UNIVERSITY OF NAIROBI

SCHOOL OF MATHEMATICS

THE RENEWAL OF MEDICAL INSURANCE UNDER LIMITED CREDIBILITY AMONG NON SALARIED INDIVIDUALS IN KENYA

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Declaration

I, the undersigned, declare that this project and everything presented in the study is my own original work unless explicitly stated, and that to the best of my knowledge it has not been presented for the award of a degree of any other university.

…… ……..

PATRICK MAINA MWANGI **DATE**

Reg. No. I56/68565/2013

This project has been submitted for examination with my approval as University Supervisor.

…… ……

DR. PHILIP NGARE DATE

Dedication

This research project is dedicated to my dear wife and son and parents, friends and the entire community of University of Nairobi for all the support they gave me towards its successful accomplishment.

Acknowledgement

I take this opportunity to extend my special gratitude to my supervisor Dr. Philip Odhiambo Ngare for sacrificing his effort, time and guidance in the report writing the enriching comments she made towards the success of this process. I sincerely appreciate his invaluable guidance and continuous comments, corrections, ideas and suggestions that made this document a success. I take this opportunity to express my gratitude and heartfelt thanks to the entire staff and management of UON, school of mathematics. Last but not least I am grateful to God for making me whom I am.

Abstract

There is need to have a healthy nation which can be achieved by accessing quality medical care which is dear to attain. In order to increase the chances of achieving the quality medical care both salaried and non-salaried should be sensitised on the need to take up the policy. Through, the foregoing the study sought to investigate risk preferences, risk attitudes and demand of medical insurance among non-salaried individuals in Kenya. Specifically we sought to find out the determinants of medical insurance cover among non-salaried individuals and to determine the chances of renewing medical insurance cover among non-salaried individuals in Kenya. To achieve our objectives, we adopted Holt and Laury method to measure risk preferences and probit regression analysis to determine the renewal of medical insurance under limited credibility. Secondary data was collected from Mountain View Welfare Association group members who had taken up medical insurance cover. Results of the study showed an inverse significant relationship between renewal premium increased by twenty percent and renewal of medical insurance cover, an increase of renewal premium by ten percent had a positive significant influence on renewal of medical cover. In addition, there was a positive significant relationship between peer influence and renewal of medical insurance. There was a negative significant relationship between low credibility and renewal of medical insurance policy while relative risk had a positive significant relationship. Insurance should develop products customised to fit the unique needs of non-salaried individuals as such to increase the chances of more members taking up the insurance policy. There is need to market and penetrate insurance services through peer influence as well as on study circles. Since majority of the non-salaried individuals renewing the cover were male, household heads below 64 years measures such as product differentiation should be taken as such to increase insurance penetration within individuals with such demographic characteristics. To increase credibility among the group member's insurance companies should share the success stories after indemnification among the insured members.

Key words: Risk preference, Risk attitude, Risk Aversion, Limited Credibility

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CHAPTER ONE INTRODUCTION

1.1 Background to the Study

There are different means of financing health insurance in Kenya; out of pocket, public/sate insurance policy through national hospital insurance fund (NHIF) and through private health insurance which can be private sponsored policy or paid by the employer. Despite of all the available alternative of taking medical insurance cover many are covered only by NHIF while majority of the employed people mostly have a medical coverage inform of employment benefits. Although, majority of the Kenyans are exposed to medical risk few have adopted private medical policy owing to some factors which include; level of income, poverty education status, level of trust that they will be compensated once faced by the insured risk.

In developed countries the health insurance provision have evolved from social insurance which later became national insurance. In some countries such as Germany it was compulsory for all to take up a sickness policy among all workers, similar strategy was adopted in Britain, Hungary and Austria. Later some countries such as France introduced subsidised health insurance amongst all workers. In USA initially there was no uniformly agreed health insurance policy but individual policy either had customised sickness policy or subsidised contribution policy. Later they introduced health insurance amongst all workers as such to minimize the chances of absenteeism and loss of wages due to health related complications, this health policy evolved to be a national health insurance policy.

Kenyans recently ushered in a new regime. As has been the norm in the past each leader sets in with much energy and pledges galore that leaves the citizen’s breath abated. The current leadership is built on a pillar in which among other things is the provision of access to medical services for all regardless of social statures. In a country where access to equitable

and sustainable medical services is still so much an uphill task, a lot more needs to be done by the infant government if this is to be achieved. Statistics show that many are still grappling with access to basic medical services.

Workable solutions then must be metered by all the stakeholders. Suggestions have been brought forth. Among them, provision of cheap and affordable medical insurance has been singled out as a viable remedy. In a country where 1 in every 10 persons has access to health insurance, the current scenario is quite telling. It is crystal clear that however much the government tries; the issue of funding access to health care definitely remains a challenge. Private players hence are required to step into the league. Insurance companies are thus called into action.

Notably though, the industry is crippled with various setbacks major one being insurance services are not yet fully embraced in the country. How best then can the privately owned insurance companies aid in access to health care services by the low income populace who are the majority in the country? How can the industry players make the low cadre persons consider the importance of medical covers just the way they strain to bring food to the table? Penetration into this market niche has led to insurance companies coming up with rather ingenious ways in order to sell medical insurance just like other general micro insurance products. Just like the emergence of financial services to the SME and those that target low income earners, micro health insurance should be reverberating here.

With sky-rocketing cost of medical costs, medical underwriters have come up with ways of catering for the medical costs for the target market. One way of doing so is bringing in the aspect of chama like groupings. This will enable the insured persons to pool their meager resources to cover one another. A group of say, 50 persons takes up the cover as one entity.

The medical cover is designed to cover all the family members of each of the family entity included in the group. Members are required to contribute a considerably little amount per year for their cover. They may however be required to pay an extra amount for pre-existing or recurring chronic conditions. The medical institutions to provide the services are widely spread and can be accessed with ease by the persons under the scheme. Insurance providers usually notify the clients of the selected hospitals.

This kind of arrangement however isn't devoid of downside. The skepticism and lack of insurance education is on the peak among the low income earners. At times persons too who aren't members of particular organized groups but would be interested in getting the cover. the service providers have tried solve this by targeting already existing groups such as the ones that are formed to benefit from financial grants by either governmental or non-governmental institutions on financial lending institutions.

The successes of such medical plans are what interest the industry policy makers as future more workable solutions need to be provided in this dynamic world.

Provision of medical cover scheme should not be a preserve of the rich. This is majorly because unexpected medical costs only serve to inflict more misery to the already suffering society lot. Medical expenses are high while at the same time most medical schemes are quite high. Every medical underwriting company should engage in continued improvement of schemes for the low income earners as this the market that remains unexploited to exhaustion.

According to Bakar *et al*, (2012) in Malaysia social demographic characteristics such as gender, age, religion, highest level of education and risk attitude influenced purchase of medical insurance cover among salaried employees while non-salaried people's decision to take health policy was influenced by race, religion, highest level of education, marital status, past out of pocket health expenditure. Moreover, the findings depicted a significant likelihood of health cover purchase among the salaried employees.

Kansra and Pathania (2012) investigated the factors affecting health insurance demand in India, the study showed that although majority were aware of health insurance products they had not taken the policy owing to bureaucratic procedure prior to taking the policy, principal agent conflicts, the expected policy coverage and negative feedback from health insurance providers.

Zeitlin, Gurning and Dercon (2011) showed that micro insurance products demand in Kenya have an inverse relationship with risk aversion and a positive relation with level of trust among the seekers of insurance services. Moreover, the study showed that the level of trust increased with increase in level of premium certainty. According to the study the level of insurance demand can increase by increasing insurance seekers confidence. It is against this backdrop that the study seeks to investigate the demand for medical insurance among non-salaried Kenyan's in limited credibility.

1.2 Problem Statement

Kenya is experiencing an increase in demand for medical care which is triggered by different chronic diseases such as cancer, kidney transplant which are attributed to life style and poor nutritional habits or diets. As more and more people are diagnosed with cases of these chronic conditions, there is need for alternative medical care financing alternatives rather

than relying on traditional modes of financing such as harambees, bank loans and out of pockets financing as well as family members own contributions. The chronic diseases demands for long term care and major/minor or day care surgeries which can be expensive for an average citizen thus there is need for medical insurance so as to mitigate against this risk. Although, majority are exposed to this risk the insured population with private medical covers is mostly limited to salaried employees while the big percentage of population mostly contributes the minimum contribution for NHIF. Both in patient and out patients services covered by the medical cover cannot be predicted with certainty thus the need to buy a medical insurance cover but its uptake is hindered by several factors which deters the non - salaried from buying the cover therefore the current study seeks to investigate the uptake of health insurance under limited trust through the application of probit modelling to determine the chances of renewing medical health insurance among non-salaried individuals who are members of MOWE.

1.3 Objectives of the Study

The main objective of the study is to investigate the demand of medical insurance through limited credibility. To achieve this, the study will be guided by:

i. To establish the determinants of renewal medical insurance cover among non-salaried individuals

ii. To determine the chances of renewing medical insurance cover among non-salaried individuals using probit regression analysis.

1.4 Research Questions

i. What are the main determinants of renewal of health insurance policy among non-salaried Kenyan?

ii. What are the chances of non-salaried individuals renewing medical insurance cover?

1.5 Justification of the Study

Probit regression analysis is important in determining the marginal coefficients of Kenyan demand for renewal of medical insurance policy among non-salaried individuals in Kenya. The choice is guided by the fact that Kenyan has to choose either renewal the medical policy or ignore it. Similar, approaches have been applied in developed as well as in Asian countries to determine the chances of taking medical, life or agricultural related insurance.

CHAPTER TWO REVIEW OF LITERATURE

2.1 Demands for Medical Insurance

Gius (2010) argued that health insurance coverage among the young people in America is mostly influenced by socio-demographic characteristics (for example age, gender, health status, religion, and locality, level of education, race, income and price of related commodities). Moreover, though the premium cost had a significant influence on health policy coverage individual belief that there were healthy hindered them from taking the health since they had low chance of benefiting from the policy.

Past studies such as (Chankov *et al*, 2008; Ito and Kono, 2010) showed that there is a positive significant relationship between health insurance demand and age. Schneider and Diop (2001) showed a positive relation between gender, number of dependants in a household and the uptake of health insurance policy. According to Chankov *et al*, (2008) there is a positive significant relationship between both occupation and wealth status of an individual and purchase of a health insurance cover. Schneider and Diop (2001) argued that a health policy seeker understanding influences purchase of medical cover positively.

According to Gin *et al*,(2007) there is a positive significant relationship between trust as measured by other household known to have purchased the policy, previous group membership in which some members have taken the insurance policy, credibility of the claim payment as well as individual insurance seekers perception) and purchase of agricultural micro insurance.

Ito and Kono (2010) showed a positive significant between purchase of health insurance and previous experience as measured by death experience, illness experience in the family as well as the health status of an individual and family member.

Huber (2012) applied probit analysis to determine micro insurance determinants in Indonesia; the study findings showed an inverse relationship with life cycle, positive significant relationship with occupation status, an inverse relationship in a household with multiple earner status, asset endowment and purchase of micro insurance. Moreover, the findings showed positive insignificant relationship between product level of literacy as well as product knowledge with demand for micro insurance. The level of trust as measured by trust degree, participation in non-formal group as well as membership of microfinance had positive but insignificant relationship with demand for micro insurance while both brand recognition and client experience had a positive significant relationship with demand for micro insurance.

Bendig and Arun (2011) investigated the enrolment of micro life and health insurance in Sri Lanka through the use of probit regression analysis. The study findings showed that there was a negative relationship between enrolment in micro insurance and house hold size, lack of primary education, employment status of the house hold, past illness experience. In contrast there was a positive significant relationship between micro insurance enrolments and household asset base, female headed household as well as chances of premium remittance. Further, the study showed a positive relationship between participation in health micro insurance and female member heading a household, size of the household, being married, asset endowment, and risk attitude, household past experience based on death, past illness, level of risk exposure. In contrast there was a negative significant relationship between purchase of health micro insurance and ratio of sick household members, age, household employment status and premium remittance status.

2.2 Risk Preference

Individual's decision making can be influenced by the level of risk preference. In the current study risk preference among non-salaried individuals was paramount. There are different

methods which have been elicited to measure individuals risk preference. Lejuez *et al*, (2002) developed a method known as the balloon Analogue risk task (BART) where subjects pump air into a balloon and for each successive pump, certain amount of money is deposited in a temporary reserve, the total earning depend on the size of the balloon, however if the balloon explodes, then the individual loses all the accumulated money in the reserve, thus non-salaried risk preferences can be categorised into homogeneous group depending on the extent of air pumped into the balloon. Visschers *et al*, (2005) and Andreoni and Harbaugh (2010) categorised the individuals using probability pie chart and their outcomes were visualised from which a trade-off was devised depending on individuals probability choice from which they were categorised into homogeneous categories. A study by Crossetto and Fillipin (2013) applied a bomb elicitation task technique from which individuals made a trade-off choice between explosion chances and the anticipated earnings. In contrast a study by Johannes and Maximilian (2010), although they classified individuals depending on their risk preferences in absence of expected utility framework the approach had the best relative risk estimates.

CHAPTER THREE METHODOLOGY

In this chapter we discuss the methodology applied to answer the research as well as the data variables to be used in the study.

3.1 Model and Choice of Variables

The choice to take an insurance medical policy was based on both conventional expected utility theory and expected utility framework

a) Conventional Expected Utility Theory

According to Nyman (2001) conventional utility theory assumes that non-salaried individual, with utility U is a conditioned by his or her wealth W. In medical insurance set the conditional probability of spending amount C on medical care is given by p given that he falls sick. Similarly, the non-salaried individual can incur medical insurance premium priced at θ where θ = pc (expected loss principle), and if sick the policy will indemnify, C. Assuming the payment I is equal to actual loss without insurance (hence C= I). Then the expected utility without medical insurance cover will be;

$$E(W) = (1-p)u(w) + pu(w-c) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad 3.1$$

The non- salaried individual is risk averse so the expected utility U is strictly concave

When the non-salaried individual takes insurance, ideally the insurance should be able to meet medical expenses arising from both inpatient and outpatient, if illness or accidents occur, the insurer should pay full compensation with probability q and otherwise defaults or pays nothing, with insurance the expected utility now becomes where

$$\tilde{W} = (1-p)u(w-\theta) + p\left[q\,u(W-\theta) + (1-q)u(w-\theta-c)\right]$$
$$= (1-\tilde{p})u(w-\theta) + \tilde{p}\,u(w-\theta-c) \ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.2$$

Where $\tilde{p} = p(1-q)$. the probabilities in the above equations satisfies

<p<1, 0<q≤1

If the marginal utility of income is diminishing the non-salaried individuals would be better off to renewal medical insurance policy and consequently incur premium θ than incurring the risk of loss C. Therefore, the expected utility maximising non-salaried individual would renewal medical insurance policy if $\tilde{W}$ > W.

The probability q is a measure of the insurer's credibility. Under full credibility (q=1) and actuarially fair insurance ($(\theta = pc)$ the probability $\tilde{p}$ equals 0 and

$$\tilde{W} = u(w-\theta) = u(w-pc) > (1-p)u(w) + pu(w-c) = W \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.3$$

By Jensen's inequality and the concavity of the utility functions. This is of course the standard result that under full credibility a risk averse agent will prefer to renewal medical insurance, generally medical insurance raises the outcome in the bad case (from *w-c* to *w-pc)* and in the reduces the good case from (*w* to *w-pc).* Since the premiums are actuarially fair this amounts to the opposite of the mean preserving spread and therefore attractive to a risk averse agent.

** Preliminary:*

Jensen's inequality: If U (a) is a convex (linear, concave) function of the random variable "a", then

U [E (a)] □ (=, □) E U (a).

If U (a) is a concave (convex) function, then, for any α, $0 < \alpha < 1$, and any two points a_1 and a_2,

$U(\alpha a_1 + (1-\alpha) a_2)$ □ (□) $[\alpha U(a_1) + (1-\alpha) U(a_2)]$.

Under differentiability, U(a) is . Concave iff $\partial^2 U/\partial a^2$ □ 0, ∀a

. Convex iff □^{2}U/□a^2 □ 0, a.

The non-salaried individual have two mutually exclusive choices to make either to purchase the medical cover and incur the illness expenses of pL, or incur the medical insurance premium of M=pL. Since the premium is fairly priced using actuarial valuation, the non-salaried individual has certain loss of utility with insurance, U0 - U1, is smaller than the expected loss of utility without insurance, U0 - U2. From the proceeding discussion, there are certain associated benefits and higher expected utility among non-salaried individuals who have taken a medical insurance policy thus the higher the demand of medical insurance policies.

b) Expected Utility under Limited Credibility

In this section we will consider non-salaried who has taken medical insurance cover but there is a subjective probability that the individual will indemnified in the event of illness occurring. If illness occurs the insurer may pay full compensation or default (assume this is at the discretion of the insurer), the non – salaried individual perceives the probability of compensation to be $q \in (0,1]$; credibility problem. Equation 1.3 changes to;

EUi = (1-p) U (Y-M) + p [qU(Y-M) + (1-q) U (Y-C+I-M)]…….3.4

Under full credibility (q=1), actuarially fair price (M=pC) and the concave utility EUi > EUu. Substituting q in the above equation, this lead to equation 3.3

Under limited credibility (q<1) changes the attractiveness of medical insurance cover. Medical insurance cover now reduces the loss probability to λ, this will result to bad outcome being worse: (Y-M-C) instead of Y-C. Therefore, a very risk averse non-salaried individual may take up a medical insurance policy ignored by a less risk averse non-salaried individual.

The model is similar to Dercon, Gunning & Zeitlin (2011), there is no difference from their model since the medical insurance company will either indemnify full or not with no possibilities of partial medical insurance cover. In this case limited credibility influence the uptake of medical insurance cover among the non-salaried individuals. The non-salaried individual will only be compensated if there is illness and in absence of illness no compensation. Medical insurance cover will be taken if q > q* where q* solves the EUi = EUu. Therefore, from 3.1 and 3.2 that

$$q^* = 1 - \frac{U(Y-M) - [(1-p)U(Y) + p\,U(Y-C+I-M)}{P[U(Y-M) - U(Y-M-C)}$$

q* shows the degree of relative risk aversion denoted by R. The study assumes that non-salaried individuals are heterogeneous in terms of their perceptions of the probability of default; q is a subjective probability. Therefore, a non-salaried are characterised by (q, R), which defines the level of relative risk and an individual will take the cover if the q* lies above non-salaried individual level of relative risk.

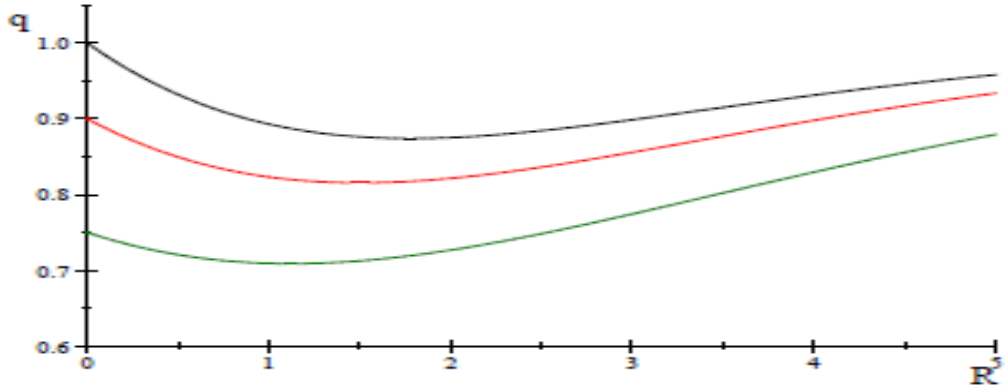

Figure 3.1 Relative Risk Aversion

In this section the study adopted proposition 1 and 2 as used in Stefan, Jan & Andrew (2011) and customised them to fit the current study on the determinants of the chances of renewing medical insurance among non-salaried individuals in Kangemi Nairobi County.

Proposition 1

For CRRA utility functions and a premium, θ = δpc, there is an inverse relationship between credibility levels and relative risk aversion denoted R (and in case δ<1 for sufficiently low values of p). The study assumed that low risk aversion q* decreased in lower subsidy levels though it increased at high subsidy levels with p values.

Proof: The $\overset{*}{q}$ locus is defined by $\tilde{W} = W$:

$$(1-p)u(w-\theta)+u\,\tilde{p}(w-\theta-c)=(1-p)u(w-c) \quad \text{.....3.5}$$

When the premium is fully subsidised; θ =0 the locus coincides with the horizontal axis since $\overset{*}{q}$ =0 (hence $\tilde{p}=p$) obviously solves (1.5). Thus CRRA assumes satisfies the following assumptions:

$$\frac{du(x)}{dR} = u(x)(-\ln x + \frac{1}{1-R}) = \phi(x) \quad \text{.....3.6}$$

Differentiating equation 3.5 using $\tilde{p} = p(1-\overset{*}{q})$ and (3.6) gives

$$\frac{d\overset{*}{q}}{dR} = A - B \Big/ p\left[u(w-\theta) - u(w-\theta-c)\right] \quad \text{.....3.7}$$

Where $A = (1-P)\psi(W) + P\psi(w-c)$ and $B = (1-\tilde{p})\psi(W-\theta) + \tilde{p}\psi(w-\theta-c)$

Clearly, there is a positive (negative) relationship for A> B (A<B) and changes in the subsidy (δ) affect B (through $\tilde{p}$ and θ) but not A.

In case of a non-salaried individual whose risk aversion is high (large R) ψ(x) is approximately equal to –u(x) ln x, with a decreasing convex function. For P=0 (which implies $\tilde{p} = 0$ and $\theta = 0$) A= ψ (*w*) = B = ψ (w-θ) thus the model has 0 slope. However, evaluating the derivative at p=1

$$\frac{d(A-B)}{dp} = \left[\psi(w-c) - \psi(w)\right] + \partial c\left[(1-\tilde{p})\psi^{I}(w-\partial c) + p\psi^{I}(w-\partial c-c)\right] \quad \text{.....(3.8)}$$

$$\left(1 - p\frac{dq^{*}}{dp}\right)\left[\psi(w-\partial c) - \psi(w-\partial c-c)\right] \quad \text{.....(3.9)}$$

From (update 1.5) $0 < \frac{dq*}{dp} < 1$ and therefore a fortiori $0 < p\frac{dq*}{dp} < 1$.

Hence the last term in (1.8) is negative. Given the convexity of ψ it follows that

$$\frac{d(A-B)}{dp} \leq 0$$ in a neighbourhood of P =1

The slope of the $\overset{*}{q}$ locus is therefore positive: in the absence of a subsidy for all 0<p<1 and in case of a subsidy for sufficiently low values of p. (In our numerical example we chose the value P=0.5 which apparently is sufficiently low: all loci in figure 1 have positive slope for large R.)

Now we consider low values of R. For $\mathbf{R} \to 0$ the utility function becomes linear so that (1.5) reduces to

$$(1-\tilde{p})(w-\theta)+\tilde{p}(w-\theta-c)=(1-p)(w)+p(w-c).....(3.10)$$

For $\mathbf{R} \to 0$ $\mu(x)=x$ and $\psi(x)=x(-\ln x+1)<0$ (provided ln x>1), $\psi^{I}(x)=-\ln x$ and $\frac{d\overset{*}{q}}{d\partial}=1$. we define x ln x

If the premium is not subsidised (δ=1) the locus has negative slope.

This can been seen by substituting $\psi(x)=x-\varphi(x)$ in the definitions of A and B using equation (3.9)

$$\begin{aligned} A-B &= \left[\left(1-\tilde{P}\right)\varphi(w-\theta)+\tilde{p}\,\varphi(w-\theta-c)\right] \\ &\quad -\left[(1-p)\varphi(w)+p\varphi(w-c)\right] \\ &= \varphi(w-pc)-\left[(1-p)\varphi(w)+p\varphi(w-c)\right](\ since\ and\ \delta=1)<\ 0 \end{aligned}$$

this is because φ(x) is strictly convex

To see how the slope of the locus changes with δ we only need to consider the effect of δ on

B. from (3.8) and using $\frac{d\overset{*}{q}}{d\delta}=1, \quad \frac{dB}{d\delta}>0$ iff;

$$[\psi(w-\theta)-\psi(w-\theta-c)]>c\left[(1-p)\psi^{I}(w-\theta)+\tilde{p}\psi^{I}(w-\theta-c)\right]$$

or for

$$\varphi(w-\theta)-\varphi(w-\theta-c)<c\left[(1-\tilde{p})\varphi^{1}(w-\theta)+\tilde{p}\varphi^{1}(w-\theta-c)\right].....(3.11)$$

For $\delta\to 1 \quad \tilde{p}\to 0$, equation 10 reduces to

$$\varphi(w-\theta)-\varphi(w-\theta-c)<c\varphi^{1}(w-\theta)$$

And this condition is satisfied since φ(x) is strictly convex. Hence $\frac{dB}{d\delta}>0$ for δ=1, it implies that moving down in the figure along the vertical axis the slope of the $\overset{*}{q}$ locus increase: the locus becomes flatter. In the extreme case (for very high risk and very high subsidy) the slope may even become positive at the point where it intersects the vertical axis (ie R =0). This may be seen in the limiting case when δ⟶0 and p→1; then θ =0 and $\tilde{p}$ =1 so that $\frac{dB}{d\delta}<0$ iff $\varphi(w)-\varphi(w-c)<c\varphi^{1}(w-c)$ and this is true because of the convexity of φ(x).

A subsidy in premiums shifts the curve q* downwards so that for a given distribution of agents in (R,q) more agents will accept insurance, specifically a risk neutral agent will now strictly prefer insurance at q=1 because of the subsidy element.

From figure 1 we note that the minimum shifts to the left; the larger the subsidy the lower the degree of risk aversion beyond which q* is increasing in risk aversion.

To highlight the effects of changes in premiums for medical insurance among the non-salaried people, we analyse the expected utility differential , taking the difference across states in which the non-salaried individuals is and is not insured, we do so on the grounds that it is a stochastic choice model that the probability that it is a desirable property of a stochastic model that the probability of becoming insured should be increasing in this expected utility differential.

The expected utility differential is decreasing in the price of insurance, trivially; this is what generates a downward –sloping demand curve. We show that strict concavity of the utility functions also implies that this expected utility differential is decreasing in price more strongly for the individual who have low trust in the credibility of the insurer (low q) , to demonstrate this the expected utility differential as $\Delta = \tilde{W} - W$, the difference in expected utility between the insured and uninsured states

Individual will hold subjective beliefs about the credibility of a particular insurance policy. The credibility parameter, q, is a composite of several factors among them, the likelihood of the insurer continuing to be in business and agreeing to pay a claim and – if the individual is required to make a cash payment at the time of the procedure- the likelihood of reimbursement actually reaching the individuals.

Proposition 2

Let the expected utility differential from insurance adoption be given by Δ , as defined above and assume that individuals have strictly concave utility, defined over their net wealth.

Then $\partial \Delta / \partial c < 0$, and $\frac{\partial^2 \Delta}{\partial \theta \partial x} > 0$

Proof:

We approximate expression involving terms in x^{1-R} by using only terms with the lowest values for x

Differentiating Δ with respect to R then gives

$$\frac{d\Delta}{dR} < \tilde{p}\, u(w-\theta-c)\left(\frac{1}{1-R} - \ln(w-\theta-c)\right) - p\, u(w-c)\left(\frac{1}{1-R} - \ln(w-c)\right)$$

Since $\tilde{p} < p$ and $u(w-\theta-c) < u(w-c) < 0$ provided R>1 a sufficient condition for the right hand side to be negative is

$$\frac{1}{1-R} - \ln(w-\theta-c) > \frac{1}{1-R} - \ln(w-c)$$

And this is true since $\theta > 0$

Demand of Renewal of Medical Insurance Policy among Non-Salaried Individuals

According to (Bendig and Arun, 2011; Huber, 2012) the chances of an individual participation in an insurance cover is influenced by wealth status (*w*), other household characteristics (*Z*), personal characteristics of the household's decision maker (*H*), regional characteristics (*R*), and an un-covariant error term (*u*), which can be summarised as shown in equation 3.12.

$P_i = f(W_i, Z_i, H_i, R_i, U)$……(3.12).

Since the an individual will either take medical insurance policy or not the demand will be binary in nature and thus the most appropriate model will be probit which will take the form.

$P_i = \beta_1 W_i + \beta_2 Z_i + \beta_3 R_i + \beta_3 R_i + U$……(3.13)

Where $P_i = 1$ if the respondents participates in the health cover.

$P_i = 0$ if the respondents does not participate in the health cover.

3.2 Modelling Risk Preferences or Risk Attitudes

3.2.1 HL Method

The most prominent approach of measuring respondents risk attitudes is Harry and Laury (2002), the approach is associated with merit of using transparent subjects which are easy to understand and implement. The method is based on the assumption that individual's choice is subjected to his or her risk preference. Table 3.1 presents a detailed description of HL original design.

Table 3.1 Holt and Laury Risk Attitude

Ro No.	Option A- Outcome A 1 Outcome A 2 = $2.00 = $1.60	Option B Outcome B 1 Outcome B 2 = $3.85 = $0.10	RRA if row was last choice of A and below all B	Proportion choices payoffs x1 x20	Proportion choices payoffs
1	Prob. 1/10	Prob. 1/10	[−1, 71; −0.95]	0.01	0.01
2	Prob. 2/10	Prob. 2/10	[−0.95; −0.49]	0.01	0.01
3	Prob. 3/10	Prob. 3/10	[−0.49; −0.14]	0.06	0.04
4	Prob. 4/10	Prob. 4/10	[−0.14; 0.15]	0.26	0.13
5	Prob. 5/10	Prob. 5/10	[0.15; 0.41]	0.26	0.19
6	Prob. 6/10	Prob. 6/10	[0.41; 0.68]	0.23	0.23
7	Prob. 7/10	Prob. 7/10	[0.68; 0.97]	0.13	0.22
8	Prob. 8/10	Prob. 8/10	[0.97; 1.37]	0.03	0.11
9	Prob. 9/10	Prob. 9/10	[1.37; ∞)	0.01	0.06
10	Prob. 10/10	Prob. 10/10	non-monotone	0.00	0.00

Source (Johannes and Maximilian, 2010)

HL method assumes that an individual has to decide between option A and option in ten mutually exclusive alternatives. Every option has two outcomes (A1 or A2 and B1 or B2) with different probabilities in the ten rows. In the first four successive the outcome for A is higher as compared to the last six rows. Thus, a risk neutral non-salaried is anticipated to choose either the first four rows in A and then shift to row 5 to 10 in option B, though it has a higher risk as measured using variance thus the trade-off is higher. There are chances that non-salaried will have more preference for option B in the tenth row it has the highest certain outcome. If a non-salaried switches to option B from sixth row onwards then he or she is

risk averse and there is a positive relationship between the chances of switching to option B and the level of risk averseness. In contrast an individual who switches to option B between rows 1 to 4 then he or she can be classified as risk seeking and he has low chances of renewing a medical insurance cover. HL is the most preferred method of measuring risk preferences since it is easier to explain because the respondents are exposed to two mutually exclusive choices. Table 3.2 shows the mapping of the risk parameters as per HL.

Table 3.2 Risk Parameter Intervals (Holt/Laury)

Interpretation by Holt/Laury(2002)	Switching Point	Risk Parameter Interval
Highly risk loving	1	$\rho \leq -0.95$
Very risk loving	2	$-0.95 < \rho \leq -0.49$
Risk loving	3	$-0.49 < \rho \leq -0.15$
Risk neutral	4	$-0.15 < \rho \leq 0.15$
Slightly risk averse	5	$0.15 < \rho \leq 0.41$
Risk averse	6	$0.41 < \rho \leq 0.68$
Very risk averse	7	$0.68 < \rho \leq 0.97$
Highly risk averse	8	$0.97 < \rho \leq 1.37$

Notes: This table indicates the mapping from a subject's chosen switching point into the resulting risk parameter intervals in each method; the leftmost column contains the interpretation of the risk intervals; "Never" means a subject prefers the option "Left" in each row. (Source, Johannes and Maximilian, 2010)

The method is used to estimate coefficients of risk preference provided assumptions on the functional form of utility. Under an assumption of CRRA, payoffs are constructed such that the gamble pair which the non-salaried switched over from A to option B termed the switching point can be used to provide an estimated interval for relative risk.

3.3 Experiment Design and Data

We tested the model in preceding section using secondary data to be collected from MOWE a community based organization. The data collection site offered a composite site since it's a cosmopolitan composed of people of different age groups. Individuals who participated in the

survey were subjectively selected with the inclusion criteria being an active member of MOWE and have taken up the health policy either government owned or through private policies; the group has in the past held policies to sensitize members on the need to take up the medical policy. The study was limited to non-salaried MOWE group members since they continuously engaged themselves in regular income generating project.

3.4 Study Site

Mowe is registered as a Community Based Organization (CBO) in Kenya. The organization is led by able elected leadership from group membership. The current membership has 1000 committed members. The group draws its membership from residents of either Kangemi or Mountain View and aged 21 years and above. The group has several schemes which include: Disaster scheme; In case a member suffers calamities such as fire, floods or any natural disaster, MOWE group assists him / her with 40,000/= from this scheme. Uwezo scheme; 10 or more registered members save a minimum of 50 shillings daily from which they earn some profit. Funeral Scheme; Uwezo scheme is a brain child of MOWE where 10 or more members pool their resources by investing 50 shillings every day for a profit.

Uwezo has so far been advanced circulating close to half a million. Funeral scheme; every members contributes 100 shillings towards benevolent fund and one benefits from it in case of demise. Shamba scheme; through pooling of resources the group has purchased 100 by 100 parcel of plots for 79 members. Health Scheme; the group has partnered with government National Hospital Insurance Health (NHIF) and private insurance firms such as PACIS insurance Company, BRITTAM and AFYATELE. Moreover, MOWE gives MOWE gives 500/= per day to any member or dependant who is hospitalised.

3.5 Field Data Collection Exercise

To study the renewal of medical insurance policy among the non-salaried individuals we personally visited MOWE during their monthly meeting. From this group he notified the members of the main objective of the study. He categorized group members into two heterogeneous one comprising of those who have taken up the medical insurance and have been indemnified and the other group consist of non-indemnified members. Since they have been intensified marketing campaign in both print and electronic media we assumed that the non-salaried individuals were aware of benefits as well as justification as to why they should take up a medical insurance policy. First we explained and sensitised on the role of the study and promise the respondent's confidentiality since the primary purpose of the study is for academic interests.

3.6 Model of Risk Preference among Non-Salaried Individuals

To obtain a measure of non-salaried individuals preferences towards risk, the study employed the standard gamble choice game as based on the instrument of Holt and Laury (2002), past studies such as (Baar,2007; Dercon *et al*, 2011) had adopted the same. Our game was similar to Dercon *et al*, (2011) though customised to fit the specific non-salaried individuals.

The game consisted of a series of tasks, in which an individual chose among two mutually exclusive lotteries, one safe lottery and an alternative risky lottery. Each lottery had two payoffs, one high payoff outcome (H) and low payoff outcome (L). Payoffs from winning and losing either of these lotteries were constant within the series. In any given task, the probability of the high-payoff outcome was the same in both the risky and safe lotteries; this probability varies across tasks.

Table 3.3 Gamble-choice game: Payoffs and Probabilities in gain-and loss- framed series

		Gain frame				Loss frame				
		Risky		Safe		Risky		Safe		
Task	Pr(H)	Hr	Lr	Hs	Ls	Hr	Lr	Hs	Ls	E[πr − πs]
1	0.8	600	0	200	100	0	-600	-400	-500	300
2	0.7	600	0	200	100	0	-600	-400	-500	250
3	0.6	600	0	200	100	0	-600	-400	-500	200
4	0.5	600	0	200	100	0	-600	-400	-500	150
5	0.4	600	0	200	100	0	-600	-400	-500	100
6	0.3	600	0	200	100	0	-600	-400	-500	50

Notes: Table 3.1 shows probability of high payoff, H, in risky and safe lottery choices, together with high and low payoff values, for gain- and loss-frame HL series. E[πr − πs] denotes difference in expected return from risk versus safe lottery. All payoff values expressed in Kenya Shillings. Subjects endowed with KShs 600 prior to participation in loss-frame series.

The non-salaried individuals were subjected to two games as shown in table 3.1; a gain frame series and a loss frame series. In the gain frame series individuals began with an initial endowment of Ksh 0 and will have an opportunity to win Ksh 600 or Ksh 0 if they chooses the risky lottery, if their choice was the safe lottery then they won either Kshs 200 or ksh 100. In the loss frame series, the non-salaried individuals were endowed with kshs 600 prior to the game, so that the payoff from the loss or gain frame was the same. The expected payoff for each choice made was explained to participants prior to the game. The choice of the strategy was anticipated depending on the choices made in regard to the degree of loss aversion.

Figure 3.2 shows the pictorial presentation of population on the choice of the risky lottery by task for both gain frame and loss frame lotteries. There was a positive relationship between probability of high payout and the frequency of distribution among the respondents. Moreover, there was an upward sloping curve between the probability of high probability of

loss and choice of the choice of high risky lottery this implies that the respondents were risk averse since the higher the chances of loss the higher the chances of taking up the policy.

Gain Frame **Loss Frame**

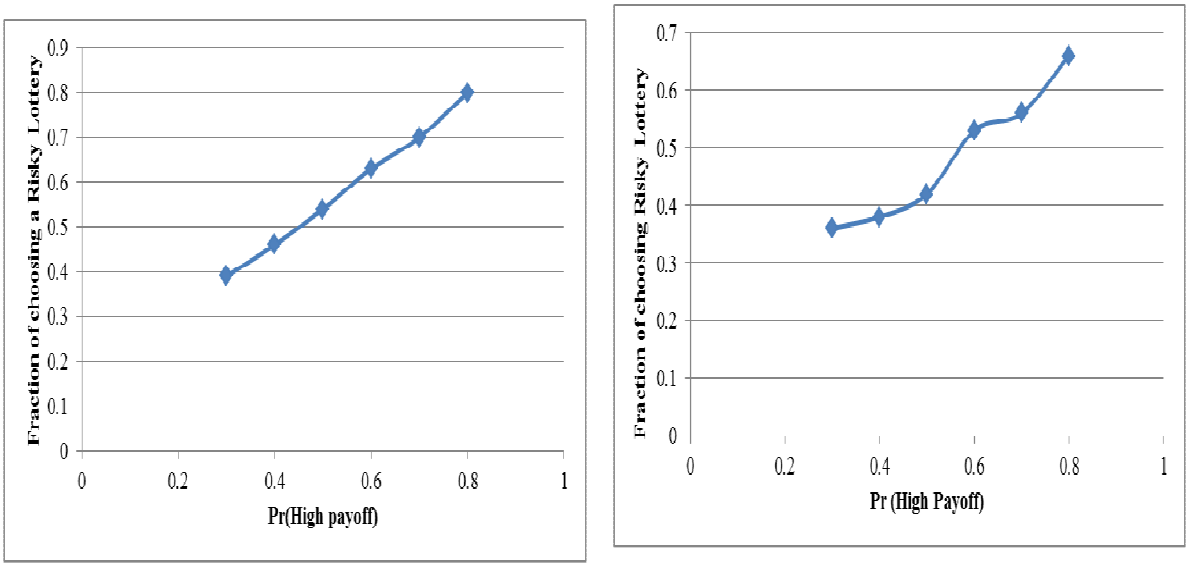

Figure 3.2 Population Distributions for the Choice of Risky Lottery

3.7 Measuring Trust among Non-Salaried Individuals

In order to determine the credibility, we measured credibility through the use of a trust game. The study adopted trust game as designed by Berg, Dickhaut and McCabe (1995) as adopted by Dearcon *et al*, (2011). The basis behind the game is that there two players whereby one plays the role of a sender and the other the receiver. At the commencement of the game the sender was issued with Kshs 500 and he had a choice on the amount to send to the recipient ranging between Kshs 0 to kshs 500, in an increment of Kshs 100). Any amount sent to the recipient was tripled and he is at liberty to resend the tripled amount or none and in either case the game is concluded.

In the current study our game was three fold. First, we selected the receiver among the people who have benefited from medical insurance policy in the past financial cycle. The sender behaviour was a group of non-salaried individuals paired who have taken up the medical insurance cover paired in group of five. One member from the pair of those who had taken up the cover served as the sender while any four members from the group of non-salaried individuals who had been compensated served the role of recipients. The receiver's strategy determined all senders' payoffs while sender's decision was randomly selected as such to determine the recipient decision. Thirdly, group's officials were assumed to be the representative of the medical insurance service provider, thus the credibility of the medical cover being provided among the non-salaried individuals. From this game the credibility of medical insurance was determined and if the sender invested less than 50% of the amount endowed then his perception towards medical insurance is not credible otherwise it is credible. Figure 3.3 shows the sender behaviour trust game. The fraction of amount sent from the sender to receiver increased with the 38% sharing their total amount with an ordinary member, while 37% shared their full amount with MOWE official.

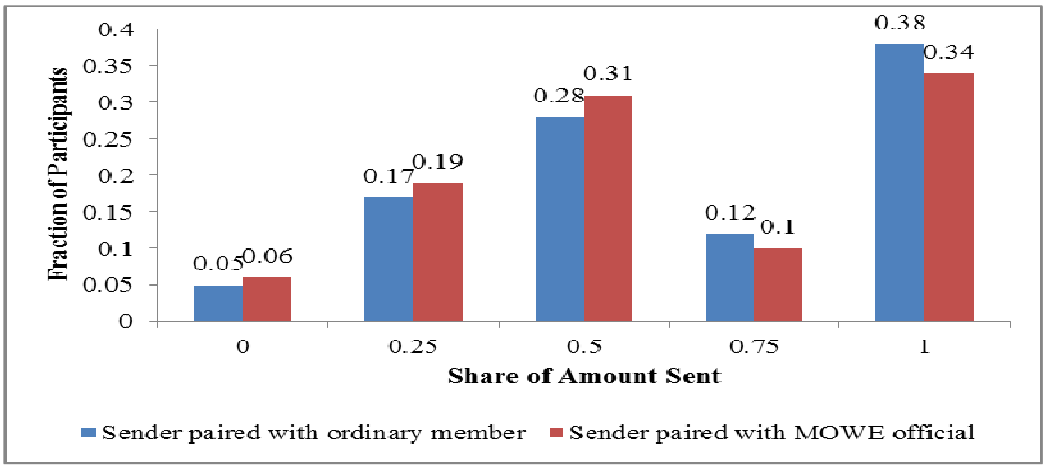

Figure 3.3 Frequency Distribution of Trust Game

CHAPTER FOUR RESULTS AND DISCUSSSION

The current chapter reports the results and discussions of the study.

Table 4.1 Respondents Back Ground Information

		Frequency	Percent
Gender			
Female		23	35.4
Male		42	64.6
Age			
Above 64 years		13	20
Below 64 years		52	80
Out patient			
No		11	16.9
Yes		54	83.1
In patient			
No		56	86.2
Yes		9	13.8
Average outpatient cost	Mean	21099.36	
	Standard deviation	27601.33	
Average in patient cost	Mean	256208.67	
	Standard deviation	269037.6	

Results in Table 4.1, shows the back ground information of the respondents who were drawn from MOWE. 64.6% of the respondents were male while 35.4% were females which imply that majority of the non-salaried individuals who have taken the medical insurance policy were males which can be attributed to be the household heads as well as providers of medical costs. Respondent's ages were categorised into either above 64 years or below 64years, majority 80% were aged below 64 years and only 20% aged above 64 years. This implies that there are chances of many members of MOWE demanding medical insurance services since majority were in ages of having several dependents. Moreover, the study findings showed that majority 83.1% had been indemnified by their outpatient medical cover in the previous year while 16.9% had not. Further, only 13.8% had been indemnified by their inpatient

medical insurance policy while 86.2% had not been indemnified. Results of the study showed that the annual average indemnification among outpatient beneficiaries was Kshs. 21099.36, with a wide dispersion of Kshs. 27601.33. The average inpatient indemnification was Kshs. 256208.67 and the dispersion of 269037.6; since the standard deviation was greater than the average inpatient indemnified cost it implies that the data was skewed.

4.2 Demand for Renewal of Medical Insurance Policy

In this section we report the demand for renewal of medical insurance policy among insured non-salaried individuals.

Table 4.2 Demand for Renewal of Medical Insurance Policy

	Model 1		**Model 2**	
	Beta	**Std. error**	**Beta**	**Std. error**
Renewal Premium 20%	-0.0546**	0.029	-0.0512	0.085
Renewal Premium 10%	0.116**	0.028	0.148**	0.08
Peer referral incentive	0.0645**	0.05	0.0541	0.05
Study circles	0.0148**	0.027	0.0132	0.06
Renewal premium 20% * Peer referral			-0.0005	0.078
Renewal premium 20% * Study circles			-0.0245	0.068
Renewal premium 10% * Peer referral			-0.0278	0.0541
Renewal premium 10% * Study circles			-0.0145	0.084

*Notes: Linear probability model. Dependent variable =1 if the non-salaried respondent renews the medical insurance policy. **significant at 5% level of significance * significant at 10% level of significance.*

The first study hypothesis sought to investigate the determinants of medical insurance renewal among non-salaried. Probit regression analysis was applied to determine the chances that the non-salaried individual renews the medical insurance policy. The study hypothesized that the medical insurance policy was influenced by renewal premium of 20% or 10%, peer referral and the study circles. There was a positive significant relationship between medical insurance renewal and renewal premium of 20%, this implies that an increase in renewal

premium by 20% from the previous year insurance decreases the demand for medical insurance policy among non-salaried individuals. Medical insurance companies covering non-salaried medical insurance policies should not increase the renewal premium by more than 20% since this will decrease the chances of uptake of medical insurance. Moreover, the findings showed that there was a positive significant relationship between uptake of medical insurance and demand for renewal of medical insurance policy. This implies that an increase of medical insurance by 10% from the preceding year increases the chances of uptake of medical insurance policy among non-salaried individuals. Medical insurance companies covering non-salaried individuals should calculate the renewal premium of non-salaried to be around 10% as such to motivate non-salaried individual to take up medical insurance policies and as such indemnify themselves against the risk associated with the medical insurance cover. Since the MOWE was composed of different group of respondents, its management has a culture of holding sensitization of the need to take up medical insurance policy which was facilitated through Waumini insurance brokers. The study sought to find out the influence of this sensitization which was carried out through study circles, the study findings showed that there was a positive significant relationship between study circles and chances of renewing the medical insurance policy. Therefore, in the subsequent periods training sessions should be provided among all people who have not taken up the medical insurance policy as such to increase their chances of taking up the cover as well as decreasing the chances of not renewing the medical insurance policy.

The second model of the study sought to investigate the interaction effect between premium and demand for renewal of medical insurance policy. Results of the study showed a negative insignificant relationship between renewal premium of 20% and chances of renewing the medical insurance policy. Secondly, the study showed a positive significant relationship

between demand for renewal of medical insurance and renewal premium increased by 10% from the previous year charges. Thirdly, the study findings showed that there is a negative insignificant relationship between renewal premium 20% more * peer referrals, this implies that peer referrals has no significant interaction effects with renewal premium 20% more. A closer scrutiny of the study findings showed that there was no significant interaction effect between the determinants of medical insurance policy among non-salaried individuals.

4.3 Risk, Credibility and Price in the Demand of Renewal of Medical Insurance Policy

In this section we present the evidence that the decision to renewal the medical insurance policy among non-salaried individuals is influenced by risk, credibility and premium charges as determined by insurance cost. In this section we tested the second proposition which stated that the higher the chances that there are medical insurance credibility is low the lower the chances of renewing medical insurance policy. We adapted the trust value game to measure non-salaried individual's credibility levels of medical insurance. The study hypothesised that the trust levels of respondent's as determined by the amount he or she shares with the other game participants. We hypothesised the decision to fail to reject the study hypothesises will not support the theory of demand of medical insurance in limited credibility while the acceptance of the null hypothesis the theory of insurance under limited credibility. Results in Table 4.3 show the probit coefficients on the decision to renew medical insurance among non-insured individuals from MOWE group. Medical insurance cost is determined from the renewed form returned by individuals.

Table 4.3 Risk, Credibility and Price in the Demand of Renewal of Medical Insurance Policy

	Model 1		Model 2		Model 3	
	Beta	**Std. error**	**Beta**	**Std. error**	**Beta**	**Std. error**
Renewal premium 20%	(0.083)**	0.83	(0.35)**	0.79	(0.64)**	0.23
Renewal premium 10%	0.054**	0.56	0.64**	0.15	0.46**	0.16
Relative Risk (R_G)	0.85**	0.64	0.28**	0.68	0.45**	0.26
Relative Risk Squared (R^2_G)			0.48**	0.478		
Low credibility	(0.64)**	(0.48)	(0.495)**	0.256	(0.83)**	0.24
Price * low credibility					(0.48)**	0.23
Study circles	0.48**	0.28	(0.53)**	0.236	0.56**	0.24

*Notes: Linear probability model. Dependent variable =1 if the non-salaried respondent renews the medical insurance policy. **significant at 5% level of significance * significant at 10% level of significance.*

Results of the study model 1 shows the basic results showing risk preferences and the cost of insurance policy, depicts that there is a positive significant relationship between renewal of medical insurance policy and the degree of risk aversion therefore the higher the degree of risk aversion the higher the chances of renewing medical insurance. The study findings showed an inverse relationship between renewal premium and renewal of medical insurance policy, this implies that an increase in insurance prices decreases chances of non-salaried individuals renewing their insurance policies. There is an inverse relationship between low credibility of insurance and renewal of medical insurance policy among non-salaried individuals. Medical insurance providers should devise measures to increase the level of credibility among the individuals who have taken up medical insurance policies. Insurance credibility can be increased depending on the level and quality of services offered in-case an

individual requires to be indemnified and adherence to contract agreement between the parties without any chances of misappropriation of material information.

In the second model the study sought to the proposition one, which proposed a non-linear relationship between risk aversion and the chances of renewal of medical insurance policy among non-salaried individuals. The study measured the relative risk aversion using squared relative risk less 0.5. The resultants coefficients showed that risk neutral individuals had risk coefficient of 0, the implied effect of marginal increase in risk aversion R was positive (point estimate 0.38, standard error of estimate 0.58), the risk averse individuals whose CRRA was 1, an increase in marginal effect of an increase in R was negative (point estimate -3.78 and standard error of 0.62).

The third model test the third model which test the proposition 2 which hypothesised an inverse relationship between trust levels and renewal of medical insurance policy among non-salaried individuals. Results of the study showed a negative significant relationship between low credibility and chances of renewing the medical insurance policy among non-salaried individuals. This implies that an increase in medical insurance credibility increases the chances of renewing medical insurance policy.

4.4 Robustness and Extensions

In this section we tested the robustness. Initially we empirically tested proposition two after relaxing the linear relationship with the dependent variables i.e. renewal of medical insurance policy among non-salaried individuals.

Table 4.4 Risk, Credibility and Price in the Demand of Renewal of Medical Insurance Policy: Robustness Issues

	Model 1		Model 2		Model 3	
	Beta	**Std. error**	**Beta**	**Std. error**	**Beta**	**Std. error**
Renewal form with premium 20%	-0.158	0.256				
Renewal form with premium 10%	0.415**	0.15				
Low credibility	(0.378)**	0.156	(0.178)**	0.28	(0.187)**	0.29
Renewal premium 20%* no credibility	(0.806)**	0.215				
Renewal Premium 20% * no credibility	(0.916)**	0.18				
Renewal Premium			(0.415)**	0.3	(2.512)**	0.28
Relative Risk (RL)			0.0156	0.215	0.856	0.68
Price * low credibility			(0.859)**	1.75	(0.869)**	0.96
Study circles			0.0489	0.12	-0.11	0.29
Relative risk (RG)					0.512**	0.06

In model one, we replaced the renewal price determinants premiums of 20% or 10% and there was no credibility. The study findings showed an inverse significant relationship between renewal forms with a 20% increased premium and chances of renewing the policy. There was a negative inverse relationship between credibility and renewal of medical insurance policy.

In the second model we considered the actual amount paid to renewal the medical insurance policy and the study findings showed an inverse significant relationship thus an increase in insurance discourages purchase of insurance policy. In the third model we measured relative risk using gain frame measure of risk while in the former he used RL from the loss frame measure of risk, results of the study showed an inverse relationship between inverse relationship between renewal premium and renewal of medical insurance policy.

There was a positive relationship between relative risk and renewal of insurance policy, this implies that an increase in risk level increased the chances of renewal of medical insurance policy in Kenya among non-salaried individuals.

CHAPTER FIVE CONCLUSION AND RECOMMENDATIONS

The current chapter presents conclusion and recommendations from the study. Since majority of the non-salaried individuals anticipating to renewal their medical insurance cover were male who were household heads and below 64 years an intensive campaign should be carried out to sensitize members of the public on the need to take up insurance policy as such to increase medical insurance coverage among all as such increase the chances of accessing quality health care which is a constitutional right for all though the government must provide quality medical services among all.

It was hypothesised that the chances of renewing medical insurance is influenced by renewal premium increased by 20%, renewal premium increased by 10%, peer influence as well as study circles. The study findings showed an inverse significant relationship between renewal of medical insurance and renewal premium being increased by 20% from the amount charged the previous year. Medical insurance companies should increase their premium with at least 10% since it has a positive significance influence with the chances of influencing renewal of medical insurance. Both peer influence and study circles has positive significance on the chances of renewing the medical insurance policy thus the companies should categorise non-salaried into homogeneous groups from which they can sensitize non-salaried individuals on the need to renewal their policies.

Further, the interaction effect of study circles, peer influence and renew premium showed negative insignificant influence thus it minimized the chances of the non-salaried individuals renewing their medical insurance thus we should form groups aimed purely to encourage the respondents to renew their policies and in such forums benefits should be sensitised as opposed to cost associated with medical insurance.

There is a significant positive relationship between relative risk and renewal of medical insurance thus an increase in risk level increased the chances of taking the policy. From the study findings it can be concluded that most of MOWE members are risk averse and they stand high chances of accessing quality health care. From, these findings medical insurance providers should develop customised health products aimed at covering non-salaried individuals who have regular access of income and are in informal or formal groups. Through such groups it will be easier to increase the level of insurance penetration as well as reduce the health burden associated with medical expenses.

There is an inverse significant relationship between renewal of medical insurance and low credibility of the medical health service provider. This implies that an increase in insurance service provider credibility is associated with increased chances of renewing medical insurance cover among non-salaried individuals. Measures should be taken to increases the level of credibility among insurance health providers which can be associated with the response rate especially once an individual is need of insurance services through offsetting the medical expenses.

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