NLC), Ghanaians were asked to pay for their healthcare. The challenge since 1981 has been how to find the best combination of Government-Peoples-Partnership that would meet each other part of the way and satisfy the needs and pockets of Ghanaians as well the Government's finances in the health sector.

'Cash and Carry' system of healthcare financing was introduced by the PNDC and it survived until 2004 when the present health insurance system came into being. Even then a large number of Ghanaians (about 30 percent) still remain on cash and carry for their healthcare requirements as they have not registered to join the National Health Insurance Scheme (NHIS). This is one of the major challenges facing the Government and Management of the National Health Insurance Authority (NHIA). With regards to the 'Cash and Carry' system, patients were required to pay for drugs and some medical consumables, as and when they visit hospital, while the state bore all other costs including consultation, and emoluments for Doctors, Nurses and other healthcare workers in state hospitals. With this system individuals went to hospital only when they were very sick and had money to readily meet their side of the bargain, to pay for those stipulated costs. That meant, most often, people went to hospital when they were really very sick and often at the terminal end of their lives. It was pointed out that

‘cash and carry’ constrained citizens from assessing healthcare except when they were in a very terrible situations resulting in needless deaths.

However, shortfalls within the ‘Cash and Carry’ system resulted in the search for alternatives, as a means of healthcare financing in Ghana. Recognizing the problems posed by this system to accessing health care, the government of Ghana declared its intention to abolish the system, and began exploring the feasibility of introducing a Health Insurance Scheme to be managed at the district level. This health insurance scheme is an insurance scheme is a scheme which provides (financial) benefits in the event of personal accident, or illness. Community Health Insurance Schemes emerged in 1990s, replacing user fees with modest premiums. Such schemes grew to 159 by 2002, but only covered one percent of the population. The two oldest provider-based schemes in Ghana are the Nkoranza Community Health Insurance Scheme and the West Gonja District Health Insurance Scheme set up in 1992 and 1995 respectively and it is referred to as “pilot schemes” (Sulzbach et al., 2005). These schemes receive financial support in the form of salaries and other administrative logistics from the state and NGOs.

In 2003, Ghana began the implementation of a National Health Insurance Scheme (NHIS). This unique program in Africa aims to ensure access to quality basic health care to all citizens of Ghana. Thus it’s aimed at providing a universal equitable and accessible health care for all Ghanaians. It was also known as the Social Health Insurance. This financing system is financed by compulsory contributions mandated by law or by taxes and the system's provisions are

specified by legal statute. Funding for healthcare financing under the National Health Insurance Scheme as established by Act 650 in 2003, comes from a Fund created by the Act, with income from two main sources, also created by the act.

The NHIS is financed generally through taxes on selected goods and services, retention on workers' Social Security and National Insurance Trust contribution and premium payment through membership registration. to support implementation of the district mutual health insurance schemes, the government of Ghana instituted a National Insurance under the NHIS Act, (Act 650) in 2003 and imposed a 2.5 percent Value Added Tax (VAT) levy on selected goods and services in the country to finance the scheme, in addition to 2.5 percent of workers contribution to the Social Security and National Insurance Trust (SSNIT) which is deducted at source as their contributions to the NHIS. As a result, all SSNIT contributors are exempted from paying any premium, though they were required to register in order to benefit from the scheme. Thus they and their dependants automatically enrolled in their District Schemes of the NHIS. Approximately 80 percent of the NHIS is financed by these taxes.

Aside that, all informal sector workers were required to pay a premium, based on the income level of subscribers, in order to have access to basic health services under the NHIS. Thus, those in the informal sector, community health insurance committees categorizes residents into social groups based on economic status, and those identified as 'core poor' were exempted from paying premiums, Government of Ghana (2004). The premium is the amount the policy-holder or

his sponsor (e.g. an employer) pays to the health plan periodically to purchase health coverage.

However, to cater for the poor and vulnerable groups as defined under the scheme, a portion of the total mobilised funds for the scheme is repackaged into an 'exemption fund' and channelled through district implementing bodies. Due to anticipated problem relating to low incomes of some individuals, there exists framework which has been innovatively established to provide buffer for district mutual health insurance schemes licensed under the NHIS Act and to also subsidize the cost of providing health care services to the exempted group. The fund implicitly subsidizes families by exempting children (under 18 years of age), who's parents fully pay their annual premiums.

Coverage as of December 2007 was 42 percent of population insured; 55 percent registered. Even though the NHIS has reached major achievements so far (65 percent enrolment by December 2009), it faces various challenges, such as securing sustained quality of health care, retention of clients in the insurance program and adequate claims handling systems; all these challenges cause potential risks to the (financial) sustainability of the program, UNDP (2008) report on the implementation of the NHIS in Ghana.

According to NHIA Operations Report (2008) the out-patient department (OPD) claims on the scheme has increased from 2,951,484 in 2005 to 8,915,172 as at the end of December 2008, while in-patient services claims also increased from 167,607 in 2005 to 821,765 in December 2008. However, premiums coming from the informal sector, which made up of 30 percent of registered members,

accounted for only 12.1 percent (12.1%) of total claims payment for 2008. This propose that the scheme relies mostly on transfers from the government in the form of subsidy, and this subsidies also risen from GH¢7.7 million to GH¢108 million between 2005 and 2007.

Health care accounts for a remarkably large slice of the Ghana's economic pie. Health-related spending grows each year, often outpacing spending on other goods and services, meaning that the size of that slice increases. However, these increases in cost have a significant effect on households, businesses, and government programs. Among other things, rising health care costs make health insurance less affordable for individuals, families, and businesses, contributing to some individuals uninsured and to the costly problem of extending coverage to them; put pressure on businesses that offer insurance coverage to their employees; can be a major financial burden to families, even those that have insurance; can result in individuals not receiving the health care services they need; and take an increasing share of taxpayer for government programs.

In addition, according to National Health Insurance Authority, if nothing was done about the current operations of Ghana's health insurance scheme, government would not be able to pay service providers adequately, and that would mean the government would not be in a position to provide services for subscribers. A study conducted by NHIA on their operations right from inception in 2004 and projections into the future, looking at the incoming financial resources and expenditure suggest that, if nothing is done about funding sources, in the near future, probably by 2013, the scheme would be facing financial

problems. The expenditure made under the scheme is more than the incoming financial resources.

Most common problem with insurance worldwide has been the way that such reduction in risk of payment changes the behaviour of individual insured. Because the individual knows that her treatment costs will be covered by insurance, they tend to engage in risky behaviours/ abuse the system by frequent usage. People start to think that the mutual (insurance) can take care of all their problems. Expectations rise for preferential treatment, access to preferential drugs and Para-clinical examinations. In fact, studies have shown a positive correlation between the presence and scope of health insurance and the demand for medical services. It has been recognized in the insurance literature that medical insurance, by lowering the marginal cost of care to the individual, may increase usage; this characteristic has been termed “moral hazard”.

Moral hazard is defined as the effect of insurance on the behaviour of the insured. Thus, the tendency of those insured to use the services more intensively than if they were not insured. Generally, moral hazard occurs when the party with more information about its actions or intentions has a tendency or incentive to behave inappropriately from the perspective of the party with less information. Since individuals with insurance no longer bear the cost of medical services, they have an added incentive to ask for pricier and more elaborate medical service, which otherwise may not be necessary. Moral hazard is seen as "one of two main sorts of market failure problems often associated with the provision of insurance.”

Health facilities are being over stretched and this is worsening the plight of hospitals and it is personnel making it unfriendly to the sick. For instance, few people accessed health care in 2005 as compared to those who accessed health care in 2006. With regards to Western Regional Hospital (Effia Nkwanta Hospital in Sekondi) 16,378 people visited the hospital in 2006 as against 14,194 in 2005. The Scheme Manager of the Sekondi Sub-Mutual Health Scheme indicated there has been boost in hospital attendance due to the implementation of the National Health Insurance Scheme.

Statement of the problem

It is obvious that during the period of ever-rising health expenditures, the conventional models for funding health care increasingly experience difficulties in meeting this challenge. Ever since the implementation of the National Health Insurance Schemes (NHISs) by the government of Ghana in 2003, cost of financing has been increasing from time to time, to the extent of some schemes resulting in financial distress. For instance, activities at the Atua Government Hospital in the Eastern Region almost came to a halt due the inability of the National Health Insurance Authority (NHIA) to pay for services rendered by the hospital. A report sourced from "Daily Graphic" by 'Joy' online news, shows that an amount of GH¢473,366.72 owed it by five district mutual health insurance schemes (DMHIS) in its catchment area as at December 2009, were yet to be honored by the NHIA (Ghana News Agency (GNA), 2009).

Also, Mr. Dwuma-Odoom, the then Deputy Minister of Health, acknowledged the fact that some of the Mutual Health Insurance Schemes are having huge outstanding treatment bills to be paid to health providers all due to some malpractices on the part of the consumers and providers (GNA, 2008).

The Scheme Manager of the Sekondi Sub-Mutual Health Scheme indicated there has been boost in hospital attendance due to the implementation of the National Health Insurance Scheme (GNA, 2007).

According to Ghana's National Development Planning Commission 2009 report, cost of treatment for individuals under the NHIS was estimated to be GH¢20 while those uninsured was estimated at GH¢15. They cautioned against possible abuse of the scheme and "overuse" of services, in order not to deplete the scheme's resources. Also, on the average, cost per delivery for NHIS card holders was higher as compared to Non-NHIS card holders. This again raises concerns about possible over use and possible service provider inducement.

When membership of the scheme was only 1.3 million in 2005 but in 2009, the scheme had over 15.5 million registered members. However, between 2008 and 2009 alone, utilization increased astronomically by 17.5 million visits.

However, over use or over consumption on the part of consumers and service providers inducement in health care use has been referred to as moral hazard. Owing to the special properties of this moral hazard in health insurance, governments' effort to efficiently provide health care services to citizens may encounter many problems, hence should be considered.

Though there exist a plethora of scholarly works on health insurance, little, if any at all, attention is paid to the issues of moral hazards as they affect cost of health care services in Ghana. Again though subjective reports exist that show high claims made on the health insurance schemes by the service provided, it is not clear if such high claims can be attributed to the incidence of moral hazards. This study therefore seeks to fill this gap and examine healthcare consumer's perception of moral hazard in Ghana's NHIS.

Objective of the study

In general the study sought to find out healthcare consumers perception of moral hazard in Ghana's NHIS.

The specific objectives of the study were to:

- Find out the effect of NHIS membership on attendance.
- Determine individual's perception of the existence of moral hazard in the NHIS
- Determine the factors that influence the individual's perception of moral hazard
- Make policy recommendations

Hypotheses

The following were the null hypotheses of the study:

- H_0: There is no discrepancy in the hospital attendance by healthcare consumers, between the period of no NHIS and the period of NHIS

- H_0: individuals do not perceive the existence of moral hazard NHIS
- H_0: Household's disease condition, health status and socio-economic factors (like age, gender, marital status, income level, occupation, education level, religion, etc) do not jointly explain the probability of an individual's perception of moral hazard in Ghana's NHIS
- H_0: household's insurance status do not influence the probability of healthcare consumer's perception of moral hazard in Ghana's NHIS

Scope of the study

This study use survey design and sought to examine healthcare consumer's perception of moral hazard in Ghana's NHIS. Cross-sectional primary quantitative data and probit model was use for the study. A household survey was carried out within the Sekondi-Takoradi Metropolitan Assembly in the Western region. Questionnaires was designed and administered to gather information on their perception of moral hazard.

Significance of the study

This study focus on developing an understanding of what health consumers perceive about the role played by moral hazard which is seen as one of the factors that may be contributing to the high healthcare expenditure in Ghana's health insurance.

Most studies on health insurance schemes and perceptions suffer from an important limitation that most of them are not based on household data and/or rely

exclusively on qualitative mode of analysis. Moreover, these existing studies on usually consider the impact of schemes on the health care providers, largely neglecting the effects on the members. Most studies available states that insurance suffer from moral hazard but is that the case in Ghana? It is against this background that this study aims at contributing to filling this gap in the current body of evidence by applying rigorous quantitative methods to find out the perceptions of healthcare consumers household heads in the Sekondi-Takoradi Metropolitan Assembly on the existence of moral hazard in Ghana's health insurance.

The study would also contribute to the existing empirical literature on the effects of health insurance scheme. We hope that our findings would provide further investigations into health insurance schemes.

It is also envisaged that the results of this study will be of great importance to the government of Ghana as it continues to implement the healthcare financing system. After six years of implementation of the NHIS, issues have been raised as to its universality and viability in its current form. Suggestions have been made in various quarters as to how the scheme can be improved to increase coverage, and making it accessible and sustainable. With health care being a very important topic in the national agenda, it is very important that the best possible health care policies are put in place to aid in national development. Individuals in the country need to be assured of good health in order to be productive.

Most policies targeted at healthcare financing resources and expenditure has not taken into consideration the effect of moral hazard causing high or

increasing healthcare cost which eventually affects the accessibility, equity and sustainability of most programs. This study seeks to bring this to light so as to motivate a change in policy directed towards the health sector. This research will also be significant in adding to existing knowledge on the subject matter, informing policy decisions on achieving access and quality health care and could provoke further research in the subject area.

Organisation of the study

The study is organized into five chapters. Chapter one covers introduction, which is made up of background of the study, statement of the problem, objectives, research hypotheses, justification of the study, scope of the study, and chapter organisation. The chapter two constitute review of relevant theoretical and empirical literature of this study. Chapter three covers methodology of the study, including an overview of data collection technique, a description of the study site, econometric considerations and details about key variables. Chapter four cover analyses and presentation of the data collected from the field. Chapter five presents the summary, conclusions, recommendations, limitations of the study and the direction of future research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

This chapter reviews related literature on various issues which serve as basis for this work. This reviews existing related literature including definition of concepts such as perception, moral hazard, healthcare financing, health status, healthcare as commodity and issues on health insurance policy formulation in Ghana. However, the empirical facts look at work done by various authors in the field, and draw lessons from these studies. It's made up of two sections, the theoretical literature and empirical work.

Healthcare financing

The development of every society is greatly dependent upon the productivity of its nationals and health is seen as a very crucial factor that influences the productivity and for that matter the efficiency of labour. It is for this reason that nations will do all it takes to provide affordable and accessible quality health care for their nationals. However, inadequacy of resources especially in developing countries, have left a big gap between the supply and demand for quality health care. This situation has resulted in high cost of health care both in financial terms and the time spent at the healthcare centres to access

the service. Resulting from this is the people's loss confidence in the health delivery system, hence resorting to self-medication. However, an individual's decision to self-medicate depends on the relative price and perceived effectiveness of self-medication (Akpalu, 2008). In view of this, policy makers have been exploring alternative healthcare financing mechanisms such that at the optimal level of investment in health, the marginal cost of health capital is equal to the marginal benefit (Phelps, 2002).

Generally, it has been observed especially in poor nations that high medical expenses pooled with can lead to debt, sale of assets, and removal of children from school etc. Cost however, borrowing to finance healthcare has been a common coping strategy for most individuals who experience shocks in their health. When they do access care it will often be of low quality which can lead to poor health outcomes. A short-term health shock can thus contribute to long-term poverty. Evidence from most studies suggests that health insurance can address some of these problems. Health insurance covering the expenditure on health care after a shock in an individual's health can help to smooth consumption, reduce asset sales and new debt, increase the quantity and quality of care sought, and can improve health outcomes.

Overview of the NHIS policy

Human resources development of the country has been identified as one of the key priorities of government. It is for this reason that, a number of measures were initiated to enhance access to and delivery of health services, under the

Ghana Poverty Reduction Strategy (GPRS I: 2003 - 2005). Substantial investments were made in the provision of health care facilities, with positive outturn in a number of health indicators. Nevertheless, before the end of the GPRS I implementation, a considerable proportion of individuals still did not have adequate access to quality health services with regional and socio-economic inequalities. These characteristics in health status were partly attributed, to financial barriers, geographical barriers, service delivery constraints and also broad socio-cultural barriers, which include gender.

A key financial barrier to health care access for the poor was observed to the "Cash and Carry System" of paying for health care at the point of service. To remove this financial barrier to health services and ensure affordable and sustainable health care arrangement for the poor, the government initiated the National Health Insurance Scheme (NHIS) in 2003 aimed at abolishing the "Cash and Carry System" and limiting out of pocket cash payment at the point of service delivery. Consequently, the National Health Insurance Act, 2003 (Act 650) established the National Health Insurance Scheme (NHIS) with the aim of growing access to health care and improving the quality of basic health care services for all citizens, especially the poor and vulnerable. The law establishing the scheme allows for the concurrently operation of District-Wide (Public) Mutual Health Insurance schemes, Private Mutual Health Insurance schemes and Private Commercial Health Insurance schemes. However the schemes would only financially support District-Wide (public) Mutual Health Insurance Schemes.

The initially defined benefit package under the scheme includes inpatient hospital care, outpatient care at primary and secondary levels, and emergency and transfer services. Each district mutual health insurance scheme also uses its discretion to determine additional benefits a scheme could provide. It is envisaged under the GPRS II that access to quality health care will improve with the establishment of affordable health care financing arrangement, while creating the necessary environment for the attainment of the health MDGs namely, the reduction in child and maternal mortality, and the combating of HIV/AIDS, malaria and other diseases. Additionally, improving the health status of especially women and children will contribute significantly to the reduction of extreme poverty.

The NHIS is financed mainly through taxes on selected goods and services, retention on workers' Social Security and National Insurance Trust contribution and premium payment through membership registration. The NHIS Act, 2003 (Act 650) imposed a 2.5 percent VAT levy on selected goods and services in the country to finance the scheme, in addition to 2.5 percent of workers contribution to the Social Security and National Insurance Trust (SSNIT) which is deducted at source as their contributions to the scheme. Thus all SSNIT contributors are exempted from paying a premium, though they are required to register in order to benefit from the scheme. On the other hand, all informal sector workers are required to pay a premium, based on the income level of subscribers, in order to have access to basic health services under the NHIS. A portion of total mobilised funds for the scheme is repackaged as an 'exemption fund' and

channelled through district implementing bodies to cater for the poor and vulnerable groups as defined under the scheme.

However, due to anticipated teething problems related to adverse and risk selection issues, and also due to low incomes, the framework ingeniously established this fund to provide buffer for district mutual health insurance schemes licensed under the NHIS Act and to subsidize the cost of providing health care services to the exempted group. The fund wholly subsidises families by exempting children (under 18 years of age), who's parents fully pay their annual premiums.

Generally, the introduction of contributory health insurance has implications for tax burden on most low income groups, labour market costs, and even international competitiveness. Literature from developing countries has demonstrated that voluntary health insurance is associated with both benefits and risks. Notably, it is an area where market imperfections are particularly acute and where some of the negative features can have a particularly adverse impact on both patients (adverse selection) and the health system (fragmentation in financing and cost escalation). Therefore, a better understanding of these aspects of NHIS for different income groups in Ghana will allow policy makers to introduce mitigating policies to deal with their effects.

Financing of healthcare in Ghana

Healthcare financing in Ghana, has ranged from total 'free care through the user charge system of cost recovery- partial cost sharing for medical care, and

full cost recovery from the people for drugs, to the current District wide Health Insurance Schemes'. Ghana has for some few years back, adopted the full cost recovery method of health care financing of publicly provided health services known as the 'cash and carry system'. This system has been seen as most regressive mode of payment for health care as this exposes people to serious financial risk (World Health Organisation, 2000).

However, for a health care financing mechanism that is financially sustainable and self- sufficient, the pooling of resources and risk spreading through a National Health Insurance Scheme (NHIS) was therefore implemented to replace the 'cash and carry' health financing system. The National Health Insurance Act 650 was passed in 2003. Under the act three different types of Health Insurance schemes could be established: District wide health insurance schemes, Private Mutual health insurance schemes and private commercial health insurance scheme. However the government of Ghana decided to support the District wide Health Insurance Scheme (DWHIS) concept to ensure that every Ghanaian has equal access to a health insurance scheme that is affordable, functional and of quality (Ministry Of Health brochure on NHIS).

Health and healthcare

From economics frame work, health is a good and individuals are producers of this good. According to Grossman (1972) health can be both a capital good and consumption good. In the first instance, health as a capital good provides services to individuals over time. Every individual value his or her

health now and for the future as well and they make choices to ensure good flow of services in the future. However, health as any other capital good depreciates over time. When an individual's health stock gets below certain threshold (Ho) he dies, because health is a form of capital and we consider it to be an investment. When it depreciates gross investment needs to go up. When an individual is sick, his health is much valued to the person and hence additional improvement is very important to him. However, when this individual is healthy he does not value health much.

On the other hand, health is considered to be a consumption good where individuals derive direct utility from. Where the impact of health as consumption good individuals desire to maximise it thought it is subject to the law of diminishing marginal utility. It is always positive since more will be preferred to less as it is something good. We desire health but not available in the market hence we demand health care. Health care can be a good or services that maintains, improve or restore one's physical or mental wellbeing. For example surgery, dental care goods, drugs and so on. Health care is consumed but not desired. To improve health most individuals consume healthcare. Thus, individuals demand health care as an input into production of health Grossman (1972).

The demand for health care is a derived demand especially in the process of investment in health capital and it is often referred to as the Grossman model. This model deems health care as an input used alongside with other health inputs such as nourishment and exercise. Grossman model describes demand for health

and health care using the theory of human capital, where Health was viewed as an aspect of human capital. Consumers do not purchase health from the market but instead they produce it by spending time on activities that will improve their health as well as purchasing medical inputs. Health as a capital good lasts for more than one period and it gradually depreciates. Thus, health is both a consumption and investment good. It is consumption good because it is valued because it makes people feel better. Also, health is desired as an investment good because good health enhances earning capacity Grossman (1972).

The role of health insurance in health care financing could be viewed in two ways. In one way health insurance is to raise revenues for health care services; and on the other hand, pool resources in other to share health risks among members of a health insurance scheme (Folland et al., 2004). Given the uncertainty with which ill-health affects a given individual in the population, risk sharing is both an equitable and an effective way of financing health care. Some vital policy outcomes of health insurance are to improve access to care and to reduce individuals out-of-pocket spending at the time of use, which is particularly important for those with limited ability to pay. However, all things being equal bringing the direct price of health care down, consumption of care is expected to increase, but the extent to which this occurs in any given context is an empirical issue, given other factors.

Medical care consumption (healthcare utilization) is obvious measures to be considered because it's consistently found to be affected by health insurance status. In view of the fact that health insurance directly reduces the cost of seeking

treatment once one has insurance, it is not surprising that consumption is consistently higher among those with health insurance in developed and developing countries alike and that rigorous evaluations consistently find the relationship to be causal.

Unfortunately, rigorous evidence on the impact of insurance and increasing healthcare expenditure is scarce, and there are even fewer studies on the effects of insurance in developing countries. One reason for the lack of evidence is that it is difficult to find a valid control group for the insured. However, we cannot simply compare the outcomes of insured and uninsured households, since health insurance status is typically strongly correlated with other household characteristics. Asfaw (2003) rich and well educated households typically have both better health and better health insurance coverage but the positive correlation between health and insurance status tells us nothing about the impact of insurance on the healthcare expenditure. On the other hand, those in poor health may be more likely to pay for health insurance, but finding that the insured tend to be sicker would not imply that insurance cause illness (Cutler et al., 2000).

Moral hazard

Moral hazard refers to the situation in which consumers alter their behaviour when provided with health insurance. Health insurance may induce consumers to take fewer precautions to prevent illnesses or to shop very little for the best medical prices. In addition and insured consumer may purchase more

medical care than they otherwise would have without insurance coverage. Let's illustrate this point by referring to Figure. 1.

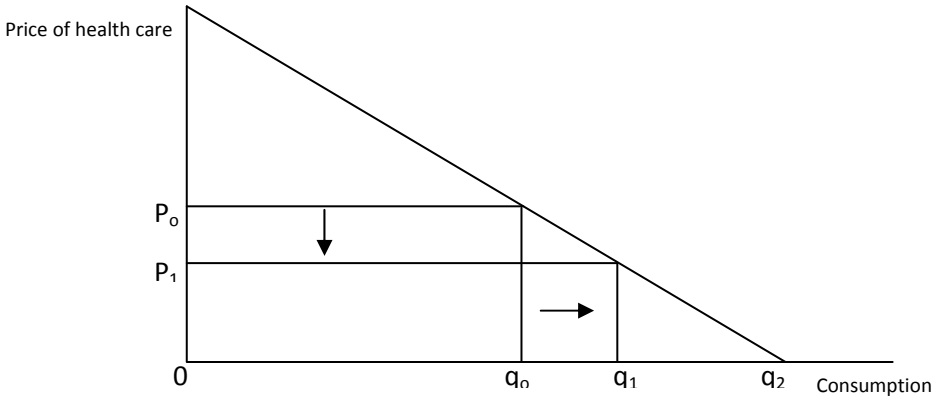

Figure 1: Demand for medical care or healthcare

Source: Field survey, 2011

From the graph above, we assume that a consumer without insurance purchases q_0 (5units of medical service) at price p_0 (Ghc50) per unit. If that consumer acquires full medical care coverage, the quantity demanded of the medical care increases to the point where the demand curve crosses the horizontal axis. At this point the consumer consumes medical care as though it were a free good because she faces a zero price. Thus, any extension of medical insurance coverage has the potential to increase the consumption of medical care because consumers no longer pay the full price. The availability and extensiveness of health insurance may have a profound effect on medical care expenditure. Generally this behaviour of consumers is based on the law of demand and supply. Thus, the lower the price, the higher the quantity bought and vice versa.

Moreover, following from the moral hazard model of Barigozzi (2004) it is assumed that the individuals' health expenditure is divided into two parts: the

first part is covered by public insurance and the second part by out-of-pocket (in the form of co-payments). It is further assumed that decision-making occurs sequentially: the public insurer chooses his policy first, then followed by the consumer. The outcomes of subsequent stages are fully anticipated by every agent. In this section consumers are identical and have mass 1. Their state-independent utility is a function of health, the benefits derived from the health care received, and the income available to be spent on other goods after payment of the cost of treatment.

Income W is exogenous. Consumers are ill with probability P. They are subject to a negative health shock whose monetary equivalent is $\bar{h}$ when ill. Assume further that the individual's health status H depends on the treatment x received. $H = h(x)$. Health can be recovered according to a strictly concave function $h(x)$ representing the monetary benefits from health care consumption, where x denotes the quantity of treatment. h is increasing in x, and ranges from 0 to $\bar{h}$. The marginal utility of x is decreasing. The lower bound of x is zero and its upper bound is set at $(\bar{x})$ such that $h(\bar{x}) = 0$. The standard assumption is that $h(x) < \bar{h}$ for every possible level of treatment consumption. On the other hand, Barigozzi (2004) assumed that $h(\bar{x}) = \bar{h}$, that is, the upper bound for treatment implies complete recovery. This allows comparing the first-best allocation (full-insurance with efficient consumption) to the allocation with full coverage and maximal overconsumption (full insurance with the highest moral hazard level).

For simplicity, it is assumed that technology for medical treatment is linear and subject to constant returns to scale. Marginal cost is constant and normalized at one. Consumers directly purchase in the market the chosen quantity of treatment, which implies that the physician is acting as a perfect agent for his patients. Using a strictly concave function $U(.)$ to represent the risk-averse consumers' preferences, the expected utility without any insurance is:

$$EU = pU\left[W + h(x) - x - \bar{h}\right] + (1-p)\,U(W) \quad \ldots\ldots\ldots\ldots (1)$$

Let assume that aggregate consumption when ill and when not ill but in healthy states are denoted by C_1 and C_0 respectively. The indifference curves represent combinations of wealth in the two states of nature which yield constant expected utility. Indifferent curves have slope: $\frac{dC_0}{dC_1} = -\left[\frac{1-p}{p} * \frac{U'(C_0)}{U'(C_1)}\right]$. The consumer's budget constraint is: $pC_1 + (1-p)C_0$, which means that expected consumption is $W - p\left[x + \bar{h} - h(x)\right]$. Let us define the net monetary loss due to illness as X, where $X \equiv x + \bar{h} - h(x)$. When the consumer is not insured, he chooses his treatment consumption according to the first-order condition:

$$h'(x) = 1 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Because in the previous expression in equation (1) the marginal cost and the marginal benefit of treatment are equalized, that is $MB = MC$, this is referred to as X_{FB}, the amount of treatment verifying equation (2). Such an amount is the efficient one; it corresponds to the first-best (FB) consumption. Notice that there is no revenue effect in (2); treatment demand only depends on consumption price.

In most cases it is useful to see the first best allocation of this simple model before analyzing a standard insurance contract.

First-best insurance can be implemented when the insurance firm perfectly observes the consumer's state of health; in this case it can offer two monetary transfers contingent upon disease; a lump-sum contract. The consumer receive treatment T_1 in the case of illness and no treatment T_0 when healthy, where $pT_1 + (1-p)T_0 = 0$. The first-best program is:

$$Max\ EU = pU\left[W + T_1 - x - \bar{h} + h(x)\right] + (1-p)U(W + T_0)$$

$$s.t. \mid pT_1 + (1-P)T_0 = 0 \ldots\ldots\ldots\ldots\ldots\ldots FB1 \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Such a contract leads to full insurance $(C_0 = C_1 = C^{FB})$. In full insurance the slope of the indifference curves is $\frac{dC_2}{dC_1} = -\left[\frac{1-p}{p}\right]$, such that indifference curves are tangent to the budget constraint. With first-best insurance treatment, price is not distorted and consumers choose the efficient quantity of treatment X_{FB}. This implies that in first-best consumption is

$$C^{FB} = W - p[x_{FB} + \bar{h} - h(x_{FB})] = W - pX_{FB} \ldots\ldots\ldots\ldots\ldots (4)$$

The two axes in figure 2 respectively indicate aggregate consumption when the consumer is healthy (C_0) and when he is sick (C_1). In figure 2, there is no insurance and the first-best allocations are shown. Notice that in figure 2 $X_{FB} = x_{FB} + \bar{h} - h(x_{FB})$ can be directly read on the vertical axis.

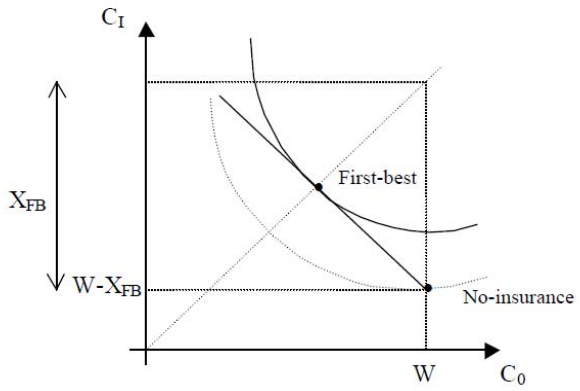

Figure 2: First-best allocation in the presence of no insurance

Source: Field survey, 2011

Let consider the case where only the public insurer offers the insurance contract (T, α) to consumers, where T is the actuarially fair public premium $(T = p\alpha x)$ and α is a cost-sharing parameter. Hence, $(1 - \alpha)$ is consumers' out-of-pocket expense when one unit of treatment is purchased with the contract (T, α), consumers' expected utility becomes:

$$EU = pU[W + h(x) - T - (1 - \alpha)x - \bar{h}] + (1 - p)U(W - T) \quad \ldots\ldots\ldots\ldots (5)$$

When solving his problem, consumers take the premium T and the cost-sharing parameter α as given. The quantity of treatment x∗ purchased with the contract (T, α) is determined by:

$$x^*: h_0(x) = 1 - \alpha \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

When the cost-sharing parameter α is positive, it decreases the consumption price for treatment and, as a consequence, $x^* > x_{FB}$: overconsumption of treatment arises. This is the problem of ex-post moral hazard in health insurance.

Moral hazard effects occur after the purchase of insurance and refer to the consumers' change of behaviour in such a way as to alter the distribution of probabilities across health states. Insured individuals are faced with lower healthcare cost when they are ill or in ill health states. They turn to take fewer precautions or invest less in preventative measures. That is, the insured's demand for health care is responsive to the excessive demands for medical attention. However, if insurers do not make adequate allowances for such behaviour, premium may be too small to cover treatment cost. This change in behaviour is in line with the general microeconomic treatment of moral hazard rather than the alternative definition given by Pauly (1968) which is often used in the health economics literature.

Newhouse (1978) revealed that with the conventional theory of health insurance, the insured operates like a reduction in the price of health care, just as if the price reduction had occurred exogenously in the market. According to this theory, the mechanism in which health insurance is financed can be ignored since the effect of premiums on the demand for medical care that is income effect, is negligible empirically.

The main implication of the Newhouse (1978) theory is that any extra health care consumed as a result of being insured is welfare-decreasing. This argument of welfare-loss was first made by Pauly (1968) is demonstrated in

Figure 3. The Marshallian demand for medical care of the consumer is represented by DD and the firms' medical care supply by also represented by marginal cost (MC). Without insurance, the market price is P=1 and Mu of medical care is consumed. However, with insurance price reduce to zero hence P=0 and Mi is consumed. The value of the additional medical care is measured by area aMiMu, and the cost by area abMiMu, so the welfare loss from the additional care is abMi. Due to this theory, many health economists have focused on policies that would reduce consumption at the margin.

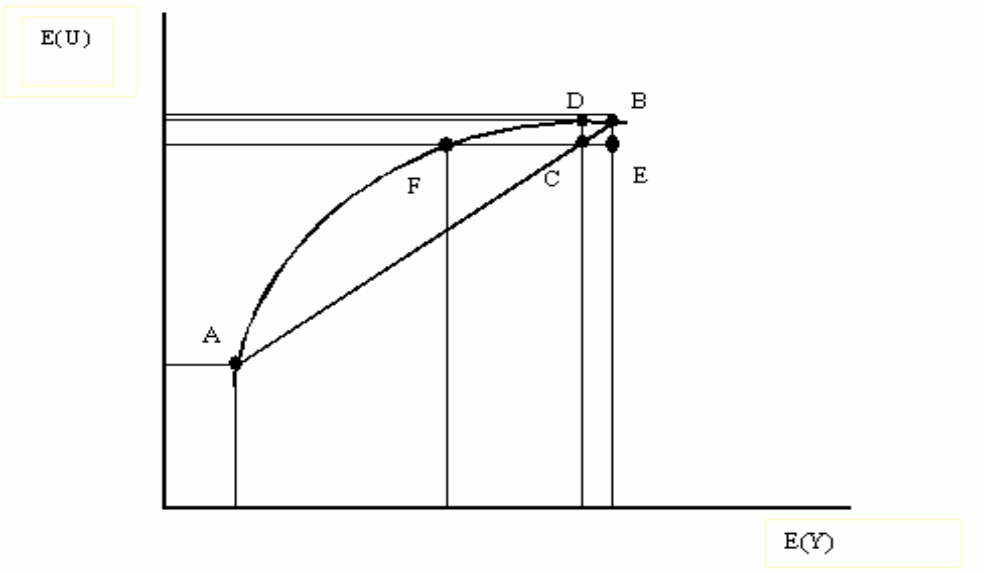

Figure: 3: Welfare loss and conventional moral hazard

Source: Field survey, 2011

Health insurance

Health insurance policy will often cover the cost of private medical treatments. Under NHIS about 95 percent of diseases in Ghana are covered by the

package. Some individuals are higher users of more intensive services and are considered as higher risk, while others who use fewer services are considered as lower risks. In every pool the healthier risks subsidize the unhealthy risk. For a pool to remain viable and intact, it must be of sufficient size to reflect a balanced cross- section of risk.

Theory generally views medical insurance as lowering the out-of pocket price of curative services relative to the price of preventive services hence there will be some distortion in making choice, if preventive and curative services are substitutes in the production of health. When prevention declines, then probability of sickness also rises, resulting in and increased consumption of healthcare. However, medical costs of maintaining a given level of health increase as a result. Though on the average healthcare may pay for itself, conventional theory suggests that health insurance may generate inefficiencies at the margin because of both ex ante and ex post moral hazard effects (Bates et al., 2008). Ex post moral hazard captures the size of the financial cost of treatment due to insurance coverage and this may show up in terms of longer hospitals stays and additional visits to health care providers or over consume healthcare, while ex ante moral hazard refers to the effect of insurance on preventive actions taken before states of sickness occur, such as healthy lifestyles, preventive care, or early detection of diseases.

The problem of moral hazard has in recent years grasp the intellectual analysis of many scholars. Whiles some researchers analyze automobile insurance contracts other use health or life insurance data. According to Levine (2008) individual's medical expenses typically rise and their contribution to household

income and home production reduce, when he or she experiences a bad shock to health. According to the World Health Organisation, nearly 150 million people experience financial catastrophe each year, meaning they are obliged to spend on health care more than 40 percent of the income available to them after meeting their basic needs.

The principal goal of insurance, as assessed by economists, is to transfer resources from low marginal utility of income states to those where the marginal utility of income is high. If insurance is actuarially fair, this process will continue until the marginal utility of money is constant across states. When unfair, insurance will be partial, and greater the greater is risk aversion.

Considering insurance as a price effect, however, the origins of the insurance contract as a vehicle for transferring income to the ill have been overlooked. The prototypical insurance contract is a voluntary *quid pro quo* exchange where many consumers pay a premium in exchange for a claim on the pooled premiums, contingent on becoming ill. The smaller the probability of illness, the smaller is the premium that each purchaser of insurance must pay for any given payoff if ill. However, the difference between the payoff and the premium is a transfer of income from those who remain healthy to the person who becomes ill. Health insurance is purchased to obtain this income transfer when ill. Due to the income transfer with insurance those who become ill purchase more health care (and other goods and services) than they would without insurance. For example, they may purchase an extra day in the hospital to recuperate, or they may purchase an expensive life-saving procedure that would otherwise be

unaffordable. This extra health care is the income transfer effect of insurance. However, because of the problems with verifying illness, fraud, and the complexity of writing contingent-claims contracts, payoffs in actual private health insurance contracts occur through a reduction in the price of health care. Thus, of the extra health care purchased, that is, of the moral hazard, a portion is an opportunistic response to the reduced price, but a portion remains the original intended response to the income transfers.

Insurance is most effective when losses are common enough to be of concern but not frequent enough to be routine. Neither asteroid strikes nor car scratches make for good insurable events. Insurance for routine events requires repeated administrative expense that makes the insurance less valuable; the risk spreading benefits are also low. Insuring extremely rare risks also involves reasonable expense, with little compensating gain. Similarly, transactions costs make it important that risks be relatively well defined and assessable once they happen. Otherwise, claims assessment and litigation can be exceedingly expensive.

Empirical literature review

Rothschild and Stiglitz (1976) stated that moral Hazard and Adverse selection had been typically identified with most insurance and health insurance also suffers from that. Adverse selection refers to the case where individuals differ according to their risk (of ill-health) and when faced with the same list of options of insurance, riskier persons are more likely to purchase insurance or

purchase higher coverage since the expected benefits are greater. They developed a model in which adverse selection is present because individuals have private information about their health status. They demonstrate that insurers may inefficiently ration health care by capping benefits for the healthiest consumers. By the nature of the insurance contract issues like adverse selection and moral hazard may occur.

According to Odwee et al. (2006) it is expected that individuals with worse health are more likely to purchase insurance *ceteris paribus* since they have greater expected use of the health care facilities and greater health related expenditure. In the absence of knowledge about the risks of illness among these individuals, insurers may be compelled to charge a uniform premium that is likely to be higher than people in low-risk groups are willing to pay. This may lead to an upward movement of the premiums, making it unaffordable to many, including even the high-risk individuals. This is why there is a general lack of market for health insurance in sub-Saharan Africa.

According to Chiappori and Salanie (2000) simple models of self-selection support this intuition. For instance, in models with two type of risk, a separating equilibrium would show that insurance contracts taken up by low-risk individuals have low premiums and high co-payments as opposed to the contracts chosen by high-risk types, characterized by high premiums and low co-payments. These models also predict the likelihood of incomplete markets in equilibrium since the low-risk individuals may be driven out of the market. This situation occurs when we have universal public insurance system. Low-risk types may

prefer the public system as opposed to a private contract offering incomplete insurance (Vera-Hernandez, 1999).

Holly et al. (1998) estimated a structural model of health insurance, where the existence of complete health insurance coverage, described by a dummy variable, is allowed to impact health expenditures in addition to a possible correlation between error terms. Estimating a parametric version of the model, they suggest that the earlier effect can be interpreted as moral hazard, whereas the second does represents adverse selection. The researchers made an encouraging finding in their hypothesis testing with regards to the presence of information asymmetry, although the robustness of the qualitative results with respect to changes in the parametric assumptions (and in particular the form of the distribution) is a difficult issue in this context.

Manning et al. (1987) found out that moving from average coinsurance rate of 33 percent to coinsurance rate zero (0) at a point in time will results in a roughly a 40 to 50 percent increase in the demand for medical services. There will be an increase in the real expenditure per person solely from the effect of increased insurance demand in the context on one-period model. The spread of insurance has steadily reduced price to the healthcare consumer and has driven up demand for medical services, there by resulting in steady increase in expenditure. Newhouse (1993) found that households in low coinsurance health plans received more medical care yet possessed virtually the same level of health as those households in high coinsurance plans, ceteris paribus.

However, in a more recent study, Poterba and Finkelstein (2006) came up with a test for adverse selection that avoids the limitation of heterogeneity in risk preferences. They used data on individual's observable characteristics that are correlated with the outcomes but are not used by insurers in pricing contracts.

Pauly (2007) Stated that moral hazard may be present in health insurance markets because consumers do not bear the full cost of health care expenditures. When individuals have insurance, their behaviour changes in such a way that expected expense is higher than without insurance. According to Pauly, moral hazard in insurance occurs when the expected loss from an adverse event increases as insurance coverage increases. When moral hazard is present, insurance does more than just transfer money from one state to another. He also emphasized that physician-induced demand is one factor that could increase healthcare expenditure. As the supply of physicians grows, physicians increase demand to protect their incomes.

Chiappori and Salanie (2000) positive correlation test, individuals who choose more comprehensive coverage have systematically higher (contemporaneous) spending. This is consistent with the presence of adverse selection and/or moral hazard.

Nyman (2007) concluded in his article by observing that the concern with moral hazard is misplaced and has worked to obscure policies that would better reduce health care expenditures. It has also led us away from policies that would extend insurance coverage to the uninsured.

According to Nyman (2007) the RAND Health Insurance Experiment (RHIE) found that subjects that were assigned to a cost-sharing plan sought less treatment than those with full coverage. For those with cost-sharing, the forgone treatment was primarily for preventive visits to doctors and "elective" care, such as mental health treatment, as opposed to emergency care. Consequently, found out that cost-sharing policies could be used to reduce the excessive health care expenditures generated by insurance, for example, hospital admissions by almost one-quarter, and there would be no important reductions in health as a consequence. He found that 10.3 percent of those adults randomized into the free FFS plan had at least one inpatient stay annually, while only 7.9 percent of those randomized into the 95 percent coinsurance plan had at least one inpatient stay, thus a reduction in patient use rate. This reduction in hospital utilization contributed significantly to the overall reduction in expenditure.

Kaiser Family Foundation (2009) found that the falling share of health care expenditures paid out-of-pocket, may help explain rising health spending. Between 1970 and 2007, the share of personal health expenditures paid directly out-of-pocket by consumers fell from 40 percent to 14 percent. Although consumers were faced with rising health insurance premiums over the period and it affected their budgets, lower cost sharing at the point of service likely motivated healthcare consumers to use more health care, leading to expenditure growth.

Gayle and Miller (2009) estimated a principal-agent model of moral hazard with longitudinal data on firms and managerial compensation over two disjoint periods spanning 60 years to investigate increased value and variability in

managerial compensation. Results from this study shows that secular trends in compensation are largely explained by exogenous growth in the size of the firm. However, this exogenous firm size works through two channels. These channels are: first, conflicts of interest between managers and shareholders are magnified in large firms, hence optimal compensation plans are now more closely linked to insider wealth; and secondly, the more premiums are paid to managers of large firms as against small firms due to the differentiated nature of managers.

Barigozzi (2004) stated that public coverage will be welfare improving without ex-post moral hazard, if public insurance redistributes both from the rich to the poor and from the low- to the high-risk that is if the correlation between wage rates and morbidity is negative.

According to Van den Berg et al. (2005) to have a better understanding of the factors affecting moral hazard, we examine the correlation between the estimated elasticises and various individual characteristics. In their study they found out that individuals who are older and white are more inelastic, where as individuals with higher income are more elastic. Also, individuals who are in the employer provided, self employed and privately purchased insurance categories are more inelastic relative to those on Medicare, which is the omitted insurance category. However, elasticity is monotonically increasing in self reported health status, i.e., individuals who have a higher self reported health status are more elastic (the omitted category is “poor” health). We also find that education is not correlated with elasticity. Their results suggested that individuals who are

younger and healthier would be more elastic and more responsive to incentives of contracts, and hence a more appealing pool of clients for insurers.

Accprding to Van den Berg et al. (2005) a higher budget simply means greater care needs. It could also imply the need for more specialised and therefore more expensive care. Their empirical analysis was controlled for all other influences (health status, type of care, composition of care and shortage of care). However since co-payment is income related, household income was corrected for as well. It was evident that a personal budget may lead to ex post moral hazard. With a higher personal budget, clients may consume care at higher prices as compared to clients with a relatively smaller personal budget, ceteris paribus.

Bajari et al. (2006) using semi-parametric analysis, stated that relationship between education and latent health appears to be non linear but is not significant. It was surprising given the importance that adverse selection has received in theoretical models of insurance markets. Health insurance is most important to consumers when they are very sick and total health expenditures are likely to be high. Consumers who consume the least in health service, within a plan, are the most elastic with respect to co-payment rates.

Perception

"Percepio" is the Latin word for perception-, meaning "receiving, collecting, and action of taking possession, apprehension with the mind or senses" (Simpson & Weiner, 1991). According to Crane (2000) our perception of the external world begins with the senses, which lead us to generate empirical

concepts representing the world around us, within a mental framework relating new concepts to pre-existing ones. It takes place in our brain. Using sensory information as a raw material, the brain creates perceptual experiences with the intention of going beyond what is sensed directly. Our perceptions have the quality of constancy, which refers to the tendency to sense and perceive objects as relatively stable and unchanging despite changing sensory stimulation and information. Once an individual forms a stable perception of an object, he can recognize it from almost at any position, any distance, and under almost any illumination. A red car looks like a red car by day or by night and from any angle. The sensory information may change as illumination and perspective change, but the object is perceived as constant. The perception of an object as the same regardless of the distance from which it is viewed is called size constancy. Size, shape, brightness, and colour constancies help us better to understand and relate to world. Psychophysical evidence denotes that without this ability, we would find the world very confusing.

Bem (1972) assert that individuals behave just like hypothetical observers. Individuals survey their own behaviour of making favourable statements about their task. They ask themselves questions like "what must my attitude be if I am willing to behave in this fashion in this situation?" Consequently, they produce the same pattern of results as the outside observers. However, attitudes of the actual subjects in the experiment are thus viewed as a set of self- attributions made by the individual on the basis of his own behaviour. The interpretation of self-perception is such that the individual's own behaviour will be used by him as

a source of evidence for his beliefs and attitudes. Subjects freely choose to make opinion statements and its more likely that such statement are made at face value to infer that they reflect the individual's true opinion. With reference to a blind rating of a persuasive communications delivered by the Fastinger-Carlsmith experiment revealed that it's not only the behaviour per se, but the individuals' behaviour in conjunction with its apparent controlling variables which provides the crucial information for self attributions.

BonJour (2001) found that in contemporary psychology, perception is defined as the brain's interpretation of sensory information so as to give it meaning. Cognitive sciences make the understanding of perception more detailed: Perception is the process of acquiring, interpreting, selecting and organizing in the world; we create a model of how the world works. That means, we sense the objective world but our sensations map to precepts, and these precepts are provisional, in the same sense that the scientific methods and scientific hypotheses can be provisional.

Bradley (2006) explains that perception is categorized as internal and external: "Internal perception" (introspection) tells us what is going on in our bodies. We can sense where our limbs are, whether we are sitting or standing; we can also sense whether we are hungry, or tired, and so forth. "External perception" or "sensory perception," (exterospection), tells us about world outside our bodies. Using our senses of sight, hearing, touch, smell and taste, we discover colours, sounds, textures, and so forth of the world at large.

Perception is often referred to as a "cognitive process" in which information processing is used to transfer information from the world into the brain and mind where it is further processed and related to other information. Some philosophers and psychologists propose that this processing gives rise to particular mental states, whilst others envisage a direct path back into the external world in the form of action. Many eminent behaviourists such as Skinner (1953) proposed that perception acts largely as a process between a stimulus and a response, with other brain activities apparently irrelevant to the process.

However, it has been shown by numerous researchers that sensory and perceptual experiences are affected by many factors that are not attributes of the object of perception but rather of the observer. These include the person's race, gender and age, among others. More so our perceptions can also be influenced by such factors as our motivations, values, interests and expectations, as well as cultural preconceptions. The question, "Is the glass half empty or half full?"Serves to demonstrate the way an object can be perceived in different ways (McDowell, 1996). Just as one object can give rise to multiple precepts, so an object may fail to give rise to any percept at all; if the percept has no grounding in a person's experience, the person may literally not perceive it.

The processes of perception routinely alter what humans see. When people view something with a preconceived concept about it, they tend to take those concepts and see them whether or not they are there. This problem stems from the fact that humans are unable to understand new information, without the inherent bias of their previous knowledge. A person's knowledge creates his or her reality

as much as the truth, because the human mind can only contemplate that to which it has been exposed. When objects are viewed without understanding, the mind will try to reach for something that it already recognizes, in order to process what it is viewing. That which most closely relates to the unfamiliar from our past experiences, makes up what we see when we look at things we don't comprehend.

It can thus be deduced from the foregoing that healthcare consumers and service provider's perception of moral hazard can be greatly influenced by their past experiences, preconceived motives, interests and personal expectations and attributes. A consumer who seek health care from hospital and a service provider who administer services to healthcare consumers would have perception that there exist moral hazard or not and its may or may not contribute high healthcare expenditure under Ghana's health insurance scheme based on his past experience and personal attributes. Some consumers may have the impression that service providers are abusing the scheme, where as the service providers may also have the impression that healthcare consumers are over consuming healthcare or a abusing the scheme as well resulting in high expenditure or claims. For a fact, a person's perceptions, whether right or wrong, can greatly influence his actions and reactions.

Individual's perception is important simply because people's behaviour is based on their perception of what reality is, not on reality itself. The world as it is perceived is the world that is behaviourally important. Perception is the process by which an individual selects, organizes, and interprets information inputs to create a meaningful picture the world. Perception depends not only on the

physical stimuli, but also on the stimuli's relation to the surrounding field and on conditions within the individual. The key point is that perception can vary widely among individuals exposed to the same reality. One person might perceive a fast-talking salesperson an aggressive and insincere another, as intelligent and helpful. Each will respond differently to the salesperson. A number of factors operate to shape and sometimes distort perception. These factors can reside in the perceiver in the object or target being perceived, or in the context of the situation in which the perception is made. Some of these factors that may influence the individual's perception are as follows; factors in the perceiver, attitudes, motives, interests, experience, expectations, factors in the situation, time, work setting, social setting etc and also some factors in the target like the background of the target etc

Swank (2006) adopted the view of social psychologists to analyze two models of how a person may learn about his preferences concerning an activity. In his work, he tried to explain why rewards are sometimes counterproductive during decision making. He demonstrated how a person may learn about his preferences concerning an activity based on the dynamic learning DL model (Grossman, 1972). In the DL model, an agent learns his preferences by doing and it's assumed that agent remembers his payoffs, his decision on an activity and the reward. His second model formalizes Bem's self-perception SP theory. With the SP model, agents do not recall payoffs or his past attitude towards the activity at stake. This SP model also shows that the environments in which past decisions were made may affect current decisions.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter's discussion focuses on the study location, the study design, as well as sample and sampling procedure. It also discusses the method of data collection, data analysis and presentation that were used in order to achieve the objective of the study. The estimation techniques used in the study are outlined with the prior expectation signs of the coefficient of the variables included in the equation.

The study area

The study covers the Sekondi-Takoradi Metropolitan Assembly in the Western Region of Ghana. The Metropolis is the capital of the region, and it is wholly urban. It is part of the former Shama-Ahanta East and it's among the densely populated districts covering 958.9 per sq km. The Sekondi-Takoradi Metropolitan Area (STMA), with Sekondi as the administrative capital, occupies the south-eastern part of Western Region. It covers four constituencies namely Sekondi, Takoradi, Esikado-Ketan and Effia-Kwasimintsim. It shares boundaries with Ahanta West, Mpohor Wassa East and Komenda-Edina-Eguafo-Abrem Municipal. It is located on the coast, about 200km west of Accra.

The main industries are timber, fishing, shipbuilding and an emerging oil and gas sector. The Western Region is endowed with rich natural resources and tourism assets making it a major tourist attraction. The 2009 population of the region as projected from 2000 population census is 2,555,363 with a growth rate of 3.2 percent. The Assemble is among the districts which recorded relatively low levels of illiteracy.

The economically active population in metropolitan area does not exceed 70 percent. The lower figure may be due partly to the relatively high percentage of students in the district. People in Sekondi-Takoradi Metropolis Assembly are engaged mainly in professional and technical work, managerial, clerical, sales, and service; a reflection of the highly urbanized nature of the district. Production workers, transport operators and labourers are found mostly in this district also. The active population in the assembly consists mainly of employees who work for a public or private employer. The district is made up of the private sector (both formal and informal), providing employment to more than 80 percent of the working population. There is no departure from traditional Ghanaian household setting consisting of a head, with his/her spouse, children and other family relations. Female-headed households are very prominent in this metropolis. This may be due to delay in marriage or young adult females with children living independently.

There are total of 325 health facilities in the region is made up of 26 Hospitals, two Polyclinics, 55 Health Centre (HC), 92 Clinics, 114 functional CHPS compounds and 36 maternity homes (MH) as at 2009. Outpatient

attendance registered in the region in 2009 was 2,535,149 which showed an increase 15.7 percent over 2008 attendance of 2,190,361. Out of this, the Sekondi-Takoradi Metropolis contributed the highest outpatient attendance of 436,271 (17.2%) of the regional total excluding the regional hospital (Effia Nkwanta) contribution of 131,235 (5.2%) of the regional total. Outpatient attendance per capita recorded in the region in 2009 was 0.99 which showed an increase of 0.11 over 2008 per capita of 0.88. The Metropolis has over 80 percent of its localities, where households can have access to clinics within a 10-kilometre radius. Residents of less than 10 percent of localities in the district have to travel 31 kilometres or more to the nearest clinic. However, the official national norm is that no citizen should be more than 8 kilometres away from the nearest health facility. A large proportion of about 57 percent of doctors in the region are found in the metropolis.

The study design

This study used survey design to investigate the extent to which households perceive moral hazard to be present in Ghana's NHIS, in the Sekondi - Takoradi metropolitan assembly in the Western Region. The major advantage of this survey approach is that it can be used for descriptive purposes and allows for direct contact between the researcher and the respondents in the process of collecting data for the study (Singleton et al., 1993). Moreover, this approach can also be used to obtain detailed and precise information about different groups of people.

Nevertheless, according to Singleton et al. (1993) one disadvantage of this form of study design as compared to other designs, relates to the possibility of respondents not giving out true nature of events or state of affairs. This is owing to the fact that in survey design the researcher depends on reports of behaviour rather than observation of respondent's behaviour. Hence there exist measurement error "produced by respondents' lack of truthfulness, misunderstanding of questions, and inability to recall past event accurately and by the instability of their opinions and attitudes".

Population

Target population for the study comprises of health care consumers in the Sekondi-Takoradi Metropolitan Assembly in the Western Region who were within some selected EA's in Anaji and Sekondi. The study considered all health care consumers including insured and uninsured healthcare consumers within the selected areas. The population was made up of heterogeneous groups of individuals.

Sampling procedure and sample size

This study is designed to gather data from healthcare consumers and service providers in the Sekondi-Takoradi Metropolitan Assembly (STMA). The units of analyses were mainly households living in Anaji and Sekondi. Thus any household member aged 18 years and above qualified to represent the household head in his/her absence. Hence, where the head of household was not around at

the time of data collection, information was gathered from other household member who was 18 years or above. The justification for this was that most household decisions (including health consumption decisions) in Africa are mostly taken by the household head especially if the person is a male. Also, individuals below 18years are covered by his parent and hence access healthcare free so long as his parents are covered. The NHIA officials are also responsible for educating the public on the benefits of the scheme, registration and renewal of membership, collection of premium, management of claims and ensuring the sustainability of the scheme and may have some information relating to this work hence will be interviewed. Two towns were selected within the chosen district as case study.

The towns selected were based on population size. The principle being that more households were selected from the town with larger population. The reason is as a result of the 2000 Population and Housing Census. This census showed that towns/villages with higher population turn to have more households. Consequently, households included in the sample were selected proportionately to the total number of individuals within a given area. The total number of households to be drawn from the selected towns was calculated based on the 2000 Population and Housing Census figures. Table 1, shows the number of households drawn from each town.

The selection of the study sample was based on probability and non-probability methods. With the assistance of the Ghana Statistical Service, Enumeration Areas (EAs) in these two towns were selected and used. A

multistage sampling procedure was used to select households. Two towns were selected namely: Sekondi and Anaji. The list of the Enumeration Areas of these two towns were obtained from the Ghana Statistical Service regional office in Sekondi regional office and out of that, there was a total of 31 Enumeration Areas (EAs) in Sekondi and 10 Enumeration Areas (EAs) in Anaji.

In the first stage, we randomly selected 15 large EAs and 4 EAs respectively from Sekondi and Anaji from the total list of the Enumeration Areas in the two towns. In the second stage, 33 individuals were randomly selected from each EA in Sekondi and 17 each in Anaji to ensure fair representation of each EA in sample for the study. Finally, a Simple Random Sampling Technique was used to select one household member who was 18 years or above. In all, 300 individuals were selected to form the sample for the study. A number of factors were taken into consideration in the selection of the sample. These were cost, time and resource availability.

Table 1: Selected towns/villages and households

Name of Town	Name of Areas
Sekondi	Maxwell road, European town, Ekuasi, Assamansido, 1st street and 2nd street
Anaji	1st Avenue, 2nd Avenue, 3 Avenue, 4th Avenue, Queen of Peace, Mount Zion
Total	12

Source: Field survey, 2011

Cross-sectional primary quantitative data was used for this study. A household survey was carried out within the Sekondi-Takoradi Metropolitan Assembly to solicit cross-sectional information on households. The broad types of questions posed to respondents addressed their perception of moral hazard, expenditure on health care, health care facilities visited, health status, insurance status, and household characteristics. Data collected include individual and household characteristics. Among these are age, sex, education, employment

status, marital status, household size, health status, religion, household head average monthly income, time spent to get to health care facility, number of visit to heath care in a year, out-of-pocket expenditure on health care, the existence of moral hazard and health insurance status etc.

Research instrument

The main instrument for the survey was the formal interview guide and a structured questionnaire for the households. The instrument used in the survey covered a wide range of topics including, the demographic characteristics, economic activity, health conditions, visits to health facilities, payment of medical expenses, health insurance, household income and housing conditions, etc. This enabled me interact with the respondents and collect primary data. There was also supplementary questionnaires, one each, for health insurance scheme managers. Health facilities visited include Community-based Health Planning and Services (CHPS) units, health clinics, health centres, district hospitals, and regional hospitals, drug stores, pharmacies and chemical shops. The household questionnaires had sections on the existence of the issue of moral hazard and how it affects healthcare expenditure, as perceived by people within the district.

All the instruments were administered through face-to face interviews. Questionnaires were administered by the researcher with the help of other research assistants. The questionnaire contained well structured questions with various responses (largely closed ended questions were used). The reason was to allow for easy retrieval, translations and to further explain questions to

respondents where they were not clear. The questionnaire utilized two response categories, where 0 represent (No) and 1 represent (Yes) to establish the fact that moral hazard exist in Ghana's national health insurance scheme due to the qualitative nature of this variable and also contained household/demographic information about the respondents that influenced the probability of a particular respondent's perception being that moral hazard exist and contributing to high healthcare expenditure.

The instrument was chosen due to the fact that i) it can be used to generate quantitative data from respondents, ii) it can be self-administered or presented in an interview format, iii) it offers respondents the opportunity of responding to the questions at their own convenient time and iv) it is less expensive and less cumbersome to administer.

Reliability test

A reliability statistics test was conducted to determine the extent to which the instrument produces consistent results. The reliability analysis was conducted with SPSS programme. The result of the test gave out a Cronbach's Alpha coefficients of 0.76 ($\alpha = .76$) for the questionnaires administered. Hence the questionnaires proved to be reliable overall.

Model specification

From empirical implementation the dependent variable is the individual's perception of moral hazard in Ghana's NHIS. This requires the application of

probit probability model because of the qualitative nature of the dependent variable. The dependent variable is measured by a respondent answering "No" or "Yes" to the question whether or not he/she thinks moral hazard exist and can cause an increase in the cost of health care services provision under the Ghana's NHIS. These responses can be coded to take on values of 0 or 1 depending on whether a respondent answers "No" or "Yes" to the existence of moral hazard and its resulting effect of increment in the health care service provision cost. The probability of an individual's perception being that moral hazard exists in the Ghana's health insurance and cause's increment in the healthcare cost can then be obtained and we can determine what factors are likely to influence the probability of occurrence of a particular outcome.

A basic relationship between the individual's perception and the predictor variables can be stated in the general form as:

$$\ln\left[\frac{\hat{p}}{1-\hat{p}}\right] = f(DV, MV, \varepsilon) \quad \text{----------} \quad (7)$$

Where $\hat{p}$ is the probability that a particular respondent's perception is that moral hazard exist. The characteristics that are hypothesized to influence an individual's perception of moral hazard are as follows:

DV= a vector of consumers household/demographic variables (age, sex, marital status, income level, occupation, education level, household size, dummy for household's with members over 65, number of member under 18)

MV=a vector of individual's medical and insurance related variables (illness experience, distance to health care facilities etc). The empirical form of the model stated in (7) is as follows:

$$\ln\left[\frac{\hat{p}}{1-\hat{p}}\right] = \beta_0 + \alpha_{ij}DV + \beta_{ij}MV + \varepsilon \text{ - (8)}$$

Where ε is the error term and α, and β are parameters to be estimated

The relationship derived in (8) will be used to examine the effects of the variables identified on the individual's perception of moral hazard existing or not in Ghana's NHIS. Equation (8) predicts that the probability that a particular respondent's perception is that moral hazard existing is dependent on the individual's demographic characteristics, the characteristics of the household, as well as medical and insurance related variables. The model we employed can be specified as follows:

$$Pr(y_i = 1) = prob(\mu_i > -\beta' x_i) = F\ (\beta_0 + \beta_1\ Emp. + \beta_2\ HHsize + \beta_3 HM18 + \beta_4 HM65 + \beta_5 HHMSI + \beta_6 Age + \beta_7\ Sex + \beta_8 Edu. + \beta_9 MS + \beta_{10} HS + \beta_{11} IS + \beta_{12} illtype + \beta_{13} lnInc + \beta_{14} Dtf + \beta_{15} Oopp + e_i)$$

The above equation is the model we estimated to generate the parameters of interest in our study. Where:

Sex – Sex of the respondent, 0 = Male, 1 = Female

Age - Age of respondent in completed years,

Edu – Education of the respondent,

MS - Marital status of the respondent, 0 = Not Married, 1 = Married

InInc - log of average monthly income of household head,

HHsize - household size,

HM18 - household that has a member below age 18 years,

0 = none of the household member is below age 18 years,

1 = household has a member below age 18 years

HM65 - household that has a member above age 65 years,

0 = none of the household member is above age 65 years,

1 = household has a member above age 65 years

HHMSE - household head being the main source of economic support to the family,

0 = household head is not the main source of economic support to the family

1 = household head being the main source of economic support to the family

Emp. - employment status, 0 = Formal/Public employment 1 = Private employment

Dtf - distance to the facility proxy by the time taken to get to the facility,

HS - self assessed health status (poor),

IS - insurance status, 0 = uninsured 1 = insured

Oopp - out-of-pocket payment and

Illtype - ailment type, were the main variables of interest.

Description of variables

Household head: This is defined as any person in the household recognized as such by other household members. They are responsible for the upkeep and maintenance of the household (Population and Housing Census, 2000).

Household: here is defined as a person or persons, who live together in the same house or compound, share the same house-keeping arrangements and are catered for as one unit (Population and Housing Census, 2000). Here, the emphasis is on

living in the same place and having common provision for food and necessities for living, irrespective of size and relationship.

Household Size: Household size was defined as the number of persons residing in the same compound answerable to the same head and pooling resources of common provision like food and shelter.

Age: In this study, age was taken in completed years.

Sex: Male or female. A dummy variable was used to capture sex. If the head of household is male we assigned the value 1 and otherwise 0.

Level of schooling: level of schooling was measured by last educational level attained — no schooling, primary school, junior secondary/middle school, secondary / vocational/technical, post secondary / A-level, and polytechnic / university. This variable was measured on a six-point scale from '0' as no schooling at all to '5' as the highest level of schooling that is polytechnic / university.

Employment: with the employment variable used in this study, 1 represents household heads who are employed in the formal sector, while a 2 represents employment in the informal sector.

Self-Assessed Health Status (SAHS): SAHS was used as a proxy for health status. Here the individuals self report about their health status. The question eliciting information on SAHS is formulated as follows: 'In general, how would you rate your health? This variable was measured on a five-point scale from '0' as poor, '1' as fair, '2' as good, '3' as very good to '4' as the highest level of health status that is excellent. These responses were assigned numerical values according to the

following scale: excellent = 4, very good = 3, good = 2, fair = 1 and poor = 0. Another question was asked about how often an individual complain of illness. This variable was also measured on a three-point scale from '1' as not often, '2' as often, and '3' as the highest level of health status that is very often. Only one category was chosen. These responses were assigned numerical values according to the following scale: very often = 3, often = 2, and not often = 1.

Type of Illness: The type of illness was captured, namely malaria, aches and pains, respiratory, diarrhoea, injury/accident, skin diseases and others. Here, others became the reference category. However, severity of the disease could also affect an individual's perception, hence was captured by an answer to a Yes or No question. Health insurance members might seek treatment for minor health conditions that they would ordinarily overlook if they were themselves paying the medical bill.

Income: One of the important variables to be looked at in our study is income. Though estimating income of households in most developing countries is very difficult as individuals are reluctant to disclose their income, household heads average monthly income was used as a proxy to household wealth.

Justification of variables and expected results

The variables to be measured includes: Demographic information and Household characteristics. Though if we consider theoretical and empirical works done we will observe that a lot of factors seem to influence an individual's perception and moral hazard in health insurance, however, as far as this study is

concerned sex, age, education, marital status, log of income, household size, dummy of household that has a member below age 18 years, dummy of household that has a member above age 65 years, dummy if household head is main source of economic support to the family or not, employment status, distance to the facility proxy by the time taken to get to the facility, self assessed health status, insurance status, out-of-pocket payment and ailment type were the main variables of interest.

In order to test the hypothesis that individuals believe or not if moral hazard exist in Ghana's NHIS, our variable of interest would be on the following variables:

Membership of NHIS; thus whether individuals are over consuming healthcare or not due to their membership with the NHIS. However, the probability of members to frequent a modern health care provider is higher, while at the same time they pay less for their treatment in comparison to non-members. Health status which was measured by self assessed health is expected to have a positive coefficient. This so because the more individuals perceive their health status as very good the less likely they would visit a modern health provider and hence perceive frequent visit to physician or the hospital as over consumption or moral hazard. Health insurance members might seek treatment for minor health conditions that they would ordinarily overlook if they were themselves paying the medical bill.

The sorts of illness measured by seven variables ranking from one to seven (respiratory problems, diarrhoea, skin diseases, antenatal care, injury, aches and pains, and malaria) is expected to have positive coefficient.

There are other demographic variables like sex, employment status, age, education, and household size that will be looked at as well. Females were found to consume somewhat more health care than males do primarily because of childbearing and hence do not perceive frequent visit to the physician as over consumption or moral hazard. Additionally, since females are more careful about the health condition of the members in their family and possibly more likely to take them for medical care than males. We expect that the sex variable (Female) should have a negative coefficient (Miller, 1994).

Because it would cost the employed work time to seek health care, they should be less likely to seek care, therefore, we expect employment status variable to have a positive coefficient with respect to probability of individual's perception of moral hazard because they perceive frequent physician visits as over consumption or moral hazard.

Because health often deteriorates as a result of aging, we could assume that the older an individual, the more health care he/she would seek. We expect the age variable to have a positive impact on outpatient utilization and hence a negative coefficient on the probability of he/she perceiving the existence of moral hazard or over consumption. Age had a negative coefficient with ones perception of moral hazard and was highly significant. Grossman (1972) health status depreciates with age. As we grow our health stock generally depreciates hence we

need health care to improve it else we will die. According to Bajari et al. (2006) elderly who are closer to retire or have retired experience larger shocks in their health stock, have a lower opportunity cost of time and, therefore, a more inelastic demand (Barros, 2006). However, one option to improve our health in most African countries has been consumption of healthcare. Hence as an individual ages demand for healthcare increases and sees it as normal to frequently go to the physician or hospital to improve health stock and this might not be attributed to moral hazard. The more an individual grows the lower the probability of perceiving the existence of moral hazard.

We expect that more educated individuals are more likely to perceive the existence of moral hazard. The higher your level of schooling the more you perceives moral hazard to exist. Education affects ones wealth or income, which is wealth effect. An educated individual is expected to get a better job hence get more income. However, as wealth increase it trickles down to increase ones health stock. Grossman (1972) considered the relationship between education (formal) and health. The relationship depends on the kind of education one has acquired; it may be biased towards good health or away from good health.

Income should have a positive impact on the probability of individuals perception of moral hazard existing. This makes sense because people with higher incomes are more likely to purchase some form of health insurance and hence visit the physician or hospital frequently. According to Van den Berg et al. (2005) a higher budget simply means greater care needs. It could also imply the need for more specialised and therefore more expensive care. Personal budget may lead to

ex post moral hazard. With a higher personal budget, clients may consume care at higher prices as compared to clients with a relatively smaller personal budget, ceteris paribus.

Household size and it nature could also influence the household head's perception of moral hazard being in existence. Household size is another important factor in the demand for medical care and the amount of more out-of-pocket medical expenditures. An increase in household size should increase the likelihood of health care use. The household size was expected to have a negative coefficient on perception of moral hazard. The larger the household size the more one perceives it members to be visiting the hospital or the physician, hence might not attribute frequent visit as moral hazard or over consumption.

Moreover, the survey investigated into the impact of household's that had some member below the age of 18 years and above age 65 years, since they mostly from the exemption group. Earlier studies (e.g. Obeng, 2009; Van den Berg, 2005; Bajari, 2005) found out that individuals that fall within this age group are exempted from paying premiums and they turn to consume more health care. Hence households that had members that fall in this group may not see going to the hospital frequently as over consumption or moral hazard and may have the perception that there is no moral hazard. The sign of coefficient of this dummy variable of household that had a member above age 65 years (no household member) and that of the dummy variable of household that had a member below age 18 years (no household member) should be negative.

Health status which was measured by self assessed health is expected to have a positive coefficient on consumption and perception of moral hazard. This so because the more individuals perceive their health status as very good the less likely they would purchase health insurance and also visit a modern health provider. According to Odwee et al. (2006) it is expected that individuals with worse health are more likely to purchase insurance *ceteris paribus* since they have greater expected use of the health care facilities and greater health related expenditure.

The more individuals perceive their illness as severe the more likely they would visit a modern health provider and will not see it as over consumption hence perceive there is no moral hazard. We expect more severe your ailment the lesser the probability of an individual perceiving the existence or moral hazard. The ailment variable (severe) is expected to have a negative coefficient on perception of moral hazard.

Data collection procedure

Data collection process started with a pilot survey. This pilot survey was carried out in an area that have almost same characteristics as the actual chosen study area. This area is different from the study area and it is not included in the main sample even though it's the same metropolis. This was done to ensure that the research instrument designed for the fieldwork was sharp, appropriate and comprehensive enough as well as safeguard the validity, unbiasedness and reliability of the data to be collected for the study.

Two research assistants were recruited and trained to ensure speedy and smooth collection of data. They were selected based on their educational background, proficiency in the local language and understanding of this kind of survey. The research assistants had well knowledge about the study area, can speak fante and/or Twi, and were taken through the process and mechanism of interviewing so as to obtain the right response from the respondents to achieve the objective of the study. The research assistants were trained on operational definition of terms, associations between respondents and research assistants, the general attitude to people, and how to deal with difficult respondents. The research assistants were involved in the pilot survey to enable them to be abreast with what was to be expected ahead of the fieldwork to ensure consistency and accuracy in the recording of responses from the respondents.

In all, twenty (20) questionnaires were administered for the pilot exercise. This was done to check the appropriateness of the questions and responses (Anaman, 2003). The pilot survey revealed some inconsistencies in the responses which indicated that some of the questions were not framed or structured well to elicit the appropriate responses from the respondents and also some of the questions were not asked but were necessary to ask. These mistakes were noted and the necessary corrections were made. This facilitated the main fieldwork.

The actual data for the study were collected after the pilot survey. Fieldworks took a maximum of four weeks and in all three hundred questionnaires were administered. The respondents were given the choice to fill the questionnaires by themselves or have their responses filled for them.

Estimation procedure of the probit model

The parameters of probit model are usually estimated with the use of maximum likelihood method. Maximum Likelihood Estimation (MLE) yields consistent parameter estimators; however, it is not difficult to calculate appropriate large sample statistics. Besides, it is possible to show that unique maximum always exist under probit model and this makes MLE to be particularly appealing (Pindyck & Rurinfeld, 1981). This implies that the MLE estimator will produce the most likely values of the parameters given our sample data. In other words, the estimated coefficients best describe the full distribution of the data. That is as the sample size increases, the most likely values become even closer to the values of the parameters. Under general conditions the likelihood estimators can be shown to be consistent, asymptotically efficient, and asymptotically normal.

Probit models are non-linear probability models. The probit model we estimated could be written as:

$$y_i^*$$

$$y_i^* = \beta' + \mu_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where y* is unobservable. What we observe is dummy variable y defined by

$$y = 1, \quad if\ y_i^* \geq 0$$

$$y = 0, \quad if\ y_i^*\ is\ other\ wise \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

$$Pr(y_i = 1) = prob\ (\mu_i \geq -\beta' x_i)$$

$$= 1 - F(-\beta' x_i) \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Where *F* is the cumulative density function for *U*

Where $Pr\,(y_i = 1)$ refers to the probability of an individual who believe or perceive the existence of moral hazard in Ghana's NHIS, and index $\beta' x_i$ is a linear function of factors influencing the individual's perception of moral hazard. On the other hand, the probability that an individual's perception will be otherwise, that is, the perception that moral hazard do not exist becomes:

$$Pr(y_i = 0) = 1 - Pr(y_i = 1)$$

Hence the likelihood function is:

$$L = \prod_{y_i=0} F\,(-\beta' x_i) \prod_{y_i=1} [1 - F\,(-\beta' x_i)] \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Where the functional form of F in (4) if based on the assumption made about U in (1)

$$F\,(-\beta' x_i) = \frac{\exp(\beta' x_i)}{1 + \exp(-\beta' x_i)} = \frac{1}{1 + \exp(\beta' x_i)}$$

$$1 - F\,(-\beta' x_i) = \frac{\exp(\beta' x_i)}{1 + \exp(\beta' x_i)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

In a probit model that involves integrals we assume that U_i are:

$IN\,(0, \sigma^2)$ Then

$$F\,(-\beta' x_i) = \int_{-\infty}^{-\frac{\beta' x_i}{\sigma}} \frac{1}{(2\pi)^{1/2}} \exp\left(-\frac{t^2}{2}\right) dt \ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

From (4) and (6) it can be seen that we can only estimate $\frac{\beta}{\sigma}$ and not β and σ separately. Hence we begin by assuming $\sigma = 1$.

For the probit log likelihood we substitute (6) into (4), denoting $\emptyset\,(.)\ and\ \Phi\,(.)$ as the density function and the distribution function respectively

of the standard normal. According to Maddala (1983) considering the observed value of y* as realizations of a binomial process which varying from trial to trial (depending on X_i), the likelihood function for the probit model becomes:

$$L = \prod_{y_i=0} F(-\beta' x_i) \prod_{y_i=1} [1 - F(-\beta' x_i)] \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

And so the log-likelihood function becomes:

$$\log L = \sum_{i=1}^{n} y_i \log \Phi(\beta' x_i) + \sum_{i=1}^{n} (1 - y_i) \log [1 - \Phi(\beta' x_i)] \quad \ldots\ldots\ldots\ldots (8)$$

Differentiating log L with respect to β results in the maximum likelihood estimator of β,

$$S(\beta) = \frac{\partial \log L}{\partial \beta} = \sum_{i=1}^{n} \frac{[y_i - \Phi(\beta' x_i)]}{\Phi(\beta' x_i)\,[1 - \Phi(\beta' x_i)]} \phi(\beta' x_i) x_i \quad \ldots\ldots\ldots\ldots\ldots (9)$$

The ML estimator $\hat{\beta}_{ML}$ can be obtained as the solution to the equation $S(\beta) = 0$. we solve them by an iterative procedures since the equations are nonlinear in β.

Marginal effects and goodness-of-fit

The marginal effect measures change in the predicted probability as a result of a unit change in the independent variable. Thus, marginal effects are the partial derivatives of probabilities with respect to the vector of characteristics. Marginal effects therefore measure the slope effects of the dependent variables with respect to a change in the independent variable. They are computed at the means of the Xs. Generally, the marginal effects under probit model are given as

follows:

$$\frac{\partial P_i}{\partial x_{ij}} = P_i(1 - P_i)\beta_j$$

Where:

$P_i(1 - P_i)$= the height of the density function.

β_j= the estimated coefficients of the independent variable.

However, in predicting the effect of changes in one of the independent variables on the probability of an individual perceiving moral hazard to be existing in Ghana's NHIS, we need to calculate these derivatives at different levels of the explanatory variables so as to realize the range of variation of the resulting changes in the probability. According to Maddala (1983) and Green (2000) because most applications contain at least one dummy variable, the computation of partial derivatives or marginal effects may not be meaningful.

With regard to OLS regressions, it is common to provide a measure of how well the model fits the data, such as R^2. However, no direct equivalent to R^2 exists for probit models. Hence a wide range of pseudo- R^2 measures have been proposed. Unfortunately, these measures have different formulae and will take different values for the same model. Mostly, goodness-of-fit measures are implicitly or explicitly based on comparison with a model that contains only a constant as explanatory variable.

The first goodness-of-fit measure, Maximum likelihood pseudo-R^2 is defined as;

$$\text{Pseudo}R^2 = \frac{1}{1 + 2(LogL_1 - LogL_0)/N}$$

$logl_1$ = Maximum likelihood value of the model with regressors; $logl_0$ = Maximum value of the log likelihood function when all parameters, except the intercept, are set to zero and N = Number of observations.

Hence McFadden (1974) suggested an alternative measure;

$$\text{McFadden}R^2 = 1 - \frac{LogL_1}{LogL_0}$$

A high pseudo-R^2 means that the model is of good fit and vice versa. It must be noted that a low R^2 does not always mean that the model is not of good fit. McFadden (1974) stated that R^2 value between 0.2 and 0.4 represent a good fit of the model. The Maximum likelihood pseudo-R^2 was used to explain the fitness of the model and this requirement was considered in our analysis.

Testing of hypotheses and joint significance

Z-statistics and p-values were used to test the hypotheses and it must be noted that the 'z' and the p-values for the exponentiated coefficient are similar as those of the unexponentiated coefficients.

However, the Likelihood Ratio (LR) test, which is analogous to the F-test in linear regression models, was used to test the overall significance of the explanatory variables. The likelihood ratio statistic is given by:

$$-2[Ln(L_r) - Ln(L_u)] \sim \chi^2$$

Where: $Ln(L_r)$ = Restricted log-likelihood, $Ln(L_u)$ = Unrestricted log-likelihood and χ^2 = Chi-squared.

With regard to this test, if the null hypothesis is true, then asymptotically twice the difference between the unrestricted and restricted log-likelihood follow a X^2 (chi-squared) distribution with degrees of freedom equal to the number of restrictions (Pindyck & Rubinfeld, 1981). The LR test was used in this study in testing for joint significance.

Limitation of the data

One major constraint of the data was recall bias which is usually pronounced with household survey. Habitually the ability to recall information on health care services and payments is presumed to be better for patients who had just received health care treatment, as opposed to household respondents who were asked to recall information on services received and payments made in the last 4 weeks prior to the interview.

Problems encountered during data collection

The main problem encountered during the data collection was that some respondents were not willing to assist. Some respondents were not willing to give information about other members of the households who were not in the house during the interview. Some respondent retorted that “similar exercises have been done in the past and we have not seen any improvement in our lives”. In spite of the above mentioned problems data collection went on smoothly.

Data analysis

Manual checking, data cleaning and editing of the field returns, as well as, post-coding of open-ended questions were carried out to ensure coherence and consistency of the information gathered before the completed questionnaires were dispatched for data entry and processing. Edited data was then inputted into the computer using the SPSS version 16 (Statistical Product and Service Solution). This was later transferred onto the Stata data software for further analysis. Respondents' characteristics were analyzed using descriptive statistics and presented on frequency tables. Analyzed data and parameter estimates from the model were presented using tables, however, interpretation was done statistically.

Descriptive statistics was done on the characteristics of the respondents for analysis. The respondents' perception of moral hazard causing high healthcare expenditure in Ghana's health insurance was estimated using probit model. The analyzed and estimated data were presented using tables and interpreted appropriately.

Conclusion

Methodology for the study was discussed in this chapter. Descriptive study design was used for the study. Primary data were collected through survey of individuals in Sekondi and Anaji. Data collection started with a pilot survey. The study employed questionnaire instrument for data collection. The study adopted the analytical framework developed by Barigozzi, (2004) for the analysis

of moral hazard. Since perception of moral hazard to be captured is dichotomous the probit model was employed to estimate the perception of moral hazard.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The results of the study are presented and discussed in this chapter. The background information on the socio-demographic characteristics of the household is presented first, followed by the available health care providers existing in the region as well as the health care providers visited by the household members. Presentation on the background information is done largely by the use of descriptive statistics in the form of frequency tables. The last section will consist of inferential statistics.

Background information on the household

It is very important to consider the household arrangement, even though members of the household form the units of analysis. Focus will be on the heads of the various household visited and the resources they own since these issues may feed indirectly or directly into health and health care decisions at the household levels.

The most vital characteristic of households is the leadership of the household. The total households interviewed were 300. Out of this 300 households interviewed, 205 representing 68.33 percent (68.33%) were male

headed whilst the rest of the households, which is 95 representing (31.67%) were households headed by female. This shows a male dominated at least at the household level and this pertains in most societies or communities in Ghana.

The Table below shows a cross tabulation of the age of household heads and their sex. Out of the 300 households interviewed, about 74 representing 24.67 percent (24.67%) of them were within the age category between 20 and 29. Out of the 74, 53 were males whilst 21 were females in the same age category. The age category between 30 and 39 which formed the highest category that was interviewed had 85 representing 28.33 percent (28.33%). Out of the 85, 65 were males whilst 20 were females in the same age category. The age category greater than age 59, formed the lowest category that was interviewed and they had 35 representing 11.67 percent (11.67). Out of the 35, 16 were males whilst 19 were females in the same age category. With this category most of the females are seen to be the head of the household. This might be possible probably from the fact that scientifically females live long than their male counterparts. Apart from this age category, all the other age categories are having majority of them headed by the males. Generally, majority of the household heads fall into the young adult and economically active age category from 20 to 49 representing 73.33 percent (73.33%). However, the mean age for the household heads is about 41. None of the household head was within the ages of 18 and 19.

Table 2: Cross tabulation distribution of household head by age categories and sex

Age categories of HH	Sex of HH Frequency Male	Frequency Female	Total	Percent
18-19	0	0	0	0.00
20-29	53	21	74	24.67
30-39	65	20	85	28.33
40-49	43	18	61	20.33
50-59	28	17	45	15.00
>59	16	19	35	11.67
Total	205	95	300	100.00

Source: Field survey, 2011

It is vital to consider heads of the households' level of schooling since it can influence their health care decisions as well as that of the members within the household in some ways. From the results, 38 representing about 13 percent of the households were headed by individuals who did not have any formal education. Out of the 38 household heads that had no formal schooling 21 of them were males and 17 females.

However, out of the 300 household interviewed, 100 representing about 33.33 percent (33.33%) which forms the majority reported that they have completed secondary school or senior high school or senior secondary school or technical school or vocational school. Seventy seven, out of the 100 household

heads who have completed senior high school were males and 23 were females. This may be due to the fact that Sekondi-Takoradi is noted for having well-developed educational institutions especially junior and senior high schools. However, 30 household heads made up of 26 males and 4 females, have completed either post secondary or "A" level. More so, 31 representing 10.33 percent (10.33%) reported that they have completed university or polytechnic education. Out of this 31, 30 were males and only 1 was a female. The gender distribution for the tertiary (university or polytechnic) level favoured males.

Table 3: Cross tabulation distribution of household heads by level of schooling and sex

	Sex of HH			
Level of schooling of HH	Frequency Male	Frequency Female	Total	Percent (%)
No schooling	21	17	38	12.67
Primary	10	13	23	7.67
JSS/JHS/Middle school	41	37	78	26.00
Sec./SHS/SSS/Tec./Voc.	77	23	100	33.33
Post Sec./ A Level	26	4	30	10.00
University/Polytechnic	30	1	31	10.33
Total	205	95	300	100.00

Source: Field survey, 2011

It can be seen from Table 3 that the higher education levels favoured the males hence it is in the right direction to advocate for girl child education in this metropolis. It is clear that majority of the households head representing 87.33 percent (87.33%) were educated or literate. The uneducated or illiterate

respondents were very few. This may be due to the fact that Sekondi-Takoradi is noted for having well-developed educational institutions and also being an urban centre majority of people understand education.

With regard to the marital status of the households interviewed, majority of them reported that they are married and only few reported they are widows. Out of the 300 household heads interviewed 158 representing 52.67 percent (52.67%) and highest were married, 70 representing 23.33 percent (23.33%) were in unions and 10 representing 3.33 percent (3.33%) and least had never married. On the other hand, 29 representing 9.67 percent (9.67%) out of the 300 household heads interviewed had separated, and 11 representing 3.67 percent had divorced whilst 22 representing 7.33 percent (7.33%) are widows.

Table 4: Distribution of household heads by marital status

Marital status of HH	Frequency	Percent
Never married / Not in union	10	3.33
In union	70	23.33
Married	158	52.67
Separated	29	9.67
Divorced	11	3.67
Widowed	22	7.33
Total	300	100.00

Source: Field survey, 2011

The size of the household is also important in health care decision making and hence there is the need to consider it. This factor is a crucial attribute to household characteristics and can influence their perception as well as health care

decision making. Most of the households interviewed had members between 3 and 5making up the household. The highest household size were household with 12 persons even though there some of the household with only one person. The average size was 3.49. Out of the 300 households interviewed 176 representing 58.67 percent (58.67%) had between three to five persons forming the household where as 89 representing 29.67 percent (29.67%) had between one to two persons forming the household. Only few of the household about 35 representing 11.67 percent (11.67%) had more than 5 persons forming the household as shown in Table 5.

Table 5: Distribution of household by size

Household size categories	Frequency	Percent
Household size between 1 and 2 persons	89	29.67
Household size between 3 and 5 persons	176	58.67
Household size with persons greater than 5	35	11.67
Total	300	100.00

Source: Field survey, 2011

Another essential factor attributed to the household characteristics and can influence their perception and health care is the composition of their household size. Nearly all children under 18 years and those aged 70 years and over are exempted, and this is consistent with the age-based NHIS regulations on premium exemptions. Children under 18 years, adults over 70 years, formal sector employees contributing to the Social Security and National Insurance Trust

(SSNIT), and the poverty-stricken are exempt from paying premiums. However, as of July 2008, pregnant women are also exempt. About 70 percent (70%) of NHIS members were in the exempt category (NHIS 2008). In some cases income levels serves as the basis for exemption. Individuals who are perceived to be at the bottom of the income scale are also exempted from premium payments.

Household who have members either below the age of 18 years and age 65 or above may influence their perception and health care decisions and can also influence their hospital attendance or the frequency of visits to the hospital. Out of the 300 household heads interviewed 49 of them had none of its members below 18 years, 102 of them had at least one member of the household below age 18. However, 124 of the households interviewed had at least two members below 18 years and this forms the majority. Whilst 22 of the households interviewed had at least three members below the age 18, only three which is the least had four members below 18 years of age, as shown in Table 6.

Table 6: Distribution of household by size of member below 18 years

Household members below 18 years	Frequency	Percent
No member below 18 years	49	16.33
At least one member below 18 years	102	34.00
At least two member below 18 years	124	41.33
At least three member below 18 years	22	7.33
At least four member below 18 years	3	1.00
Total	300	100.0.0

Source: Field survey, 2011

Its worth mentioning that out of the 300 households interviewed 271 representing 90.33 percent (90.33%) had no member of the household above age 65, only 28 represent 9.33 percent (9.33%) has at least a member of the household above the age of 65 and just one household had two members above the age of 65 as shown in Table 7.

Table 7: Distribution of household by size of member above 65 years

Household members above 65 years	Frequency	Percent
No member above 65 years	271	90.33
At least one member above 65 years	28	9.33
At least two member above 65 years	1	0.33
Total	300	100.00

Source: Field survey, 2011

It is worth noting that most of the household heads interviewed in the people in the study are engaged in informal activity. 205 representing 68.33 percent (68.33%) out of the 300 household head interviewed were engaged in informal activities, thus non-salaried workers, whilst 95 representing 31.67 percent (31.67%) were engaged in formal activities thus salaried workers. However, the characteristics of the household heads in terms of the sector in which they are employed, is largely consistent with the result of the GLSS round 5, where the majority of Ghanaians are believed to be employed in the informal sector. The result of this Study proves that more than 60 percent (60%) of respondents are employed in the informal sector.

Another vital factor attributed to the household heads characteristics and its relevance to how they perceive things within the society and also their decisions concerning healthcare. Household who receive some form of external support may have better access to healthcare and can also influence their hospital attendance or the frequency of their visit to the hospital hence the need to consider this factor. Out of the 300 household heads interviewed 83 of them do not receive any external support, 95 of them receive support from their spouse, and 31 from their children and 91 of them receive support from external source probably from relations within and outside Ghana.

An additional factor attributed to the household heads characteristics and relevance to how they perceive things within the society and also access to health care is the availability of means of transport. As to whether or not household possessed any available means of transport that will facilitate their frequent movement to the health care facility, the finding s depicts that a relatively larger heads about 187 out of the 300 households interviewed indicated that they do not have any available means of transport, whilst the rest of them had either bicycle or motorcycle or car or all of the above.

Household's average income is also another important factor to consider when defining their socio-economic attributes. After the pilot study, there was a decision to use earnings of the household head as a proxy, because of difficulties in getting information on the earnings of the rest of the household members. Out of the sample population, 61 representing 20.33 percent (20.33%) of the household heads earn income less than 100 Ghana cedis on the average per

month, 90 of these household heads representing 30 percent (30%) and the highest earn income between 100 and 199 Ghana cedis on the average per month and only nine representing three percent (3%) earn income above 500 Ghana cedis on the average per month. However, 67 representing 22.33 percent (22.33%), 47 representing 15.67 percent (15.67%) and 26 representing 8.67 percent (8.67%) of these heads of household earn income between 200 – 299 Ghana cedis, between 300 – 399 Ghana cedis and between 400 – 499 Ghana cedis on the average per month respectively. In general, the trend was that as the average monthly income category increased many of the household heads fell out. This is represented in Table 8.

Table 8: Distribution of heads of household by average monthly income

Average monthly income	Frequency	Percent
Below 100 Ghana cedis	61	20.33
100 – 199 Ghana cedis	90	30.00
200 – 299 Ghana cedis	67	22.33
300 – 399 Ghana cedis	47	15.67
400 – 499 Ghana cedis	26	8.67
500 Ghana cedis and above	9	3.00
Total	300	100.00

Source: Field survey, 2011

The general health status of the population in the study area was also an important factor to consider. Self-Assessed Health Status (SAHS) was used as a proxy for health status. Here the individuals self report about their health status. This variable was measured on a four-point scale from '0' as poor, '1' as fair, '2'

as good, '3' as very good to '4' as the highest level of health status that is excellent. These responses were assigned numerical values according to the following scale: excellent = 4, very good = 3, good = 2, fair = 1 and poor = 0. This variable could have influence on an individual's perception of moral hazard and the demand for health insurance as well. The health status of the household head or a member of the household could inform and individual's perception. Out of the 300 household heads interviewed, 190 representing 63.33 percent (63.33%) and more than half of them reported to have a very good health status, 64 representing 21.33 percent (21.33%) reported to have good health status and 40 representing 13.33 percent (13.33%) had a fair or average health status. However, none of the household heads reported to have had an excellent health status and only six of them representing two percent reported to have had a poor health status. This is represented in Table 9.

Table 9: Distribution of household by self assessed health status

Self-assessed health status categories	Frequency	Percent
Poor	6	2.00
Fair/Average	40	13.33
Good	64	21.33
Very good	190	63.33
Total	300	100.00

Source: Field survey, 2011

However, Self-Assessed Health Status (SAHS) was also used to assess household heads ailment conditions. This variable was also measured on a three-point scale from '1' as not often, '2' as often, and '3' as the highest level of health status that is very often. Only one category was chosen. These responses were assigned numerical values according to the following scale: very often = 3, often = 2, and not often = 1. This variable could have influence on an individual's perception of moral hazard and the demand for health insurance as well. Out of the 300 household heads interviewed, 209 representing 69.67 percent (69.67%) and more than half of them reported that they do not often fall ill, 70 representing 23.33 percent (23.33%) reported to have fallen ill often and 21 representing seven percent fell ill very often. These results could be linked from their health status results, where we have more than half of the respondents reporting to have a very good health status.

Table 10: Distribution of household by how often they fall ill

How often household head fall ill	Frequency	Percent
Not often	209	69.67
Often	70	23.33
Very often	21	7.00
Total	300	100.00

Source: Field survey, 2011

On the average, the 300 household interviewed have had some changes in their hospital attendance especially those who have now registered and are

insured. Results showed the on the average those household heads who visited the hospital during ailment, were going to there about two (2) times (an average of 2.15 visits and a standard deviation of 1.49721), in a year during the period when there was no health insurance, with the maximum attendance being ten (10) times in a year. However, their hospital attendance changed (increased) to about three times (an average of 3.47 visits and a standard deviation of 2.358171), in a year during this period when there is health insurance, with the maximum attendance being fifteen (15) times in a year. The analysis shows that household head with insurance visited a physician hospital more frequently in a year than do uninsured counterparts. Most of the insured visits the physician or a hospital more than trice in a year. This has two propositions. On one hand, these people might have acquired health insurance due to the poor nature of their health status and thus a clear evidence of adverse selection. On the other hand, these household heads rate of healthcare consumption increased after acquiring the insurance which could be attributed to mere moral hazards. This suggests that the National Health Insurance Scheme has improved people's access to health care; hence the need to enhance efforts to get the rest of the population to register with the scheme.

The survey found that the insured household heads in the study sought for healthcare services in a year more than their uninsured counterparts. The study also revealed vast differences in health care utilization during the period when there was no insurance and the period of insurance. The insured individuals interviewed revealed a great discrepancies in health care consumption after they were insured than before insurance. Most of the household heads utilized

healthcare services more than three times within a year during the period of insurance as compared when there was no insurance. The implication of moral hazard is clearly evident looking at the high rate of health care utilization by the period when there was insurance, and also compared to period of no insurance.

However, during the recall period of four months prior to the survey, 300 representing 100 percent of the randomly interviewed household heads reported having had at least one spell of illness. For recent illness, malaria/fever was the predominant afflictions cited by 49 percent (49%) of respondents. This was immediately followed by aches and pains with 27.33 percent (27.33%). However, respiratory problems, diarrhoea, skin diseases, aches and pains, malaria, antenatal care and injury were cited with much less frequency.

Table 11: Distribution of heads of household by ailment type

Type of illness	Frequency	Percent
Aches and Pains	82	27.33
Skin diseases	10	3.33
Antenatal Care	9	3.00
Injury/ Accident	10	3.33
Malaria/Fever	147	49.00
Diarrhoea	12	4.00
Respiratory	30	10.00
Total	300	100.00

Source: Field survey, 2011

It worth mentioning that the household heads visited the following places for medication or treatment in times of illness. Out of the 300 household heads interviewed, it was discovered that 117 representing 39 percent and the majority visited the regional hospital that is Effia-Nkwanta hospital, 98 representing 32.67 percent and the second highest visited the Poly clinic like Essikado poly clinic. However, only few household heads visited the drug store and the chemist for treatment. Thus, 29 representing 9.67 percent (9.67%) and two representing 0.67 percent (0.67%) visited the drug store and the chemist respectively.

Table 12: Distribution of heads of household by facility visited

Types of facility visited	Frequency	Percent
Regional hospital	117	39.00
Poly clinic	98	32.67
Clinic	37	12.33
Health centres	17	5.67
Drug store	29	9.67
Chemist	2	0.67
Total	300	100.00

Source: Field survey, 2011

However, facility visited may also be influenced by an individual's health insurance status. Out of the 117 household heads who visited the regional hospital only four of them were uninsured. Out of the 87 household heads who visited, 11 of them were uninsured. On the other hand, majority of the 29 household heads

who visited the drug store were individuals who have not registered with the health insurance. All the two household heads who visited the chemist were uninsured. Generally, the uninsured household heads visited the drug store and the chemist than the insured counter parts, and the insured also visited the hospitals done the uninsured. The NHIS status of respondents and type of health facility they visit is mostly supported by the finding on who bears the cost of general health care. Most of those whose medical bills are paid by the NHIS consult visited the regional hospital, clinics and so on as compared to those whose bills are paid by the household heads themselves. It can therefore be said that the NHIS has improved the access of households to quality health care.

Table 13: Distribution of heads of household by facility visited and insurance status

Facility visited	Uninsured	Insured	Total
Regional hospital	4	113	117
Poly clinic	11	87	98
Private clinic	2	35	37
Health centers	3	14	17
Drug store	17	12	29
Chemist	2	0	2
Total	39	261	300

Source: Field survey, 2011

Health insurance status of the respondent does have influence on ones perception of moral hazard in Ghana's health insurance and needs to be considered. Out of the total 300 household heads interviewed, 39 representing 13 percent and the least had not registered with the National Health Insurance Scheme and the other half which is 261 representing 87 percent and the majority had registered. This is largely consistent with the result of the NDPC PM & E Survey (2008) which showed that about 58.3 percent are insured, 3.6 percent have registered but without car and 38.1 percent have not yet registered with the health insurance scheme in the western region. Generally, this shows that there are more registered members of the National Health Insurance Scheme than none insured members.

The utmost expectation of most Ghanaians about the NHIS has been to reduce the burden of health care cost on households. However, discussions have established that access and use of health care facilities have increased with NHIS membership. The data shows that households who have not registered with the NHIS do not benefit in terms of out-of-pocket (OOP) expenditures at health care facilities compared to those that are registered. All none insured members responded 'Yes' meaning they pay out of pocket. On the other hand, majority of those who insured responded 'No' meaning they don't pay cash and rather cost is paid by the NHIA. It can be seen that 101 out of the insured also paid cash and this can be as a result of probably drugs or services that are not covered by the scheme. Persons with NHIS valid cards may incur OOP because of two things:

- illness that is not covered by the scheme (even though by regulation about 95 percent of all conditions are covered);
- Illness may involve other medications that are not covered by the scheme.

Despite these individual MHOs have operational challenges that tend to serve as barriers to beneficiaries to getting the needed assistance. However, members of the scheme may also use facilities that are not accredited out of convenience. Table 14 shows this.

Table 14: Distribution of household heads by NHIS and whether they paid for treatment or not

Did household head pay cash for treatment	None insured	Insured	Total
No	0	160	160
Yes	39	101	140
Total	39	261	300

Source: Field survey, 2011

However, about more than half of the household heads interviewed have the perception that the insured go to hospital frequently than their uninsured counterpart, this 191 representing 63.67 percent out of the 300 household heads attest to the fact that those insured go to the hospital frequently than the uninsured. This variable was measured on a likert – scale from '1' as strongly agree to '5' as strongly disagree. These responses were assigned numerical values according to the following scale: strongly agree = 1, agree = 2, neutral = 3,

disagree = 4 and strongly disagree = 5. This variable could have influence on an individual's perception of moral hazard. Table 15 depicts that.

Table 15: Distribution of household by their perception on whether the insured go to hospital frequently or not, than the uninsured

The insured go to hospital more frequently than the uninsured	Frequency	Percent
Strongly Agree	8	2.67
Agree	191	63.67
Neutral	37	12.33
Disagree	64	21.33
Total	300	100.00

Source: Field survey, 2011

One of the objectives of this study is to find out if health care consumers believe that moral hazard exist in Ghana's health insurance. It is worth noting that 176 representing 58.67 percent and the majority responded that "Yes" meaning moral hazard exist in Ghana's National Health Insurance Scheme. On the other hand, 124 representing 41.33 percent responded "No" meaning moral hazard does not exist. Hence majority of the household heads who are health care consumers have the perception that moral hazard exist in Ghana's Health Insurance as most empirical studies conducted in other countries has proven. Ghana's National Health Insurance Scheme is no exception but also suffering from moral hazard.

However, the majority of the household heads who had the perception that moral hazard exist in Ghana's National Health Insurance Scheme gave the following as their reason why they responded that moral hazard exists.

- Members have paid for the insurance and would by all reason benefit before it expires
- We have a situation where clients hop from one facility to another in search for so called quality care, where they believe that when they are given plenty drugs, and then they are being taken care of very well.
- We also have a situation where a whole family of about five fall ill at the same time and all of them have to attend the hospital same time just because they all have the NHIS card and have to make use of it.
- Because people are ignorant of the use of insurance
- If even the sickness is not serious they go to the hospital because they have health insurance
- Most females are getting pregnant because of the NHIS
- Most people now don't even make use of first aid anymore, they prefer going to the hospital
- People want to benefit and make use of the insurance they paid for the insurance
- Sickness that are not all that serious and they wouldn't have taken it to hospital when there was no insurance, now they take them to hospital
- Some people take drugs for those who do not have insurance

- They don't finish with one medication and they move to another hospital with same sickness for another medication
- They go to hospital to take drugs and store it in their homes especially when insurance is about to expire
- They just want more drugs to keep at home
- They just want to make use of the money paid for the insurance
- They think the insurance is free so they want to take advantage of it
- They want to enjoy all the money they paid for the insurance
- When membership card is about to expire they go to the hospital frequently even when they are not sick, to take drugs and store them in their houses

Out the 205 households headed by males, 64 of them representing the minority have the perception that moral hazard does not exist in Ghana's National Health Insurance Scheme (NHIS). However, the rest of household headed by males believe that moral exist in Ghana's NHIS. On the other hand, 60 representing majority of the households headed by females responded 'No', meaning most females headed household believe there is nothing like moral hazard in Ghana's NHIS and this seem obvious. Females, seem weaker and more venerable to diseases, moreover, as they grow and give birth their health status depreciate faster than that of their male counterparts, and as a result they turn to demand more medical care to improve their health status; hence they will not perceive their frequent visit to the hospital as over consumption or moral hazard.

This also may be the reason why females turn to demand for health insurance more than their male counterpart (Obeng, 2009).

Table 16: Distribution of household heads by perception of moral hazard existence in Ghana's National Health Insurance Scheme and sex

Perception of moral hazard	Sex		Total	Percent
	Male	Female		
No	64	60	124	41.33
Yes	141	35	176	58.67
Total	205	90	300	100.00

Source: Field survey, 2011

According to Grossman (1972) health status depreciates with age. As we grow our health status generally depreciates hence we need health care to improve it so we will not die. To improve our health we either, lead a healthy life style which is the less expensive option, for instance exercise, have good eating habit and so on. On the other hand we can consume healthcare which is more expensive good to improve our health and that has been the option for most people living in the developing countries. Here more expensive good is chosen over a cheaper or less expensive good. The youth that is individuals between the ages of 18 – 29 and the young adults between the ages of 30 – 49 in Ghana forms majority of the country's labour force and are very energetic and seem not to be falling ill much as the other age categories above them. Generally, this group is seen to be healthier hence do not pay much attention to their health and health issues. With

this group instead of using time to improve health stock they will use that time to work to gain more income. Thus as wage increase the opportunity cost of health also increases. These different groups of people within these groups may perceive things differently and hence the need to consider their perception with regards to this health issue.

Out of the 74 household head that falls within the ages of 18 – 29, 50 of them representing the majority responded 'Yes' meaning that they believe people are over consuming health care or they perceive moral hazard exist in Ghana's NHIS and 24 of them perceived moral hazard does not exist. More so, 98 out of the 146 household heads interviewed who fell within the ages of 30 – 49, perceived that moral hazard exist and 48 of them perceived that there is not moral hazard in Ghana's health insurance. These are the naturally active group. Grossman (1972) with health as a purely consumption good, if because of health insurance the price of healthcare is a most zero, one needs to consider the time cost to be healthy. If the time cost is more important in the production of health than other activity like working, then the relative price of health increases with increase in wealth (income) hence demand for health falls. However, with regards to those that fell within the age group between 50 – 59 and 60 and above majority of them responded 'No' meaning they do not believe that moral hazard exist in Ghana's NHIS. This age group is mostly the elderly who are closer to retire or have retired, have a lower opportunity cost of time and, therefore, a more inelastic demand (Barros, 2006). They experience larger shocks in their health stock (Bajari et al., 2006).

Only 6 out of the 35 household heads who fall within the ages of 60 and above responded 'Yes' and have the perception that moral hazard exist and 29 representing the majority perceive that people are not over consuming health care and that there is no moral hazard. It is obvious that this age group will naturally need more health care to improve their health stock and may not see it as over consumption. Health stock goes down as we grow; hence we need to increase investment in our health. The more a person grows the less he perceives moral hazard to be in existence because you perceive demand for health care as normal. The table below depicts it.

Table 17: Cross tabulation distribution of household head by age categories and their perception of moral hazard

Age categories of HH	No	Perception of moral hazard Yes	Total	Percent
18-29	24	50	74.0	24.67
30-49	48	98	146.0	48.67
50-59	23	22	45.0	15.00
>59	29	6	35.0	11.67
Total	124	176	300	100.00

Source: Field survey, 2011

The higher your levels of schooling the more you perceive moral hazard to exist. Education affects ones wealth or income, which is wealth effect. An

educated individual is expected to get a better job hence get more income. However, as wealth increases it trickles down to increase ones health stock. Grossman (1972) considered the relationship between education (formal) and health. The relationship depends on the kind of education one has acquired; it may be biased towards good health or away from good health. For instance we may have educated people who know all the consequences of smoking but still engage in that. If education is towards good health then the individual will make choices that will improve health, for instance will eat food that is harmful to his health exercise, engaging in health promoting activities. If its education away or against good health, then this person might not know the impact of unhealthy life style; for instance this person may engage in risky life style, and so on and might lead to a fall in his health stock. Hence the higher a person's education and towards healthy life style the higher his or her probably of responding 'Yes' or having the perception that moral hazard exist, other than less educated persons.

Out of the 38 persons who had no schooling, few of them (14) responded that moral hazard exist; the majority (24) responded that moral hazard does not exist. This case is not different from those who have had at least primary education. However, 41 out of the 78 persons who completed JSS perceived that moral hazard exist. Same ways the majorities (72) of the 100 household head who have had secondary education also believe moral hazard exist hence believe that people are over consuming health care because of NHIS. Twenty two (22) out of the 30 household heads who have had post secondary education also believe that moral hazard exist. Out of the 31 household heads that have had University

education, 19 of the representing the majority believe that people are over consuming health care due to the availability of the health insurance hence moral hazard exist.

Table 18: Cross tabulation distribution of household heads by level of schooling and their perception of moral hazard

Level of schooling of HH	Perception of moral hazard No	Yes	Total	Percent
No schooling	24	14	38	12.67
Primary	15	8	23	7.67
JSS/JHS/Middle school	37	41	78	26.00
Sec./SHS/SSS/Tec./Voc.	28	72	100	33.33
Post Sec./ A Level	8	22	30	10.00
University/Polytechnic	12	19	31	10.33
Total	124	176	300	100.00

Source: Field survey, 2011

Factors influencing perception of moral hazard

Though if we consider theoretical and empirical works done we will observe that a lot of factors seem to influence an individual's perception and moral hazard in health insurance, however, as far as this study is concerned sex, age, education, marital status, income, household size, dummy of household that

has a member below age 18 years, dummy of household that has a member above age 65 years, dummy if household head is main source of economic support to the family or not, employment status, distance to the facility proxy by the time taken to get to the facility, self assessed health status, insurance status, out-of-pocket payment and ailment type were the main variables of interest.

It must be noted that the first round of estimation was the probit regression and this yielded very significant results. It must be noted that the first round of estimation generated the z-values for deciding the acceptance or rejection of a particular variable. In the second round, the marginal effects were generated to determine the probability of an individual's perception of moral hazard existing or not, with respect to a unit change in any of the explanatory variables.

The coefficients of the variables were estimated by probit estimation method using Stata (11). A greater number of the coefficients were significant and had the expected signs. In this estimation, most of the explanatory namely age, income, dummy variables of household that has a member below age 18 years (no household member), self assessed health status (poor), insurance status (no insurance), out-of-pocket payment and ailment type, had the expected signs and they were highly significant at 5 percent level of significance. Sex (female) and dummy variable if household head is main source of economic support to the family (not the main source) were also significant at 10 percent significance level. There is enough evidence to accept that the entire variables statistically influence individuals' perception of moral hazard in Ghana's NHIS.

The coefficients of household size, marital status, distance to the facility and dummy of household that has a member above age 65 years (no household member) variables were negative. However, coefficients of employment status (formal) and that of education variables were positive. Again, Likelihood Ratio test suggests that age, income, dummy of household that has a member below age 18 years (no household member), self assessed health status (poor), insurance status (no insurance), out-of-pocket payment, ailment type sex (male) and dummy variables if household head is main source of economic support to the family (not the main source) jointly influence individuals' perception of moral hazard in Ghana's NHIS. In addition, the Pseudo-R^2 shows that the model is of good fit and predicts well the individual's decision on how he perceive moral hazard to be existing in Ghana's NHIS.

On the whole, the model was highly significant as indicated by the p-value associated with the Wald chi-square (p-value chi-square= 0.0000). Also, the explanatory power is quite good. According to McFadden (1974) pseudo R^2 value between 0.2 and 0.4 represent a good fit of a model. It must be noted that the Pseudo R^2 as reported by STATA is McFadden Pseudo R^2. Therefore, a Pseudo R^2 value of 0.3657 shows that our model is of good fit.

As stated earlier, the female variable had the expected sign. A negative sign indicates the females are less likely to perceive that moral hazard exist or people are over consuming health healthcare because of health insurance. Due to their weak nature they prefer going to the hospital whenever they are not well on like their male counterpart, this is supported by Citizens' assessment of the

national health insurance scheme 2008, hence may not term their frequent visit to the hospital as moral hazard or over consumption. A z-value of -1.79 means that female variable significantly influence the perception of moral hazard. Besides, we observed that if $\partial y/\partial x$ = -.3770677 (z =-1.87) then it means that almost 38% females are less likely to perceive that moral hazard exist in Ghana's NHIS. This may be attributed to the fact that females are more vulnerable to sickness and for that matter seek medical care more than their male counterparts Obeng (2009) hence may have the expectation that frequent visit to the hospital is normal and may not attribute it to moral hazard. This also may be the reason why females turn to demand for health insurance more than their male counterpart, as supported by earlier findings by the U.S. Census Bureau (2002) and Munkin et al. (2003) which revealed that males are less likely to be insured.

Age had a negative coefficient with ones perception of moral hazard and was highly significant. Grossman (1972) health status depreciates with age. As we grow our health stock generally depreciates hence we need health care to improve it else we will die. That is why elderly who are closer to retire or have retired experience larger shocks in their health stock Bajari et al. (2006) have a lower opportunity cost of time and, therefore, a more inelastic demand (Barros, 2006). However, one option to improve our health in most African countries has been consumption of healthcare. Hence as an individual ages demand for healthcare increases and sees it as normal to frequently go to the physician or hospital to improve health stock and this might not be attributed to moral hazard. The more

an individual grows the lower the probability of perceiving the existence of moral hazard.

Though education variable was not significant as supported by Bajari et al. (2006) it is worth mentioning that the sign of it coefficient being positive is in the right direction. This means more educated individuals are more likely to perceive the existence of moral hazard. The higher your level of schooling the more you perceives moral hazard to exist. Education affects ones wealth or income, which is wealth effect. An educated individual is expected to get a better job hence get more income. However, as wealth increase it trickles down to increase ones health stock. Grossman (1972) considered the relationship between education (formal) and health. The relationship depends on the kind of education one has acquired; it may be biased towards good health or away from good health.

Income had a strong positive impact on the probability of individuals perception of moral hazard existing. This was achieved at 5 percent level of significance. This makes sense because people with higher incomes are more likely to purchase some form of health insurance and hence visit the physician or hospital frequently. Van den Berg et al. (2005) found out that a higher budget simply means greater care needs. It could also imply the need for more specialised and therefore more expensive care. Personal budget may lead to ex post moral hazard. With a higher personal budget, clients may consume care at higher prices as compared to clients with a relatively smaller personal budget, ceteris paribus.

Household size could also influence the household head's perception of moral hazard being in existence. The larger the household size the more one

perceives it members to be visiting the hospital or the physician, hence might not attribute frequent visit as moral hazard or over consumption. The household variable though was not significant it had a negative coefficient, meaning the larger the household size the lesser one perceive moral hazard to be in existence.

Moreover, the survey investigated into the impact of household's that had some member below the age of 18 years and above age 65 years, since they mostly form the exemption group. Earlier studies (e.g. Obeng, 2009; Van den Berg, 2006; Bajari, 2005) found out that individuals that fall within this age group are exempted from paying premiums and they turn to consume more health care. Hence households that had members that fall in this group may not see going to the hospital frequently as over consumption or moral hazard and may have the perception that there is no moral hazard. On the other hand, the sign of the coefficient of the dummy variable of household that had a member below age 18 years (no household member), was positive and was 5 percent significant level.

Health status which was measured by self assessed health is expected to have a positive coefficient on consumption and perception of moral hazard. This so because the more individuals perceive their health status as very good the less likely they would visit a modern health provider. This variable had a positive coefficient and was highly significant at one percent significant level.

We could also observe from the study that, the coefficient of the health insurance status is negative and significant at 5 percent significance level, this implies that as one become insured he does not perceive frequent visit to the physician or the hospital as moral hazard or over consumption. This suggests that

the National Health Insurance Scheme has improved people's access to health care; hence the need to enhance efforts to get the rest of the population to register with the scheme. However, it also has two propositions. On one hand, these people might have acquired health insurance due to the poor nature of their health status and thus a clear evidence of adverse selection. On the other hand, these household heads rate of healthcare consumption increased after acquiring the insurance which could be attributed to mere moral hazards.

The more individuals perceive their illness as severe the more likely they would visit a modern health provider and will not see it as over consumption hence perceive there is no moral hazard.

Table 19: Probit results (Individual's perception of moral hazard)

VARIABLES	COEFFICIENTS	Z	P>lZl
Occupation	.2941489	1.13	0.257
HHsize	-.1112385	-1.58	0.115
Hhmem.<18	.8707634***	3.14	0.002
Hhmem.>65	-.4980706	-1.24	0.214
Support to Hh	-.4106589*	-1.82	0.069
Age	-.0216606***	-2.59	0.009
Sex	-.3770677*	-1.80	0.072
Education	.1177203	1.41	0.157
Marital status	-.1219266	-0.59	0.555
Health status	.5213006***	4.09	0.000

Table 19: Probit results (Individual's perception of moral hazard) (Continued)

Insurance status	-.8774686**	-2.04	0.041
Ailment type	.2096905***	3.61	0.000
Income	.3635559**	1.98	0.048
Distance to facility	-.115553	-0.84	0.404
Out-of-pocket payment	.0825611***	2.73	0.006
_cons	-2.979516**	-2.42	0.016

Number of obs = 300 LR chi2(15) = 148.76

Prob > chi2 = 0.0000*** Pseudo R2 = 0.3657

Log likelihood = -129.03431

Note: * means 10 % level of significance, ** 5% level of significance and *** 1% level of significance.

Source: Author's Field Results Using STATA (11)

The marginal effects of age, income, household that has a member below age 18 years (no household member), self assessed health status (poor), insurance status (no insurance), out-of-pocket payment and ailment type, sex (male) and household head is main source of economic support to the family (not the main source) variables were statistically significant as their corresponding coefficients. The marginal effects of the other explanatory variables are not significant the same as their estimated coefficients. The marginal effect of age variable is -.0082151. This means that when the individual's age increase by a unit that is a year, the individual's probability of his perception of moral hazard change by

approximately 0.0082. The implication is that the aged are less likely to perceive that moral hazard exist in Ghana's NHIS.

Table 20: Marginal effects (Individual's perception of moral hazard)

VARIABLES	$\partial y/\partial x$	Z	P>lZl
Hhmem.<18*	.3366165	3.32	0.001
Support to Hh*	-.1586267	-1.81	0.070
Age	-.0082151	-2.59	0.010
Sex*	-.1450316	-1.79	0.074
Health status	.1977096	4.06	0.000
Insurance status*	-.27943	-2.70	0.007
Ailment type	.0795277	3.56	0.000
Income	.137883	1.98	0.048
Out-of-pocket payment	.0313123	2.79	0.005
y = Pr(perception of moral hazard) (predict) = .62478984			
(*) dy/dx is for discrete change of dummy variable from 0 to 1			

Source: Author's Field Results Using STATA (11)

Discussion of results

The study adds to the growing body of literature which shows that females other than their male counterparts are more vulnerable to disease and hence demand for more medical care Obeng (2009). Most males believed that moral exist in Ghana's NHIS; where as their female counterparts believe there is nothing

like moral hazard in Ghana's NHIS. The reason being that females seem weaker and more vulnerable to diseases. Moreover, as they grow and give birth, their health status depreciate faster than that of their male counterparts, and as a result they turn to demand more medical care to improve their health status; hence they do not perceive their frequent visits to the hospital as over consumption or moral hazard. This also may be the reason why females turn to demand health insurance more than their male counterpart.

This study adds to the growing body of literature on health stock improvement and moral hazard. Health stock goes down as we grow; hence we need to increase investment in our health. Grossman (1972) health status depreciates with age. As we grow our health status generally depreciates hence we need health care to improve it else we die. Individuals with the age group between 50 – 59 and 60 and above are mostly the elderly who are closer to retire or have retired, experience larger shocks in their health stock (Bajari et al., 2006). It is obvious that this age group will naturally need more health care to improve their health stock and may not see it as over consumption. They perceive that they themselves and others who frequent the hospital are not over consuming health care and for that matter there is no moral hazard. The more a person grows the less he perceives moral hazard to be in existence because as we perceive demand for health care as normal as we grow.

Moreover, the survey investigated into the impact of household's that had some member below the age of 18 years and above age 65 years, since they mostly form the exemption group. Households that had members that fall in these

age groups may not see going to the hospital frequently as over consumption or moral hazard and may have the perception that there is no moral hazard. The sign of the coefficient of the dummy variable of household that had a member above age 65 years (no household member), was negative though it was not significant. On the other hand, the sign of the coefficient of the dummy variable of household that had a member below age 18 years (no household member), was positive and was 5 percent significant level. Households that had members falling within these age groups perceives moral hazard not to be in existence because as they perceive demand for health care as normal.

Income had a strong positive impact on the probability of individuals perception of moral hazard existing. This is because people with higher incomes are more likely to purchase some form of health insurance and hence visit the physician or hospital frequently. Van den Berg et al. (2005) a higher budget simply means greater care needs. It could also imply the need for more specialised and therefore more expensive care. Personal budget may lead to ex post moral hazard. With a higher personal budget, clients may consume care at higher prices as compared to clients with a relatively smaller personal budget, ceteris paribus. Hence the higher an individual's income the more he perceive moral hazard to exist.

The larger the household size the more the individuals in the house will expect it members to be visiting the hospital or the physician, hence might not attribute frequent visit as moral hazard or over consumption. The household

variable had a negative coefficient, meaning the larger the household size the lesser one perceive moral hazard to be in existence.

The results emerging from the study shows that individual's health status which was measured by self assessed health is expected to have a positive coefficient on consumption and perception of moral hazard. Majority of the people who purchase insurance are those with poor health status Bajari et al. (2006) hence they do not perceive frequent visit to hospital as moral hazard. This so because the more individuals perceive their health status as very good the less likely they would visit a modern health provider. The more an individual perceive his health status to be very good the more he perceive moral hazard to be existing.

We could also observe from the study that, the coefficient of the health insurance status is negative and significant, this implies that as one become insured he does not perceive frequent visit to the physician or the hospital as moral hazard or over consumption. This is supported by the fact that the National Health Insurance Scheme is to improve access to health care. There is therefore the need to enhance efforts to get the rest of the population to register with the scheme. However, this has two propositions. On one hand, these people might have acquired health insurance due to the poor nature of their health status and thus a clear evidence of adverse selection. On the other hand, these household heads rate of healthcare consumption increased after acquiring the insurance which could be attributed to mere moral hazards (National Development Planning Commission, 2009).

Conclusion

The chapter represented and discussed the results of the study. STATA and SPSS statistical package were used for the estimations. The results of the study assist to draw the following conclusions:

Majority of the healthcare consumers interviewed have the perception that moral hazard exist in Ghana's Health Insurance as most empirical studies conducted in other countries has proven. Ghana's National Health Insurance Scheme suffers from moral hazard.

Insured households sought for healthcare services more than their uninsured counterparts in a year. The study also revealed vast differences in health care utilization during the period when there was no insurance and the period of insurance. The insured individuals interviewed revealed a great of discrepancies in health care consumption after they were insured than before insurance. Most of the household heads utilized healthcare services more than three times within a year during the period of insurance as compared when there was no insurance. The implication of moral hazard is clearly evident looking at the high rate of health care utilization by the period when there was insurance, and also compared to period of no insurance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter seeks to present a brief summary on the content of the research on the perception of moral hazard in Ghana's National Health Insurance Scheme. Major conclusions that were derived from the empirical results will be outlined. The next section discusses policy implications and suggested areas of future research.

Summary

Health insurance has been recognised as important initiative that will ensure equitable and universal access to health care in Ghana through removing financial barriers imposed by user fees. Ever since the implementation of the National Health Insurance Scheme (NHIS) by the government of Ghana in 2003, cost of financing has been increasing from time to time, to the extent of some schemes resulting in financial distress. Though subjective reports exist that show high expenditures made on the health insurance schemes by the service provided, it is not clear if such high expenditures can be attributed to the incidence of moral hazards. The study sought to examine healthcare consumer's perception of moral hazard in Ghana's NHIS. It is envisaged that the outcome of this study will be of

great importance to the government of Ghana as it continues to implement the policy.

The study looked at health financing in Ghana from the colonial period through post independence era. The study commence with the observation that the introduction of user fees otherwise known as "cash and carry" had decreased access to health care particularly among the poor and the vulnerable. In an attempt to increase access and improve the quality of health care, the government of Ghana passed the National Health Insurance Act 650 (HI Act) in August 2003. The government regards the National Health Insurance Scheme (NHIS) as one of the instruments to reach the Millennium Development Goals. It was also observed that the availability and extensiveness of health insurance may have a profound effect on healthcare expenditure. When consumer acquires health insurance, the quantity demanded of medical care increases. At this point the consumer consumes medical care as though it were a free good because he/she faces a zero price. Generally this behaviour of consumers is based on the law of demand and supply. However, excessive consumption of this healthcare could also be attributed to moral hazard on the part of healthcare consumers.

The purpose of the study was to capture healthcare consumer's views on moral hazard in Ghana's health insurance among the people Sekondi-Takoradi Metropolitan Assembly. Other objectives were to find out if healthcare consumer's health insurance status and health status could affect his perception of moral hazard. To find out if household/demographic characteristics of both the

health care consumers could influence their perception of moral hazard and also to come out with policy implications.

However, to achieve the goals of this study, first we reviewed available literature on the topic. The reasons were mainly to arrive at suitable model and also to come out with variables that are likely to be relevant for the purpose of the study. The moral hazard model which was developed by Barigozzi (2004) was adopted for the study. Given the dichotomous nature of our dependent variables in the cases of probability of an individual perceiving moral hazard to be in existence probit regression model was specified. It worth mentioning that the study reviewed literature on the health sector in Ghana as well. A household survey was conducted within two selected communities in the Sekondi-Takoradi Metropolitan Assembly to collect the data. In all, 300 households were randomly selected and interviewed.

Through econometric analyses, it was observed that age, household that has a member below age 18 years (no household member), self assessed health status (poor), insurance status (no insurance), out-of-pocket payment, ailment type, income, sex (male) and household head is main source of economic support to the family (not the main source) do have significant effect on the healthcare consumers perception of moral hazard in Ghana's NHIS.

Conclusions

From the perspective of the objectives the following conclusions are made: In the first place, insured individuals sought for healthcare services more

than their uninsured counterparts in a year. The study revealed that there is a vast difference in the health care consumption during the period when there was no insurance and the period of insurance. The insured individuals interviewed revealed a great of discrepancies in health care consumption after they were insured than before insurance. Most of the household heads utilized healthcare services more than three times within a year during the period of insurance as compared to two times within a year during the period when there was no insurance. The implication of moral hazard is clearly evident looking at the high rate of health care consumption by the period when there was insurance, and also compared to period of no insurance.

Secondly, majority of the healthcare consumers interviewed have the perception that moral hazard exist in Ghana's Health Insurance as most empirical studies conducted in other countries has proven. Ghana's National Health Insurance Scheme suffers from moral hazard.

Lastly, the probit result on the probability of individual perceiving moral hazard being in existence in Ghana NHIS is dependent on the individual's income, age, household that has a member below age 18 years, self assessed health status, insurance status, out-of-pocket payment ailment type, sex and if household head is main source of economic support to the family, since these variables were significant in the outcome of interest.

Recommendations

On the basis of the findings of the study the following recommendations are made to the National Health Insurance Authority.

Due to the existence of moral hazard, there is the need to introduce policies like cost-sharing or co-payment to control the situation. Cost sharing or co-payments could be an incentive mechanism to steer health care demand and it is important to impose them on health care services with elastic demands.

An extensive education of the general public should be carried out, and also clients should be educated on attitudes that are detrimental to the schemes sustainability. Members should be advised on how they can contribute to the sustainability of the scheme as well.

Also, there is the need to consider the potential to use risk rated premiums in order to reduce moral hazard. Individuals with self perceived poor health status have a bigger probability of being covered by the program especially under the exemption policy. However, this fact coupled with moral hazard suggests that there are agents which imply high costs for the program and there exists an additional cost in terms of extra healthcare use.

Also, most of the people within the selected towns still remains uninsured, hence scheme managers should facilitate in marketing and publicizing the scheme within the metropolis and as well as the whole country.

Finally, there should be a critical analysis of Ghana's Health Insurance Policy as looking at the success stories especially that of advance countries, in other to put Ghana's NHIS in a very good shape for sustainability. It is envisaged

that the recommendation of this study will be of service to the government of Ghana, as it continues to implement it ambitious policy of providing universal coverage of healthcare services.

Limitations of the study

There are other factors that limit this research. The first relates to the data collection. The study encountered difficulties during interview, due to low awareness level of most individuals who do not keep record of their health status information that was needed in the study. Memory lapses and unwillingness to disclose information on some key variables such as income and age by most people were common problems encountered during the data collection. To overcome the above problem, it was expected to spend much time with the respondents in discussing the various economic factors that influence their perception of moral hazard in Ghana's NHIS in the towns visited. Another limitation has to do with the inability to conduct the heteroscedasticity test. This is due to the nature of the estimation technique (probit estimation technique) used in the study.

Resources and time constraints were the other problems encountered. Material resources and finance available for the study were inadequate. Another limiting factor for this survey was time. The study was conducted within limited academic time frame. This also did not allow us to sample a large number of individuals for the study that would permit wider generalization of findings and inferences from the sample about the population.

Areas for future study

This study suggests some areas of future research. First, in order to understand the effects of health insurance on health care in general future research should investigate the effects of health insurance on healthcare utilisation.

Additionally, it is important to investigate the perception that health care consumers have on adverse selection. The study covered two communities within the metropolis and generalization and interpretation should be done with care, hence will suggest that the NHIA conduct a nationwide study to validate the findings. Further, studies could be conducted using exit interviews at hospital facilities.

REFERENCES

Abraham, J. M., DeLeire, T., & Royalty, A. B. (2009). *Moral Hazard Matters: Measuring Relative Rates of Underinsurance using Threshold Measures.* (NBER Working Paper No. 15410). Paris: National Bureau of Economic Research.

Akpalu, W. (2008). The Economics of Rational Self-Medication. *NOTA DI LAVORO 5.*

Anaman, K. A. (2003). *Research methods in applied economics and other social sciences.* Brunei Darusalam: Brunei Press Sendirian Berhad.

Asfaw, A. (2003). *Cost of Illness, Demand for Medical Care, and the Prospect of Community Health Insurance Schemes in the Rural Areas of Ethiopia.* Frankfurt: Peter Lang Ed.

Bajari, P., Hong, H., Khwaja, A., & Marsh, C. (2006). *Moral Hazard, Adverse Selection and Health Expenditures: A Semiparametric Analysis.* (NBER Working Paper No. 12445). Paris: National Bureau of Economic Research.

Barigozzi, F. (2004). *Ex-Post Moral Hazard in Mixed Health Insurance Schemes: Efficiency and Redistribution*. (Annales d'Economie et de Statistique, ADRES). Italy : Universita' di Bologna press.

Barigozzi, F. (2004). *Supplementary Insurance with Ex-Post Moral Hazard: Efficiency and Redistribution.* (Annales d'Economie et de Statistique, ADRES, issue 83-84). Italy: Universita' di Bologna press.

Barro, R. (1996a). *Health, Human Capital and Economic Growth.* Paper for the Program on Public Policy and Health, Pan American Health Organisation and WHO. Washington: Pan American Health Organisation.

Barros, P. P., Machado, M. P., & Sanz de Galdeano, A. (2006). *Moral Hazard and the Demand for Health Services: A Matching Estimator Approach*. New Jersey: USA.

Bates, L. J., Mukherjee, K., & Santerre, R. E. (2008). Medical Insurance Coverage and Health Production Efficiency. *The Journal of Risk and Insurance,* 77(1), 211–229.

Becker, M. H. (1974). The Health Belief Model and Personal Health Behavior. *Health Education Monographs, 2,* 324–473.

Bem, D. J. (1972). Self-Perception Theory. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology,* (6). New York: Academic Press.

Bloom, D., & Canning, D. (2003). The Health and Poverty of Nations: From Theory to Practice. *Journal of Human Development*, *4*(1), 47-71.

Bradley, S. (2006). *Ibn al – Haythan: First scientist*. New Jersey: Morgan Renolds Publishing.

BonJour, L. (2001). Epistemological Problems OF Perception. In Edward Zalta (Ed.). *Encyclopedia of Phillosophy,* Stranford.

Cameron, A. C., Trivedi, P. K., Milne, F., & Piggot, J. (1988). A Microeconometric Model of the Demand For Health Care And Health Insurance in Australia. *The Review of Economic Studies*, *55*(1), 85-106.

Chiappori, P. A., & Salanie, B. (2000). Testing for Asymmetric Information in Insurance Markets. *Journal of Political Economy,* 108(1), 56-78.

Commission on Macroeconomics and Health (2001). *Macroeconomics and Health: Investing in Health for Economic Development.* Geneva: World Health Organisation.

Crane, T. (2000). The Problem of Perception. In Edward Zalta (Ed.), *Encyclopedia of Phillosophy*. Stranford.

Cutler, D. M., & Zeckhauser, R. J. (1998). Adverse Selection in Health Insurance. *Frontiers in Health Policy Research 1(2).*

NHIS Coverage Rate Exceeded Targets: CEO. (2008, May 7). *Daily Graphic* (No.16850), p. 1.

Feldman, R., & Dowd, B. (1991). A New Estimate of the Welfare Loss of Excess Health Insurance. *American Economic Review,* 81, 297-301.

Feldstein, M. S. (1973). The Welfare Loss of Excess Health Insurance. *Journal of Political Economy,* 81, 251-280.

Folland, S., Goodman, A .C., & Stano, M. (2004). *The Economics of Health and Health Care.* Upper Saddle River, New Jersey: Pearson Prentice Hall.

Gayle, G., & Miller, R. A. (2009). Has Moral Hazard Become a More Important Factor in Managerial Compensation? *American Economic Review,* 99(5), 1740–1769.

Ghana News Agency (GNA). (2006, September 25). Takoradi: SAEMA MHIS on Top Gear. Retrieved from http://www.ghananewsagency.org/.

Ghana News Agency (GNA). (2007, January 22). Don't politicize Health Issues. Retrieved from http://www.ghananewsagency.org/.

Ghana News Agency (GNA). (2007, May 31). NHIS patronage improves. Retrieved from http://www.ghananewsagency.org/ or http:// stma.ghanadistricts.gov.gh/?arrow=nws&read=5135.

Ghana News Agency (GNA). (2007, July 10). Extend coverage of NHIS. Retrieved from http://www.ghananewsagency.org/.

Ghana News Agency (GNA). (2007, July 12). SAEMA: Hospital appeals for assistance. Retrieved from http://www.ghananewsagency.org/ Or http://stma.ghanadistricts.gov.gh/?arrow=nws&read=6233.

Ghana News Agency (GNA). (2008, April 12). Doctors urged to avoid conflict of interest. Retrieved from http://www.ghananewsagency.org/.

Ghana News Agency (GNA). (2008, June 23). Sekondi - STMA: MHIS holds annual general meeting. Retrieved from http:// www. ghananewsagency.org/.

Ghana News Agency (GNA). (2009, May 21). NHIA spends 128,578,851 Ghana cedis on claims. Retrieved from http://news.myjoyonline.com/default.asp.

Ghana News Agency (GNA). (2009, June 23). Government to address policy issues of NHIS. Retrieved from http:// www.ghananewsagency. org/s_health/r_6385/.

Ghana, Western Region, Shama Ahanta East Metropolitan Assembly. Retrieved from http://www.stma.ghanadistricts.gov.gh/.

Ghana Western Region. Retrieved from http://www.modernghana.com/GhanaHome/regions/western.asp?menu_id=6&sub_menu_id=14&gender.

Ghana Statistical Service (2008). *Ghana Living Standards Survey: Report of the Fifth Round (GLSS 5)*. Accra: Ghana Statistical Service.

Glied, S. A., & Remier, D. K. (2002). What every public finance economist needs to know about health economics: Recent advances and unresolved questions. *National Tax Journal*, 55(4), 771-788.

Green, W. H. (2000). *Econometric Analysis.* Upper Sadde River, New Jersey: Prentice-Hill, Inc.

Grossman, M. (1972). On the Concept of Health Capital and the Demand for Health. *Journal of Political Economy*, 80, 223-255.

Gujarati, D. (2006). *Essentials of econometrics.* New York: McGraw Hill Inc.

Gyimah-Brempong, K., & Wilson, M. (2004). Health Human Capital and Economic Growth in Sub-Saharan Africa and OEDC Countries. *Quarterly Review of Finance and Economics,* 44, 296-320.

Holly, A., Lucien, G., Domenighetti, G., & Bisig, B. (1998). An Econometric Model of Health Care Utilization and Health Insurance in Switzerland. *European Economic Review,* 42, 513–522.

Jakab, M., & Krishnan, M. (2001). *Community involvement in health care financing: A survey of the literature on the impact, strengths and weaknesses.* (Health, Nutrition and Population Discussion Paper). Washington, DC: World Bank.

Jowett, M., Contoyannis, P., & Vinh, N. D. (2003). The Impact of Public Voluntary Health Insurance on Private Health Expenditure in Vietnam. *Social Science and Medicine*, 56, 333-342.

Kaestner, R., & Dave, D. (2006). *Health insurance and ex ante moral hazard: Evidence from Medicare.* (NBER Working Paper No. 12764). Paris: National Bureau of Economic Research.

Kaiser Family Foundation (Kaiser Health Tracking Poll). (2009). *Health Care Costs: A Primer - Key Information on Health Care Costs and their Impact.* Publication (#7670-02).

Khwaja, A. (2002). Health Insurance, Habits and Health Outcomes: Moral Hazard in a Dynamic Stochastic Model of Investment in Health. *NASM,* 2002 – 585.

Levine, D. I. (2008). *Effects of Health Insurance and Selection into Health Insurance*. Berkeley: University of California Press.

Lundin, D. (2000). Moral hazard in physician prescription behaviour. *Journal of Health Economics,* 19, 639 – 662.

Liu, T. C., Chen, C. S., & Chen, L. M. (2002). *The impact of National Health Insurance on Neonatal Care Use and Childhood Vaccination in Taiwan.* (Health Policy and Planning,- 17). Oxford: Oxford University Press.

Maddala, G. S. (1992). *Introduction to econometrics,* (2nd ed.). New York: Macmillan Publishing Company.

McDowell, J. (1996). *Mind and World*. Cambridge: MA, Harvard University Press.

McFadden, D. (1974). Conditional logit analysis of qualitative choice behaviour. In Zarembka, P., editor, *Frontiers in Econometrics*, (pp. 105-142). New York: Academic Press.

Manning, W., & Marquis, M. (1996). Health insurance: The Trade-off between Risk Pooling and Moral Hazard. *Journal of Health Economics, 15*, 609-640.

Manning, W., Newhouse, J., Duan, N., Keeler, E., Leibowitz, A., & Marquis, M. (1987). Health Insurance and the Demand for Medical Care: Evidence from a Randomised Experiment. *American Economic Review*, 77, 251–277.

Miller, L. (1994). Medical Schools Put Women in Curricula. *Wall Street Journal*, p. B1, May 24.

Mwabu, G. (2007c). The Demand for Health Care. In Heggenhougen, K. (Ed.), *Encyclopedia of Public Health.* Amsterdam: Elsevier Science, North-Holland.

Nada, P. (1999). A woman's Participation in Rural Credit Programmes in Bangladesh and their Demand for Formal Health Care: is there a Positive Impact? *Health Economics and Econometrics,* 8, 415–428.

National Development Planning Commission (2009). Report on: *The 2008 Citizens' Assessment of the National Health Insurance Scheme: Towards a Sustainable Health Care Financing Arrangement that Protects the Poor*. Accra: National Development Planning Commission.

National Development Planning Commission (2005). *Growth and Poverty Reduction Strategy (GPRS II) 2006-2009*. Accra: National Development Planning Commission.

National Health Insurance Authority (NHIA). (2008). *National Health Insurance Operational Report.* Accra: National Health Insurance Authority.

Newhouse, J. P. (1978). *The Economics of Medical Care*. Cambridge: MA: Addison-Wesley.

Newhouse, J. P. (1993). *Free for all? Lessons from the RAND Health Insurance Experiment.* Cambridge: MA, Harvard University Press.

Newhouse, J. P. (2002). *Pricing the Priceless: A Health Care Conundrum*. Cambridge: MA, MIT Press.

Nyman, J. A. (2007). American Health Policy: Cracks in the Foundation. *Journal of Health Politics, Policy and Law,* 32(5), 759-783.

Obeng, N. C. (2009). Asymmetry Information Problem of Moral Hazard and Adverse Selection in a National Health Insurance: the Case of Ghana National Health Insurance. *Management Science and Engineering ISSN* 3(3), 1913-0341.

Odwee, J. J. A. O., Okurut, F. N., & Adebua, A. (2006). *The Determinants of Health Care Demand in Uganda: The Case Study of Lira District, Northern Uganda.* (Research Paper No 155). Nairobi: African Economic Research Consortium.

Simpson, J. A., & Weiner E. S. C. (Ed.). (1991). *The Oxford English Dictionary,* (2nd ed.). Oxford: Clarendon Press.

Pauly, M. V. (1968). The Economics of Moral Hazard: Comment. *American Economic Review,* 58(3), 531-537.

Pauly, M. V. (2007). *The Truth about Moral Hazard and Adverse Selection*. Syracuse University.

Phelps, C. E. (2002). *Health Economics*. Boston: Addison Wesley.

Pindyck, R. S., & Rurinfeld, D. L. (1981). *Econometric Models and Economic Forecast*. New York: McGraw-Hill.

Poterba, J., & Finkelstein, A. (2006). *Testing for Adverse Selection with unused Observables.* (NBER Working Papers No. 12112). Paris: National Bureau of Economic Research.

Rothschild, M., & Stiglitz, J. E. (1976). Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information. *Quarterly Journal of Economics,* 90, 630-649.

Trujillo, A. J., Portillo, J. E., & Vernon, J. A. (2005). The Impact of Subsidized Health Insurance for the Poor: Evaluating the Colombian Experience Using Propensity Score Matching. *Int J Health Care Finance Econ.,* 5(3), 211-39.

Schultz, T. P. (1999). Health and Schooling Investments in Africa. *Journal of Economic Perspectives,* 13(3), 67-88.

Sepehri, A., Simpson, W., & Sarma, S. (2006). The Influence of Health Insurance on Hospital Admission and Length of Stay--The Case of Vietnam. *Social Science Medicine,* 63(7), 1757-70.

Singleton, R. A., Straits, B. C., & Straits, M. M. (1993). *Approaches to social research*, (2nd ed.). Oxford: Oxford University Press.

Skinner, B. F. (1953). *Science and Human Behaviour*. New York: Macmillan.

STATA (2000). A Guide to using Stata, Indiana University: Scott Long.

Sulzbach, S., Garshong, B., & Banahene, G. (2005). *Evaluating the Effects of the National Health Insurance Act in Ghana: Baseline Report.* Bethesda, MD: The Partners for Health Reform*plus* Project, Abt Associates Inc.

Swank, O. H. (2006). *The Self-Perception Theory vs. a Dynamic Learning Model.* (Tinbergen Institute Discussion Papers 06-092/1). Tinbergen Institute.

U.S. Census Bureau (*2002). Health Insurance Coverage in the United State.* Available from http://www.census.gov/prod/2003pubs/p60-223.pdf; Internet, accessed January 25, 2008.

Vera-Hernandez, A. M. (1999). Duplicate Coverage and Demand for Health Care-The Care of Catalonia. *Health Economics,* 8*,* 341-350.

Van Damme, W., & Leemput, L. V. (2004). Out-of-pocket Health Expenditure and Debt in Poor Households: Evidence from Cambodia. *Tropical Medicine and International Health,* 9(2), 273-280.

Van den Berg, B., & Hassink, W. H. J. (2005). *Moral Hazard and Cash Benefits in Long-Term Home Care.* (IZA Discussion Paper Series No. 1532).

Western Region: Ghana Health Service. Retrieved from http://www. ghanahealthservice.org/region.php?dd=8&region=Western%20Region

Wilde, J. (2000). Identification of multiple equation: Probit Models with Endogenous Dummy Repressors. *Economics Letters,* 69(3), 309.312.

World Health Organisation (2000). *The World Health Report 2000: Health Systems: Improving Performance.* Geneva: World Health Organisation.

Yip, W., & Berman, P. (2001). Targeted Health Insurance in a Low Income Country and its Impact on Access and Equity in Access: Egypt's School Health Insurance. *Health Economics,* 10*,* 207 – 220.

Zweifel, P., & Breyer, F. (1997). *Health economics.* Oxford: Oxford University Press.

APPENDICES

APPENDIX A

ROBUST PROBIT RESULTS (INDIVIDUAL'S PERCEPTION OF MORAL HAZARD)

VARIABLES	COEFFICIENTS	Z	P>lZl
Occupation	.2941489	1.23	0.220
HHsize	-.1112385	-1.36	0.172
Hhmem.<18	.8707634	2.97	0.003
Hhmem.>65	-.4980706	-1.11	0.268
Support to Hh	-.4106589	-1.91	0.056
Age	-.0216606	-2.61	0.009
Sex	-.3770677	-1.87	0.061
Education	.1177203	1.40	0.162
Marital status	-.1219266	-0.63	0.531
Health status	.5213006	4.61	0.000
Insurance status	-.8774686	-2.01	0.044
Ailment type	.2096905	3.32	0.001
Log of income	.3635559	2.08	0.038
Distance to facility	-.115553	-0.88	0.377
Out-of-pocket payment	.0825611	2.79	0.005
_cons	-2.979516	-2.34	0.019
Number of obs =	300		
Wald chi2(15) =	83.40		
Prob > chi2 =	0.0000		
Pseudo R2 =	0.3657		
Log pseudolikelihood = -129.03431			

Source: Author's Field Results Using STATA (11)

APPENDIX B

MARGINAL EFFECTS (INDIVIDUAL'S PERCEPTION OF MORAL HAZARD)

VARIABLES	$\partial y/\partial x$	Z	P>lZl
Hhmem.<18*	.3366165	3.14	0.002
Support to Hh*	-.1586267	-1.90	0.058
Age	-.0082151	-2.61	0.009
Sex*	-.1450316	-1.85	0.064
Health status	.1977096	4.66	0.000
Insurance status*	-.27943	-2.69	0.007
Ailment type	.0795277	3.27	0.001
Income	.137883	2.08	0.038
Out-of-pocket payment	.0313123	2.84	0.004

y = Pr(perception of moral hazard) (predict) = .62478984

Source: Author's Field Results Using STATA (11)

(*) dy/dx is for discrete change of dummy variable from 0 to 1

APPENDIX C

INTERVIEW SCHEDULE FOR HOUSEHOLDS

Good morning/afternoon/evening. I am a student of the Department of Economics, University of Cape Coast. I am conducting this research in partial fulfilment of the requirement for the award of a Master of Philosophy Degree in Economics. You are assured of confidentiality. I assure you that the responses you give will be treated with strict confidentiality. All information provided in this interview schedule will be added to those of other respondents for a general analysis so there will be no way of figuring out your specific response after the analysis is done. I would be grateful if you would agree to answer the Questions below. **If you don't understand any of the questions, please tell me and I will explain.**

Section A- Household's Socio-economic Attributes

Q.1 What is the main type of economic activity of the household's head?

0. Formal activity (salary work)
1. Informal activity (non-salary work)

Q.2. What is the main material used for the wall of your house?

1. Mud
2. wood
3. Burnt bricks
4. Cement
5. Other (specify)

Q.3. What is the main material used for the roof of your house?

1. Mud
2. wood
3. Zinc
4. Cement
5. Other (specify)

Q.4. What is the main material used for the floor of your house?

1. Mud
2. wood
3. Cement
4. Tiles
5. Other (specify)

Q.5. Who owns this house?

1. household
2. A relative (household pays no rent)
3. Rented by household

Q. 6. Does any member of your household have ……?

1. Bicycle
2. Motorcycle
3. Car
4. All of the above

Q.7. What is the average income of the household's head per month? Please state

Q.8. What is the size of the household? Please sate

Q.9. How many are below the ages of 18years? Please state

Q.10. How many are above the ages of 65years? Please state

Q.11. Is the household head the main source of economic support to this household?

0. No
1. Yes →**go to Q13**

Q.12. Who are the other members supporting this household economically?

1. Spouse
2. Children
3. External source (outside household)

Section B- Household's demographic characteristics

Q.13.Please complete the following tables;

Table 1: Adults (persons 18 years and above)

Question	Household's head	Adult 1
1.Age(in completed years)	Please state	Please state
2.Sex	0=male 1=female	0=male 1=female
3.Level of schooling	0=No schooling 1=Primary 2=JSS/JHS/Middle school 3=Sec/SHS/SSS/Tec/ Voc 4=Post sec/A level	0=No schooling 1=Primary 2=JSS/JHS/Middle school 3=Sec/SHS/SSS/Tec/ Voc 4=Post sec/A level
4.Marital status	0=not married 1=married	0=not married 1=married

Question	Household's head	Adult 1
5.Religious affiliation	1=orthodox Christianity 2=Pentecostal Christianity 3= Jehovah Witness 4=Islam 5=Traditionalist 6= Syncretic 7= other (specify)	1=orthodox Christianity 2=Pentecostal Christianity 3= Jehovah Witness 4=Islam 5=Traditionalist 6= Syncretic 7= other (specify)
6. How often does [person] complain of illness?	1= not often 2= often 3= very often	1= not often 2= often 3= very often
7.How would you rate [person] health status	0=poor 1=fair 2=good 3=very good 4=Excellent	0=poor 1=fair 2=good 3=very good 4=Excellent
8.When was the last time that [person] fell ill?	Please state	Please state
9.Did person attend hospital	0=no 1=yes	0=no 1=yes
10.What type of sickness did you report on?	Please state	Please state
11.What other type of sicknesses do [person] normally report on?	Please state	Please state
11b. Is the sickness severe?	0=no 1=yes	0=no 1=yes
12.Has person registered with the NHIS	0= no→**go to 16** 1= yes→**go to 13**	0= no→**go to 16** 1= yes→**go to 13**

Question	Household's head	Adult 1
13.If Yes, will you renew your insurance when it expires?	0=no→**go to 14** 1=yes→**go to 15**	0=no→**go to 14** 1=yes→**go to 15**
14.If No, why?		
15.If Yes, why?		
16.If No, will you want to register later?	0=no 1=yes	0=no 1=yes
17.On the average how many times did [person] visit the hospital in a year, within the period when there was no insurance?	Please state	Please state
18.On the average how many times do [person] visit the hospital in a year, within the period of health insurance?	Please state	Please state
19.Which of the following did person sought for treatment?	1=regional hospital (Effia-Nkwanta) 2=poly clinic (Essikado etc) 3=clinics (Takoradi Hosp ital) 4=health centres (Kojokrom,	1=regional hospital (Effia-Nkwanta) 2=poly clinic (Essikado etc) 3=clinics (Takoradi Hospital) 4=health centres (Kojokrom,

Question	Household's head	Adult 1
20.Why did person first go there?	1=doctor referred the person there 2=nearness 3=household visit there any time a member is ill	1=doctor referred the person there 2=nearness 3=household visit there any time a member is ill
21.Who provided treatment in facility	1=medical doctor 2=medical assistant 3=midwife 4=nurse	1=medical doctor 2=medical assistant 3=midwife 4=nurse
22.How long did it take (in minutes) to get to facility?	1=less than 30 2=between 30-60 3=more than 60	1=less than 30 min. 2=between 30-60 min. 3=more than 60 min.
23.What means of transport did you use?	1=bicycle 2=motorcycle 3=car (taxi, etc? 4=by foot	1=bicycle 2=motorcycle 3=car 4=by foot
24.How much does it cost to get to the facility?	Please state	Please state
25.Was the facility visited the nearest?	0=no 1=yes	0=no 1=yes
26.Did [person] pay cash for treatment?	0=no→**go to 28** 1=yes→**go to 27**	0=no→**go to 28** 1=yes→**go to 27**
27.If Yes, How much was paid for the treatment?	Please state &→**go to 29**	Please state &→**go to 29**
28.If No, which mode of payment was used?	1= NHIS card bearer 2= Company refund 3=other (please state)	1= NHIS card bearer 2= Company refund 3=other (please state)
29.What do you think about the payment?	1=it was cheap 2=it was moderate 3=it was expensive	1=it was cheap 2=it was moderate 3=it was expensive

Question	Household's head	Adult 1
30.How long did the [person] took to complete treatment at facility?	Please state	Please state
31.Did [person] go back to same facility the second time?	0=no→**go to 32** 1=yes	0=no→**go to 32** 1=yes
32.If No, which facility did [person] visit the second	Please state	Please state
33.Those insured go to the hospital more frequently than uninsured?	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree
34.Do you think health insurance is being over used or consumed by the insured?	0=no 1=yes	0=no 1=yes
35.People engage in risky life behaviours because of health insurance, (e.g. drive recklessly etc)	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree
36.People do not engage in health promoting activities anymore because of insurance, (e.g. health walk, exercise, etc)	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree
37.Because of the health insurance, doctors have	1=Strongly Agree 2=Agree	1=Strongly Agree 2=Agree

Question	Household's head	Adult 1
more time for patients now than the period when there was no health insurance?	3=neutral 4=disagree 5=strongly disagree	3=neutral 4=disagree 5=strongly disagree
38.Do you think people now have been going to the lab, dentist, x-ray, infusion etc (the use of specialist hospital services) than before when there was no insurance?	0=no 1=yes	0=no 1=yes
39.Do you think because of the health insurance, doctors give more prescription to patients?	0=no 1=yes	0=no 1=yes
40.All the prescription given to [person] are covered by health insurance?	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree
41. People do go for some of the prescription drugs from the pharmacy shops outside the hospital?	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree
42.How do you pay for these prescription purchased outside the hospital?	0=covered by insurance 1=out-of-pocket	0=covered by insurance 1=out-of-pocket
43.If paid out of pocket		

Question	Household's head	Adult 1
how much on the average did you pay?		
44.Do you think same drug on the prescription are given by the pharmacist?	0=no 1=yes	0=no 1=yes
45.If No, are alternatives given?	0=no 1=yes	0=no 1=yes
46.Do you think doctors are over prescribing medication?	0=no 1=yes	0=no 1=yes
47.If Yes, why?	Please state	Please state
48.How many times have you been to the following: Detained at the facility Dentist Laboratory	Please state	Please state
49.Do you think doctors are abusing the insurance?	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree
50.Do you think moral hazard exist in NHIS e.g people are attending the hospital unnecessarily or	0=no 1=yes	0=no 1=yes
51.If Yes, why do you say so?		

APPENDIX D

INTERVIEW SCHEDULE FOR NATIONAL HEALTH INSURANCE OFFICIALS

Good morning/afternoon/evening. I am a student of the Department of Economics, University of Cape Coast. I am conducting this research in partial fulfilment of the requirement for the award of a Master of Philosophy Degree in Economics. You are assured of confidentiality. I assure you that the responses you give will be treated with strict confidentiality. All information provided in this interview schedule will be added to those of other respondents for a general analysis so there will be no way of figuring out your specific response after the analysis is done. I would be grateful if you would agree to answer the Questions below.

If you don't understand any of the questions, please tell me and I will explain.

Question	Answers
1. What is your position in the institution?	Please state
2. Age (in completed years)	Please state
3. Sex	1=male 2=female

<table>
<tr><td>Question</td><td>Answers</td></tr>
<tr><td>4. Level of schooling</td><td>0=No schooling
1=Primary
2=JSS/JHS/Middle school
3=Sec/SHS/SSS/Tec/
Voc
4=Post sec/A level
5=University/</td></tr>
<tr><td>5. Marital status</td><td>1=never married/not in union
2=in union
3=married
4=separated
5=divorced
6=widowed</td></tr>
<tr><td>6. Religious affiliation</td><td>1=orthodox Christianity
2=Pentecostal Christianity
3= Jehovah Witness
4=Islam
5=Traditionalist
6= Syncretic
7= other (specify)</td></tr>
<tr><td>7. How would you rate in general the community’s health status?</td><td>0=poor
1=fair
2=good
3=very good
4=Excellent</td></tr>
<tr><td>8. How many of the following facilities are in the community?</td><td><table><tr><td>Clinics</td><td></td></tr><tr><td>Hospital</td><td></td></tr><tr><td>Health care centres</td><td></td></tr><tr><td>Chemist</td><td></td></tr></table></td></tr>
</table>

Question	Answers
	Drug stores Herbal centres others
9. What type of sickness do members of the metropolis normally complain of?	Please state
10. How many members have registered for NHIS	Please state
11. Out of the total registered member, how many are females and how many are males?	Please state Females Males
12. How many are not or yet to be covered?	Please state
13. On the average how many times were members visiting the hospital in a year, within the period when there was no insurance?	Please state
14. On the average how many times do	Please state

<table>
<tr><td>Question</td><td colspan="6">Answers</td></tr>
<tr><td>members visit the hospital in a year, within the period of health insurance?</td><td colspan="6"></td></tr>
<tr><td>15. How much is paid to the facilities per visit?</td><td colspan="6">Please state</td></tr>
<tr><td></td><td></td><td>Private hospital</td><td>Private clinics</td><td>Public hospital</td><td>Public clinics</td><td>Health centre</td></tr>
<tr><td></td><td>Adults</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>children</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>16. Those insured go to the hospital more frequently than uninsured?</td><td colspan="6">1=Strongly Agree
2=Agree
3=neutral
4=disagree
5=strongly disagree</td></tr>
<tr><td>17. Health insurance is being over used or consumed by the insured?</td><td colspan="6">1=Strongly Agree
2=Agree
3=neutral
4=disagree
5=strongly disagree</td></tr>
<tr><td>18. People engage in risky life behaviours because of health insurance, (e.g. drive recklessly etc)</td><td colspan="6">1=Strongly Agree
2=Agree
3=neutral
4=disagree
5=strongly disagree</td></tr>
<tr><td>19. People do not</td><td colspan="6">1=Strongly Agree</td></tr>
</table>

Question	Answers
engage in health promoting activities anymore because of insurance, (e.g. health walk, exercise, etc)	2=Agree 3=neutral 4=disagree 5=strongly disagree
20. Because of the health insurance, doctors do not spend more time on patients now than the period when there was no health insurance?	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree
21. Do you think people now have been going to the lab, dentist, x-ray, infusion etc (the use of specialist hospital services) than before when there was no insurance?	0=no 1=yes
22. Do you think because of the health insurance, doctors give more prescription to patients?	0=no 1=yes

Question	Answers
23. Are all the prescriptions given to [person] covered by health insurance?	0=no 1=yes
24. People do go for some of the prescription drugs from the pharmacy shops outside the hospital?	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree
25. Do insured members pay extra cash for treatment?	0=no→**go to 28** 1=yes→**go to 27**
26. How do you pay for these prescription purchased outside the hospital?	0=covered by insurance 1=out-of-pocket 2=both
27. How much do members pay on the average out of pocket for treatment cost?	
28. Do you think same drug on the prescription are given by the pharmacist?	0=no 1=yes
29. If No, are alternatives given?	0=no 1=yes

Question	Answers
30. Do you think doctors are over prescribing medication?	0=no 1=yes
31. If Yes, why?	Please state
32. If No, why?	Please state
33. Do you think doctors are abusing the insurance?	1=Strongly Agree 2=Agree 3=neutral 4=disagree 5=strongly disagree
34. Do you think on the part of health consumers, moral hazard exist in NHIS e.g people are	0=no 1=yes
35. If Yes, why do you say so?	
36. What can be done to curb this moral hazard?	