FINANCIAL DETERMINANTS OF DEMAND FOR MICRO INSURANCE SERVICES IN THE INSURANCE INDUSTRY IN KENYA

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Financial Determinants of Demand for Micro Insurance Services in the Insurance Industry in Kenya

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DECLARATION

This research is my own work which has not been presented for a degree in any other University.

Signed by: ……. Date: …….

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This research thesis is being submitted for examination with our approval as the university supervisors.

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DEDICATION

I dedicate this thesis to the memory of David Peter Olalo my dear friend, may his soul rest in eternal peace. I also wish to dedicate this thesis to my family who have given me support throughout this research process. They have been very supportive and cheered me on when I felt like giving up. May Allah bless them.

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LIST OF ACRONYMS AND ABBREVIATIONS

ANOVA	Analysis of Variance
AVE	Average Variance Extracted
CBHI	Community Based Health Institutions
CFA	Confirmatory Factor Analysis
GDP	Gross Domestic Product
GOK	Government of Kenya
IAIS	International Association of Insurance Supervisors
ILO	International Labor Organization
IRA	Insurance Regulatory Authority
KMO	Kaiser-Meyer-Olin
MFI	Microfinance Institutions
MIP	Micro Insurance Providers
MMR	Moderated Multiple Regression
NGO	Non-Governmental Organization
NHIF	National Hospital Insurance Fund
SACCOs	Savings and Credit Co-operatives Societies
SD	Standard deviation

Sig.	Significance
SME	Small Medium Enterprise
SPSS	Statistical Packages for Social Sciences
OLS	Ordinary Least Squares
VIF	Variance Inflation Factor

DEFINITION OF TERMS

Insurance: In this study insurance is taken to mean a contractual agreement between two individuals or associations where one party in consideration of premiums paid assumes the risks of another party (IAIS, 2007).

Insurance Premium: An insurance premium is the amount of money that an individual or business pay for an insurance policy (Rothschild & Stiglitz, 1976).

Micro Finance: Basic financial service, like credit, savings and insurance, which give people an opportunity to borrow, save, invest and protect their families against risk (UN, 2005).

Micro Finance institutions: These are financial institutions set up to serve low income earners and groups within the community (www.cgap.org).

Micro Insurance: Micro insurance is a product or service that is designed to protect low income individuals against household risks (Churchill, 2006).

Micro Insurance Policy: Contract between the insurer and the insured that offers protection in consideration of premiums paid (Banerjee, 2008).

ABSTRACT

. Insurance firms and the authorities have become aware of the need to include low income earners in the insurance industry. The research examined the financial determinants of demand for micro insurance services in the insurance industry in Kenya. The study had four objectives which were to determine the effect of risk exposure on the demand for micro insurance, to establish the effect of price on the demand for micro insurance services, to establish the effect of credit accessibility on the demand for micro insurance services and to evaluate the effect of income level on the demand for micro insurance services. The study was based on the existing theories, more so the demand and expected utility theories. Stratified random sampling method was applied in selecting the sample for the study. The research design used in the study was a cross sectional survey research design which assessed data for the year 2015. The population of interest was 294 insurance service providers. was used and 170 firms were selected. The data collection instrument was a questionnaire administered to employees of the firms in key management position or their designated backups. Cronbach alpha was used to test reliability of the instrument while factor analysis was used in the test of construct validity. The analysis of data was by use of descriptive and inferential statistics such as measure of central tendency, standard deviation, correlation by use of Pearson correlations and a regression model was fitted to determine the influence of the determinants on the demand for micro insurance. The study found that all the determinants studied; risk exposure, price, credit accessibility and income level had significant influences with coefficients 0.341, -0.44, 0.491 and 0.643 respectively. All the coefficients were found to be significant at 0.05 level. The moderating variable was found to have significant influence on the relationship between the determinants and the demand for micro insurance. Analysis of data was by descriptive and inferential statistics using Statistical Packages for Social Sciences (SPSS). Analysis of variance (ANOVA) was used to establish the level of statistical significance of difference between the observed and expected values. A moderated multiple regression was used to estimate the model coefficients while Pearson coefficient of correlation was used to establish the strength of relationship among variables, test of hypothesis was also carried out. The study concluded that micro insurance demand is affected by financial factors and that the potential is yet to be exploited. The limitation of the study focused on providers rather than users of insurance services whereas users could have provided more insight into the problem. The study recommended that, awareness and education be conducted to the intended mass; flexible and convenience payment option be availed; easy access to credit; the regulator to put in place a framework for micro insurance and the government to offer subsidies and incentives towards micro insurance services. The study is meant to benefit the micro insurance service providers, policy makers, the industry regulator and the government in coming up with strategies, policies and innovative products to tap the demand in the low end market.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Micro insurance has gained tremendous support within low and middle income countries as a tool of fostering regional development (Dror & Preker, 2002; Churchill, 2006). Within the foundations of microfinance, alleviation of poverty, economic growth and development are the main key features (Morduch, 1999; Karlan & Zinman, 2009). In the recent past, microfinance institutions have started offering insurance and savings in their product portfolio, even though microcredit remains their core business. More so, studies on microcredit have been highly undertaken (Giesbert, 2010; Bendig & Arun, 2011).

Majority of the residents of low and middle income countries live in abject poverty. These countries are largely concentrated in Asia, Latin America and African countries. Matul, McCord, Phily, and Harms (2010) report that only 2.6 percent of the African population have an active insurance cover. If the governments, donors and other key stakeholders ought to alleviate poverty then insurance can be utilized as one of the best weapons (Churchill, 2006). Risk pooling and informal insurance has been inexistence in the low income population. Through informal risk sharing schemes, some of the communities enjoyed coverage even where accessibility was easy (Churchill, 2007). However, the applicability of these schemes is quite low in terms of its outreach and the benefits available can only cover a small portion of the losses incurred. Wipf, Kelly and McCord (2011) are of the view that micro insurance has only expanded through community based organizations, local initiatives and support of donors.

Insurance is a product of risk transfer where a business enterprise assumes and shoulders the uncertainty of another business in return of the payment of a premium, Waugham (1989); Micro insurance in particular, can be utilized as a tool of poverty reduction (Cohen

& Sebstad, 2005; Dercon, 2006). In order to gain from the ability of micro insurance in combating poverty the interested parties should strive to understand the needs and demands of the low income earners towards poverty alleviation (Mawa, 2008). One of the major potential for micro insurance has been indicated in a number of research works (Cohen & Sebstad, 2005; McCord, Ramm & McGuiness, 2006). However; despite numerous research done, the uptake of micro insurance has largely been low (Ito & Kono, 2010).

The Kenya Vision 2030 has articulated well that there is need for micro insurance to be fostered among the low income earners (GoK, 2007). In 2014, Kenya's economic growth improved significantly with gross domestic product growth estimated at 5.7% (KNBS). This has significantly been sustained by infrastructure developments. The main barrier to economic growth in the previous years has been the rise of security risks linked with terrorism attacks which have undesirably affected the output from Kenya's Tourism industry. There was a general decline in the inflation rate during the second half of 2014. Inflation was lowest in December 2014 at 6.02% and highest in July 2014 at 7.67%. The lending rates decreased from 17.03% (January 2014) to 15.94% (December 2014). The CBK Base rate was maintained at 8.5% in 2014. Within literature of the financial reforms undertaken in Kenya, McKinnon (1991) supports the argument that financial controls end up dampening savings and investment efficiency thus lowering the growth of the economy.

McKinnon's theory supports liberalization of the financial sector which in turn reduces disintermediation and increases investments. Recent studies by Beck, Levine, and Loayza, (2000) showed that countries that have well developed financial markets and institutions are able to channel the savings of the firm to the most productive use and will help hasten economic growth compared to nations with less developed financial systems. That is why financial development assist in raising economic growth through enhanced resource apportionment and productivity growth. Further, Demirguc-Kunt and Maksimovic (1998)

show that, the availability of financial services within the economy helps to accelerate economic development by widening the accessibility of financial services.

The impact of the financial sector reforms within the country culminated to the increase in the number of financial institutions (Ngugi & Kabubo, 1998). These reforms culminated into the widening of the local insurance industry. In 2015 there were 53 registered insurers, 216 broking firms, 3355 licensed agents (IRA 2015). Furthermore, insurance penetration is premium as a percentage of GDP was 2.8% as per 2015 reports (IRA, 2015). The focus on micro insurance has grown over time as the products and services offered are useful financial instruments for poverty-ridden households. This area, however, has not been adequately studied. With access to insurance especially micro insurance being limited; Cohen and Sebstad (2005), Kenya like many other emerging countries has recognized micro insurance as key enabler for enhancing financial inclusion and mitigating risks.

The demand for financial services is a function of economic financial sector growth (Ngugi & Kabubo, 1998). Theories anchoring economic growth show that poor access to financial services leads to inequality in income distribution within a country. Access to adequate financial services fosters growth, reduces poverty and enhances the redistribution of wealth (Aghion & Bolton (1997), Aghion *et al*., 1999). The mainstream financial institutions are essential in the distribution of micro insurance products.

Micro insurance services are demanded in a similar manner to any other service and the prices associated with the issuance of such services are the prime determinants of demand. The evolving prospect of micro insurance is not only to support business perceptions but also social improvement and safety to the poor people (Srijanani, 2013). Micro insurance service has concentrated on the development of business models that can enable the poor households to engage in profitable commercial activities. Hence, insurance firms require designing their products in line with the demands of the households in informal settings (Van Ginneken, 1999).

The main reason behind micro insurance is that, most households have been excluded from existing formal insurance schemes (Saqwera, 2011). Most of the formal insurers have not engaged closely with informal establishment and rural households; making the excluded group lack access to empowerment and capacity to effectively engage in formal insurance offering. The focus on micro insurance has been limited by few researches and existing literature largely focusing on institutional and supply issues (McCord, 2001; McCord & Osinde, 2005).

Makove (2011) viewed that the insurance framework in Kenya is largely centered on traditional insurance providers and little effort has been done to include micro insurance and mutual cooperatives in the mainstream insurance business. The Kenya Policy Paper on micro insurance (2014), notes that despite piecemeal amendments that have been done over the years to the regulations that govern insurance, including defining micro insurance and separating micro insurance as a stand-alone class of insurance business, challenges in the regulation of micro insurance still persist. This is owing to the fact that factors affecting the business are qualitative rather than quantitative.

A study by Fin Access (2009) showed that the rate of insurance penetration is below 3% of GDP, with only 7% of the Kenyan population having any form of insurance. Findings also showed that the majority of those covered are in the formal sector accounting for roughly 5% of the total population. This shows that a bigger percentage of Kenyans are not insured. Thus, there is need for a new concept of insurance that can tap in the underserved sector and enhance economic growth. ILO (2009) estimates that only 14.7 million people in Africa had access to micro insurance, 1.35 million of them in Kenya (Gikonyo, 2014). With inadequate access to insurance and in particular micro insurance, Kenya has identified micro insurance as key element for enhancing financial inclusion and mitigating risks. The legislation pertaining to insurance constitutes several Acts. The Banking Act, the Micro Finance Act, the Co-operative Societies Act, all makes part of regulatory schemes and facilitate in determining the larger regulatory environment for micro insurance. Micro insurance in Kenya is regulated under the Insurance Act (Cap 487)

as miscellaneous class of business meaning that micro insurance is regulated under the conventional insurance law which does not sufficiently provide for insurance needs of the low income people. The growth and success of micro finance which has proved its efficiency in provision of savings and credit services to low income households and small micro enterprises, excluding micro insurance, has created alternative delivery channel to assist regulate insurers targeting the low income market efficiently.

The insurance industry in Kenya comprises of insurance companies, reinsurance companies, insurance and reinsurance brokers, loss adjusters, motor assessors, insurance investigators, insurance agents, medical insurance providers, claims settling agents and risk managers. These are registered and licensed by the Insurance Regulatory Authority (IRA) in accordance with the provisions of the Insurance Act, Chapter 487 of the Laws of Kenya. Before 2007, IRA operated as a unit within the Ministry of Finance under the commissioner of insurance. The Insurance (Amendment) Act 2006 provided for formation of a statutory body (IRA). The Insurance Act provides for micro insurance as a separate class of insurance business. The Kenyan insurance market commands more of non-life business unlike the developed economies (IRA, 2015). Non-life insurance premiums contribute two thirds (64.6%) while life premiums contribute 35.4% of the total premiums in Kenya. Total premiums for the year ended 2015 was Kes173.26 billion (IRA, 2015).

1.2 Statement of the problem

Micro insurance deals with many problems which are deep rooted in the socio economic structure; it mitigates extreme poverty and hunger through provision of micro insurance products such as agriculture insurance for farmers, life assurance cover and funeral cover (Chummum, 2012). The underprivileged face two types of risks specifically; idiosyncratic (explicit to household) and covariate (mutual to all), (Tadesse & Brans (2012)). To address risks, the underprivileged have customarily used risk pooling through informal insurance or risk sharing arrangements. The local insurance industry is largely small, leaving a wide portion of the population unserved by any formal insurance company. The

development and sustainability of micro insurance within the country may come in hand in supporting the insurance industry stability since this will take into account the small groups. Given the size and potential of the untapped market and lack of mass information; the insurers have to place most of the risk with reinsurers (Makove, 2011).

Cohen and Sebstad (2005) are of the view that supply and demand are the main drivers of insurance penetration. Despite numerous advancements being achieved in the financial sector there has been diminutive that has been done in expanding the inclusivity of low income households (Randhawa & Gallardo, 2003). Most studies that have examined demand for micro insurance services have been done in Asia, (Churchill, 2006) and the main focus appears to be the consumers of micro finance products, (Cohen & Sebstad, 2005: Gine, Townsend & Vickery, 2008).

Studies have been conducted on insurance and micro-insurance in Kenya. Onduso (2014) conducted a research on factors influencing penetration of micro insurance in Kenya and established that low income, poor distribution channels and lack of sufficient education affected the uptake of insurance service and products. Njuguna and Arunga (2012) examined the risk management practices by service providers of micro-insurance. Njihia (2013) undertook a study on challenges of market penetration of general insurance firms in Kenya. Ndalu (2011) researched on the relationship between economic growth and insurance penetration in Kenya. Simba (2002) conducted an assessment of the demand for micro insurance in Kenya and concluded that low income communities have a variety of coping mechanisms for risks such as health, thefts and burglaries. Mugo and Okibo (2015) researched on factors influencing Micro insurance penetration among middle and low income earners in Kenya.

Previous studies related to micro insurance raises issues which prompt to undertake current study, Cohen and Sebstad (2005) indicate that insurance market penetration is largely driven by supply and not demand. Secondly, despite some progress being achieved in the formal sector, insurance services to low income earners have been slow to develop

and access to insurance products has remained stunted. Thirdly, economic reforms shadowed in the 1990s amounts to drastic government cutbacks in public expenditure which in turn undermined public sector provision of social protection needed and introduced cost sharing. Thus, in seeking to address these variations, several studies and government policy are in favor of micro insurance, Steinwachs (2002).

However, a fundamental gap exists on micro insurance demand to realize the intended objectives, hence the focus of the study. This gap in knowledge is fundamental owing to the large contribution of micro insurance in the economy of developing nations and concurring with Kenya's vision 2030 manifesto.

1.3 Research objectives

1.3.1 General objective

To main objective of the study was to analyze effects of financial determinants of demand for micro insurance services in the insurance industry in Kenya.

1.3.2 Specific objectives

1. To determine the effect of risk exposure on the demand for micro insurance services in the insurance industry in Kenya.
2. To establish the effect of price of insurance on the demand for micro insurance services in the insurance industry in Kenya.
3. To establish the effect of credit accessibility on the demand for micro insurance services in the insurance industry in Kenya.
4. To evaluate the effect of income levels on the demand for micro insurance services in the insurance industry in Kenya.
5. To determine the moderating effect of customers' personal characteristics on the demand for micro insurance services in the insurance industry in Kenya.

1.4 Hypotheses

The study was guided by the following hypotheses:

H_{01}: Risk exposure has no significant effect on the demand for micro insurance services in the insurance industry in Kenya

H_{02}: Price sensitivity has no significant effect on the demand for micro insurance services in the insurance industry in Kenya.

H_{03}: Access to credit has no significant effect on the demand for micro insurance services in the insurance industry in Kenya.

H_{04}: Income level has no significant effect on demand for micro insurance services in the insurance industry in Kenya.

H_{05}: Customers personal characteristics has no moderating effect on the demand for micro insurance services in the insurance industry in Kenya.

1.5 Significance of the Study

1.5.1 Policymakers

The findings of the study findings will be of importance to the government through regulatory authorities in formulating policies influencing the micro insurance sector in Kenya. Government officers, law makers and other policy makers will find the results of this study useful in understanding the challenges of micro insurance both at macro and micro economic level and find appropriate approaches to overcome them.

The findings will inform proper policy making and implementation that could spur the growth of micro insurance service providers and consequently spur the economy into the middle income as stipulated in Kenya's Vision 2030.

1.5.2 Micro Insurance Service Providers

The study will also be of benefit to insurance companies and providers of micro insurance service by helping to map out the factors that limit the development of the micro insurance industry. The findings will also be of further help to intermediaries in insurance through enabling strategic planning and appropriate implementation geared towards enhancing demand of micro insurance services and products.

1.5.3 Financial Institutions

This study will also be of interest to financial institutions as it will assist them to customize their products and hence enhance efficiency in the micro insurance segment. Banks and MFI provide an intermediate link between households and financial service providers. The report will also inform development partners such as United Nations on areas of intervention in an effort to achieve some of the sustainable development goals especially poverty reduction.

1.5.4 Business and Academic Researchers

The study will be of significance because it will be carried out from the Kenyan perspective and may arouse the interest of business and academic researchers. The findings of this research will form a background and reference material for future studies. The findings will stimulate further research and bridge information gaps related to micro insurance in Kenya.

1.6 Scope of the Study

This study examined determinants of demand for micro insurance services in the insurance industry in Kenya. Taking service providers located in Nairobi. The study involved insurance service providers registered with IRA. Nairobi county had been selected due to its proximity and representation as all the insurance service providers operating in Kenya.

1.7 Limitations of the study

Some respondents were hesitant to provide the researcher with the information due to the competitive nature of the insurance sector in Kenya which also meant that some of the information sought were of confidential nature and could not be divulged for fear of giving competitors a competitive edge. Respondents were re-assured that that all information would be treated with confidentiality. There was limitation on available literature on micro insurance in the insurance sector in Kenya, from which lessons can be drawn from. To overcome the limitations, studies in other sectors like micro finance and banking industries were used to draw lessons to support empirical data, both globally and locally. The study focused on the providers and does not collect opinions of the users of micro insurance services; the supply side opinions could have provided more insight into the problem. It also made certain assumptions on methodology which relied on standardization compelling the researcher to develop questions common enough and appropriate for all respondents. Also, surveys are inflexible in that they require the initial study design to remain unchanged throughout the data collection. This research was cross-sectional in nature as opposed to being longitudinal. In this case, the researcher gathered data just once in order to meet the research objectives, rather than collecting data over a longer time period. Lastly, the demand model equation is made up of a few selected variables; in order to have a reliable interpretation of the study. The study could have been better-off if other variables such as religion and culture, were also incorporated in the study. Despite these limitations, the study provides important implications from theoretical perspective. The study contributes to ongoing discussions and discourses regarding micro insurance in Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter presents the following: a theoretical foundation of the study, an empirical review of the relevant literature and a conceptual framework depicting the association between the independent variables of risk exposure, price, credit accessibility and income level, on the dependent variable of micro insurance services demand along the moderating variables; personal characteristics that affect this relationship. The chapter further contains a critique of the literature, the research gaps and finally, the summary.

2.2 Theoretical Framework

A theory is a system of ideas intended to explain something, particularly one based on general principles (Becket, 2006). Theories explain relationships between variables. The researcher focused on three theories, the theory of demand, risk theory and expected utility theory.

2.2.1 Theory of Demand

The theory of insurance demand is often regarded as the purest example of economic behavior under uncertainty (Schlesinger, 2000). The law of demand holds that the rate of consumption is inversely associated with the price levels; in a condition known as the substitution effect. Inganga, Njeru, Ombui, and Ondabu (2014), have cited McConnell (2007), and argued that there are four main laws of supply and demand; a shortage occurs if demand increases and supply remains the same, resulting in a higher equilibrium price; surplus occurs if demand decreases and supply remains the same, resulting in a lower equilibrium price. A surplus occurs if demand remains static and supply increases, resulting to a lower equilibrium price; if demand remains the same and supply decreases,

a shortage occurs, resulting to a higher equilibrium price. Demand is always described sketchily as a negatively sloping curve to the x-axis (which is a characteristic of product quantity needed).

Consistent with the law of demand; the demand curve is a downward sloping curve; implying that as the price decreases, consumers will buy more of that good. Demand curves are subject to the effect of marginal utility. Consumers will continue to exhibit their willingness to buy a particular quantity at a given price in line with the marginal utility of the alternative choices. The theory holds that preferences for consumers are fixed hence utility is not a testable assumption. This theory will underpin the dependent variable; demand for micro insurance products/services.

2.2.2 Risk Theory

Filip Lundberg (1903) is the proponent of the risk theory. The theory was proposed as a mechanism of embracing decision making in an uncertainty (Kahneman & Tversky, 1979). Risk is the likelihood of an incident arising that has a negative outcome. The theory seeks to lay foundation for decision making among people when faced with uncertainty about the future. The cost arising from a risk can be measured in terms of the frequency of risks, the monetary cost of the risk and the human cost incurred in terms of pain and suffering.

In view of the above there is need to actively manage risk; which has led to different people coming up with varying mechanisms for managing and coping with risks. Some end up preferring insurance as a mechanism of protecting themselves against risk. Through the concept of risk pooling insurance firms offer the best solution to risk management. In the informal sector some households consider self-insurance mechanisms and communal mechanisms such as savings and welfare groups (Hintz, 2009). The risk theory assists insurance companies' administration in integrating ruin probabilities into

their decision making process. The vital problem in risk theory is to scrutinize the ruin possibility of the risk business (Grandell, 2012).

2.2.3 Expected Utility (EU) Theory

Manning and Marquis (1996) recommended the expected utility theory which suggest that the demand for insurance is a balance between the choice of an uncertain loss/risk that will occur and a certain loss such as paying the insurance premium. The theory holds that rational people are risk averse and will make decisions on the households in considerations of the financial consequence. Hsiao, Wang and Zhang, Yip (2006) argue that the decision by rural households to join a formal insurance scheme is a discrete decision that is consistent with a qualitative choice model. The expected utility model has aided decision-making where there is an inherent risk (Marquis & Holmer, 1996).

Friedman and Savage (1948) suggest that a person having a steady set of preferences in an event containing risk would prefer the substitute that has the highest expected utility. Through the expected utility theory, demand is denoted using the insurance products characteristics such as the disbursements and premiums, and makes the assumption that individuals are able to objectively assess the probability of risk. Expected utility theory describes demand by; the features of insurance products (premium and benefits) and socio-economic characteristics and assumes that individuals are capable of assessing the probability of risk.

The expected utility theory is also used to understand decision making about insurance. The extent to which an individual is willing to do so depends on his or her preferences and is subjective and specific to each decision maker and is reflected in his or her utility function. The Majority of individuals are presumed to have a preference for eluding at least some level of risk. Ambiguous expenditures to which families are exposed inhibit them from maximizing utility and therefore, under certain circumstances, it is ideal for families to insure against them (Feldstein, 1973; Mossin, 1968; Arrow, 1964). Economic theory assumes that rational individuals try to maximize their expected utility of scarce resources.

In this respect it looks at utility in economic or monetary terms. Schwarcz (2010) posited that the expected utility theory is a poor theory of highlighting how individuals purchase insurance. The researcher observes that changes in the expected utility theory may emanate from mistakes in that the consumers may act differently if they had in possession adequate information and cognitive capabilities. From observation of the existing analysis, the study will embrace the expected utility theory as the theoretical framework to study the financial determinants of micro insurance services in the insurance industry.

2.3 Conceptual Framework

Conceptual framework is a model underlining the relationship between the research variables, (Mugenda & Mugenda (2003)). The illustration is established to explain the relationship between independent variables (financial factors) and the dependent variable (demand for micro insurance) in line with the problem under study.

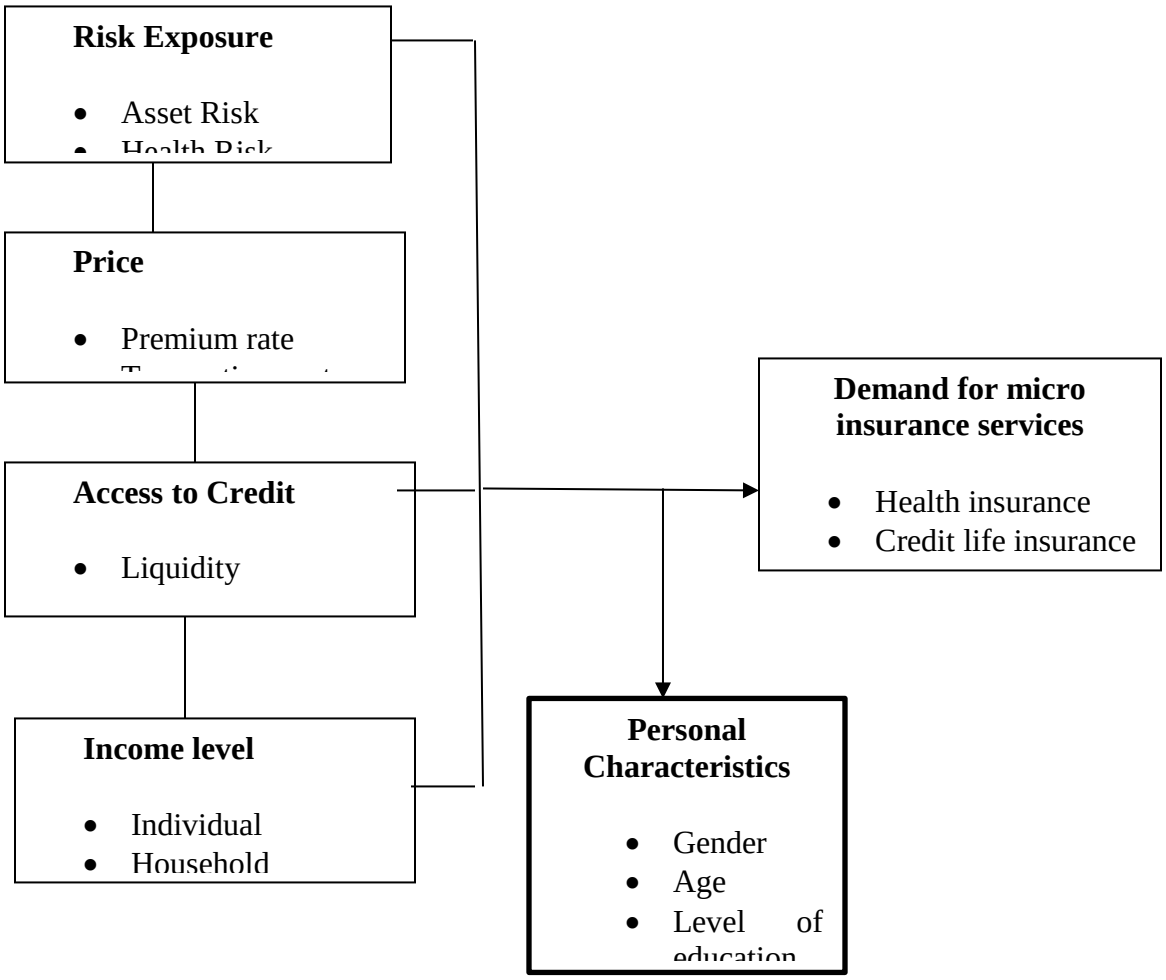

Figure 2.1: Conceptual framework

2.4 Review of Related Theoretical Literature

2.4.1 Risk Exposure

Risk exposure are important mostly where the occurrence of a risk exposure leads to poverty or disrupts on the livelihood. People faced with higher risk are more likely to purchase an insurance cover (Rothschild & Stiglitz, 1976). Studies by Bardhan, Bowles, and Gintis (2000), Carter and Barrett (2006); show that there is a relationship that exist between risk and poverty. The researchers show that when households exhibit a reduction in the absolute risk aversion; that is prosperity increasing as risk declines then poor households will pay a higher premium to avoid risks than more affluent persons will do.

Research studies on the effects of risk exposure on demand of micro insurance have been conducted.

A study conducted by Arun, Bendig and Arun (2012) showed a strong positive relationship between past shocks and rising probability of using micro insurance; however, Cole, Gine, Tobacman, Topalova, Townsend and Vickery (2013) find no such evidence. Studies in advanced economies show that people are likely to contribute to insurance covers after a loss has occurred' this is in line with the view of accessibility preference (Johnson, Hershey, Meszaros, & Kunreuther, 1993). At a national wide level measures such as the GDP show a positive link to insurance acquisitions (Browne & Kim, 1993).

Dercon (2006), Carter et al., (2007), and Jalan and Ravallion, (1999) found that there are substantial effects of risk exposure midst the underprivileged. The research showed that during key risk exposures the reclamation is quite slow and commended that health risk exposures appear to have significant effects. As cited by Saqware (2012), Yakub (2002) and McPeak (2004) show that households with assets risks maybe at a higher risk of falling into abject poverty. Being the main reason why families embroil in trading off for assets smoothing and consumption smoothing when faced with risk such as asset and income

risk. i.e. when lack of sufficient rainfall affects both herd mortality (asset risk) and productivity among livestock producers in northern Kenya.

A study conducted in Kenya by Cenfri (2010), found out that small business owners face substantial asset risks such as asset loss due to political uncertainty and fires in informal settlements and concluded that without an efficient distribution and management system, asset insurance will remain a challenge.

According to Barone (2011), perception of a household's exposure to risk is associated with the decision to purchase health insurance hence access to health care providers and use of health care services appears to be moderately relates to the uptake of health insurance by the household. Eling *et al.* (2013) evidenced that, health insurance has a positive link between service quality and insurance demand. Dercon *et al*. (2012) assess the effect of peer recommendations for health insurance involvement in Kenya and find that the recommended incentive has a negative effect on insurance demand. Some outcome of co-workers' decisions to procure health insurance and by availing protection against health incapacity through social security, coupled with a negative impact on demand for health insurance (Outreville, 2013).

2.4.2 Price

In line with the economic theory; the price of goods is inversely related with the demand for the said product (Eling, Pradhan & Schmit, 2013). Cole *et al*. (2013) showed that there is a high price sensitivity towards demand for rainfall insurance in India. Mobarak and Rosenzweig (2012) conclude that there with a 50% price decline increases the insurance intake by 17.6%. Dercon, Gunning, Zeitlin, Cerrone and Lombardin (2012) report that decreasing price of health insurance leads to an increase in the insurance demand by 12%.

Most of the studies on insurance demand utilize the premiums, policy price as a price measure (De Bock & Gelade, 2012). Thornton, Hatt, Field, Islam, Sol'Diaz, and Gonzalez (2010) identify the cost and time of premium payments as a determinant of insurance

demand. More so, decreasing the prices of micro insurance may increase demand however, the uptake rates may still remain low. Cole *et al.* (2013) shows that even when the prices are set below the market prices fewer than half of households purchased the rainfall insurance. There is further evidence showing that lack of knowledge on insurance affects the demand. Thornton *et al*. (2010), Fitzpatrick, Magnoni and Thornton (2011), Bauchet (2013) are of the view that retention of purchases drops significantly when subsidies of the insurance uptake expire. However, it is evident that use of subsidies affects the overall informal arrangements for uptake of insurance.

It is evident that price plays a key role in directing the demand for micro insurance product. This can be enhanced further through availing low premiums. The differences between traditional insurance markets and micro insurance markets premium levels should be widened such that lower premiums associated with loss are not segmented towards micro insurance (Eling *et al*., 2013).

Several studies show a higher probability of insurance uptake when the price of product decreased or vouchers or subsidies were disbursed (Brouwer & Akter 2010; Cole *et al*., 2013; Gine *et al*., 2008; Karlan *et al*., 2014; Mobarak & Rosenzweig 2012). In a research done in Kenya, Chache (2016) established that there is a relationship between product pricing and demand for micro insurance. Product pricing point out a major contributing factor on underwriting of micro insurance products and its demand can only be known if micro insurance products a company offers are taken up/bought by the target market. Clarke and Dercon (2008), found out that insurance company faces high costs, small pool of insured risk when there is low underwriting. Mosley (2009) argues that, there is the negative relationship between break-even premium and the portfolio size, noting that this relation suggests that one can either raise premium and hence limit access by the poor or increase access by keeping the premium low and reach the uptake level.

NGOs/MFIs define premiums by rule of thumb, making premium rate much higher or lower than the actuarially fair premium (Hasan, 2006). The premium rate is fixed either

based on approximation of the anticipated losses accustomed by high risk loading factor or to match the readiness to pay of the target population (Beiner, 2011). Comparing the household readiness to pay with the anticipated guarantee and insurance conveyance costs, Akter *et al*., (2011), showed that a standalone crop insurance scheme is likely to suffer 25% to 50% loss each year.

Njuguna and Arunga (2013), finds that pricing represents significant challenges due to need to balance prices, cost, sustainability and accessibility.

2.4.3 Access to Credit

Regardless of whether the household has the capacity and is willing to purchase insurance depends on the level of utility expected with insurance against the utility expected without insurance (Kirigia, 2005). Numerous research findings have supported the idea that there exists a relationship between the level of wealth and purchase of micro insurance. This is based on the argument that wealth leads to higher levels of liquidity and access to credit; thus purchase of insurance is only possible beyond what is needed for daily household basic purchases. Gine, e*t al*. (2008) argues that uptake of rainfall insurance in India is high among wealthier households. Similarly, in another research in India, Cole *et al*., (2013), establish that more affluent families have a higher chance of buying rainfall insurance. In both studies, the least wealthy families are assumed to have little margin for insurance purchase after paying off their expenses. Even though the households may have a higher demand for insurance, however, they don't have the resources needed to meet the insurance purchase. In general, the wealth effect in micro insurance is different from the wealth effect in traditional insurance.

Within the market for micro insurance; wealth is viewed as a status of access to credit and high levels of liquidity. Families that do not have ample access to credit have slight capacity in leveling their consumption in periods of shock and thus may place higher values on insurance as a mean of eliminating unforeseen income volatility. Cole *et.al*,

(2013) found out that take up of insurance increases 1.4 times when households have enough cash to buy one policy handed to them.

Mosley (2009) found out that micro insurance improves customers' loan repayment amounts and have an impact on expenditures, and that micro insurance makes expenditures more constant and expectable as a result reduces dependence on emergency borrowing. A number of alternative insurance models have developed to resolve affordability issue such as the interlinked credit and insurance market (Carter, Cheng & Sarris, 2011). With the interlinked credit insurance agreement, farmers borrow money at a higher interest rate that embraces a weather insurance premium. If a natural disaster or calamity occurs, the farmers repay only a part of the loan, while insurer pays the balance to the bank (Akter, 2012).

Study of Plateau and Abraham (1987) shows a hybrid transaction, halfway between credit and insurance as quasicredit. The repayment depends on situation of borrower and lender, whereby transactions are personalized and reimbursement negotiated following shocks. Morduch (1998) evidenced that access to credit decreases vulnerability and credit might essentially crowd out demand for insurance.

Homes with limited or lacking access to credit have fewer capabilities to smooth consumption in case of a shock or event and they may place greater significance on insurance as a means to diminish income volatility (Gine *et al*., 2008). On the other hand, homes lacking access to credit may not have enough funds to purchase insurance even though a shock may be devastating on them than to homes less constrained.

Access to credit only will not increase micro insurance demand significantly. Clarke (2011), shows that for non-credit constrained farmers with actuarially fair premiums, basis risk makes them purchase less of insurance. Ito and Kono (2010) and Karlan *et al*. (2011) find little or no effect of credit constraint on micro insurance demand.

2.4.4 Income Level

Income is defined as the payment received in exchange for labor or services or from the sale of goods or properties (Zeller, 2001). Within the economic space higher income levels are widely acknowledged as indicators of higher demand for financial services (Ando, 1963). Modiglian and Brumberg (1990) are of the view that the individual levels of income have an effect of the purchase of certain insurance products. Individuals start with low income during their professional career and when that income rises to its peak before retirement and income during retirement is substantial (Saqware, 2012).

Bendig and Arun (2011) and Giesbert, Steiner and Bendig (2011) studied the relationship between demand for insurance and level of income; affording an insurance premium is directly connected to one's level of income. They argued that lack of money is the reason why households do not purchase micro insurance products. Jutting (2003), perceives that low income plays an important part in non-involvement in a community based health insurance organization in countryside Senegal; Fitzpatrick *et al.*, 2011 and Thornton *et al*., 2010, find no conclusion of income on insurance take up tariffs.

Browne and Kim (1993) and Outreville (1996), argued that the affordability of an insurance premium is directly related to ones' level of income. Nevertheless, the ability of low-income homes to meet the expense of insurance services is not only related to one's level of income but as well as the appropriate control of their financial wealth has a significant impact on their access to micro insurance (Matul, 2005). In a study by Savage and Wright (1999), Bhat and Jain (2006) shows that an increase in income level does not guarantee a decrease in poverty but focus should be on sustainability by providing products which improve their net wealth and income security. It is also possible that this reflects the fact that incomes enable household handle risk exposures using other means. According to Mayoux (2001) the impact of micro insurance can be due to granting small loans to enhance income and sustainable income level to help the poor plan and save towards unforeseen emergencies and shocks. Without micro insurance, people will only

concentrate on undertakings with minimal risk elements which do not yield higher returns but yields an income level adequate for their family (Maleika & Kuriakose 2008).

According to Leftley and Mafumo (2006), the role of micro insurance is to stabilize income levels through provision of safety net. Ackah and Owusu, (2012) revealed that one of the variables for low insurance uptake is as a result of low income levels. Though income is foreseen to affect a household's capability to afford insurance, it is difficult to measure in communities where wage/income is insignificant and past history measures of income are unreliable (Morris *et al*., 2000). Crayen, Hainz and de Martinez (2010) empirical analysis of payments/remittances in South Africa showed that irrespective of income levels, remittance worked as an option to conventional insurance when budget constraints were obligatory. Study by Aliero and Ibrahim (2011), suggested that income level of the rural households should be taken into account while setting premium rates. As income increases, households can afford insurance. The need for life insurance increase with income as it protects dependent relative against the loss of anticipated upcoming income due to premature death of the bread winner.

2.4.5 Personal Characteristics

The main social-economic features of a household are determined by the income levels, age, marital status and the family sizes. In many research studies on micro insurance purchase age has been adopted as a control variable. Cohen and Einav (2007), concluded that there is a u-shaped relationship between risk attitudes and age which is depicted in the choices of deductible levels. Halek and Eisenhauer (2001) were of the same opinion with regard to insurance purchase choices. Age has a significant positive effect on the demand for micro insurance (Chen, Hu, Xiao and Xing 2013), Gine *et al* 2008, on the other hand established a negative inference between demand for insurance and age. Arun *et al*. (2012) found no link between demand for insurance and the age of household members.

Other research studies have shown that within households headed by women have higher chances of subscribing to insurance products Chankova, Sulzbach and Diop (2008); Bendig and Arun (2011), Outreville (1996) and Giesbert, *et al*. (2011). Risk attitudes of women demonstrate lower risk tolerance than men (Borghans, Golsteyn, Heckman and meijers (2009)). Studies show that households headed by women are more likely to enroll in insurance than households headed by men (Chankova *et al*, 2008), Nguyen and Knowles (2010).

Matul (2005) concluded that education does not have a significant effect on access to micro insurance. The researcher pointed out that the level of education does not require insurance mostly due to lack of confidence on the insurance industry and lack of knowledge on the workings of the insurance industry. Empirical evidence shows ambiguity between education and micro insurance demand, Jehu-Appiah *et al*, (2011) and Chen et al, (2013) found out that more educated respondents are more likely to take up insurance. Gine *et al*, (2008) and Cole *et al*, (2013) found no significant association between education and insurance uptake.

2.4.6 Demand for Micro Insurance Services

An analysis of demand for micro insurance is quite complicated among households than in researching on the traditional insurance (Islam & Mamun, 2005). The demand for micro insurance is highly dependent on the ability to service premium payments. Micro insurance supply is high within developing countries; however, the demand for insurance is low within developing countries as depicted in the expected utility theory. Empirical literature shows that micro insurance purchases within developing countries is highly dependent on the risk aversion of consumers (Gine *et al*., 2008; Ito & Kono, 2010). However, this is against the assumptions of expected utility theory that holds demand for micro insurance among risk averse households to be high (Arrow, 1963; Mossin, 1968).

According to Kirigia (2005) the choice to purchase insurance among households is highly dependent on the perceived tradeoff between the expected utility between owning an

insurance cover and not having an insurance cover. On the other hand, the consumer theory holds that with perfect information consumers will maximize their utility as a function of the relative prices and their income and preference levels. However, with little information the future of micro insurance purchases cannot be pegged on utility alone but also the consumer characteristics (Cameron, Trivedi, Milne, & Piggott (1988)). For households to purchase micro insurance there should be a balance between the returns expected from insurance and the contributions made in terms of premiums. With limited consumer rationality there will be little demand for insurance; Osei & Gemegah (2011) and Norton (2000).

Gine, Townsend and Vickery (2007) studied the demand for micro insurance. In their study in India they analyzed factors affecting demand for rainfall insurance. Most of the respondents cited the main reason for not subscribing to insurance covers as their lack of product knowledge and money to pay off insurance premiums. The study also established positive association between demand for insurance and technology adoption, membership in financial services and participating households. Subsequent studies mainly centered on an exploration of insurance uptake lags (Ito & Kono, 2010; Dercon, Gunning & Zeitlin (2011)). Most of these concentrated on the role of financial literacy, levels of liquidity and trust on demand for micro insurance.

Households with low financial strength coupled with constrained liquidity levels have low demand for micro insurance products as a risk management tool (Cole *et al*., 2010). In studies conducted in India and Indonesia it was established that there is a positive association between shocks and liquidity, shocks have a positive effect on insurance demand (Cole *et al*., 2010). In the similar study education level was identified as a positive determinant of demand for formal financial services which include insurance products and services. The same study established that education levels had a negative effect on informal insurance arrangements.

In another study in China, it was established that social networks had an effect on insurance demand. It was also proven that in groups where people participated in micro insurance marketing there was a higher intake of insurance than in individual insurance uptake (Cai, Chen, Fang, & Zhou (2010)). Dercon *et al.* (2011) conducted a study in Kenya and established that individuals trust levels on the product on offer had a large effect on insurance uptake.

In micro insurance demand study conducted by Dercon (2002), Hulme and Shepherd (2003) postulated a link between risk, vulnerability and poverty on households. Park and Lemaire (2011) concluded that factors such as the culture of households could explain the demand for insurance in some nations. Hofstede (1995: 2001) pointed out that insurance demand levels within a country widely depended on the culture of the people, their willingness to purchase insurance and their means of mitigating risk. Esho, Kirievsky, Ward, and Zurbruegg (2004) conclude that an increase in the national income levels increased the demand for life insurance among poor households. The study also established a strong causal link between national income and the increases in demand for non-life insurance. Similarly, Enz, (2002) developed a model that showed an association between the increases in insurance intake levels and the country's GDP per capita. The insurance growth models formed the basis for the development of the s-curve model. The model shows that micro insurance penetration levels will rise with increase in GDP per capita but at different levels of GDP there is a different penetration levels. The model further exhibited that at a certain level of GDP expansion the penetration level remains the same.

Saqware (2012), conducted a study in Tanzania on micro insurance and established that competition between informal arrangements and formal insurance services affected the demand for micro insurance. In their study in Kenya Njuguna and Arunga (2012) established that the risks that face insurance providers as a result of low penetration, unsupportive regulatory framework and lack of strategies largely affected the uptake of insurance. Gikonyo (2014) undertook a research on the influence of mobile technology on

the growth of insurance in Kenya and reported that growth in mobile technology enhanced micro insurance uptake in the country. The researcher recommended that the regulatory framework should be designed to support better integration of mobile technology and insurance products/services in order to foster insurance uptake. Onduso (2014) conducted a study on factors affecting penetration of insurance in Kenya and established that low income, poor distribution channels and lack of sufficient education affected the uptake of insurance service and products.

2.5 Critique of Existing Literature

There has been a dearth of local literature that comprehensively creates awareness on all the factors affecting micro insurance demand; more so the financial aspects. Data from the KNBS show that the insurance; GDP premium stands at a mere 3.8% contribution yet there is a high potential for insurance uptake bearing in mind only a fraction of the country is covered by formal insurance service providers. More so, there is little uptake of micro insurance within the country which leads large potential market for the insurance products/service (Cenfri, Kenya micro insurance landscape, 2010).

Micro insurance is an emerging market product that if harnessed can play a critical role in enhancing the development and growth of the country economy. Hence, it is imperative that sufficient research is needed to map out strategies and weed out any challenges that may dampen the uptake of micro insurance products within the country. As abridged in the records of the second European Microfinance conference by Karlijn Morsink, a mass of articles has been obtainable regarding product, household, and marketing characteristics, and risk attitudes. Other extents remain mostly intact. In most of the emerging markets globally there has been widening research on insurance services uptake, with large sections of the public remaining underinsured or uninsured. There is a need to develop a comprehensive financial system that takes the majority of the population who are low-income houses into hold; and within access of formal insurance services. This can be achieved through developing a safe and sound financial system (Churchill 2007).

From the review, it can be deduced that Kenya has a low demand for micro insurance services and in general a low penetration of 3.8% of the GDP, whereas there is untapped segment not yet explored. Within the country there is normally low information and responsiveness of the existing insurance products amid the informal segment; this is mainly caused by to lack of adequate information in the market. This however; can be changed with awareness creation programs and bridging of gaps between the formal sectors and informal financial sectors. The difference between the conventional insurance and micro insurance has to do with information asymmetries. From Kenyans perspective, insurance is perceived to be for the rich and a perception of hidden conditions tends to render the service susceptible to high levels of suspicion. Households tend to view insurance as being costly, unfair, a reserve for the wealthy in society, irrelevant thus preferring to engage in traditional developed forms of risk mitigation (McCord & Osinde, 2005; Cohen & Sebstad, 2005; Matul, 2005).

2.6 Research gaps

From the conclusion of literature review, micro insurance demands have their own limitations and challenges. First of all, the micro insurance industry is quite underdeveloped in the country, and there are no studies on literature that covers the financial determinants of demand for micro insurance in Kenya. Secondly, Kenya's micro insurance industries are faced with a myriad of challenges, or areas which need to be addressed. High levels of unawareness among the public, lack of industry information and poor education levels have been some of the general issues affecting demand for micro insurance (Nelson & Isaboke, 2012). Brown (2000) and Brown and McCord (2000) are of the view that the industry players should first understand the determinants of insurance penetration before designing products and services. Thirdly, micro insurance has low penetration, limitations looked into distribution problems, professional sales staff training and government policies, (Mugo & Okibo. 2015). The majority of the research papers have concluded that there is a strong link between distribution channels, the training of sales personnel, regulatory framework and the penetration of insurance services/products.

Lastly, minimal research, if any, has been done on financial determinants of micro insurance demand in Kenya. This research therefore, tried to follow up on previous research that has already been carried out in relation to micro insurance sector but narrow in on the gap on the financial determinants of micro insurance demand in the insurance service sector with the view of establishing how these factors affect the uptake of insurance.

2.7 Summary

With increasing liberalization of the local and regional markets there is need to instill discipline within the local financial systems and this can be accomplished through organized and structured development of the financial system. More importantly is the need of the financial system development to entrench the insurance market as a key player in the sector. However, underdevelopment of the insurance industry has led to mishaps between the business community needs and the designing of insurance products and services. More so, lack of inclusiveness of the informal households has led to low penetration of available insurance services. Hence, there is need for a detailed mapping of the risk facing households, the factors determining the insurance uptake for a well elaborate and effective design of micro insurance products and services to be achieved. Through the literature review and discussion of theories the researcher has gained insight into the field of micro insurance. This would form part of the foundation for a design of the research methodology as well as an understanding of the interpretation of the research data.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods and procedures followed in the conduct of the study, as well as the research design, population study, sampling methodology, and the data collection and analysis procedures. The study adopted both qualitative and quantitative approaches. Data analysis was undertaken by means of standard statistical procedures. Questionnaires were used to capture qualitative and quantitative data. The questionnaires were chosen due to its ability to collect concise data on the financial determinants of the demands of micro insurance products/services.

3.2 Research design

A research design is a framework that guides the collection and analysis of the data, showing how the problem under investigation will be solved. The function of a research design is to ensure that the evidence obtained enables the study to answer the research question as explicitly as possible.

According to Cooper and Schindler (2010) a research design is a grand plan that lineup the different methods and procedures that will be applied in collecting research data and analyzing the same. The researcher used a cross sectional survey research design. According to Saunders, Lewis and Thornhill (2009) this research design focuses on a particular research concern at a definite time. This research design assisted the researcher in determining the study objectives, the sampling techniques and sample size, the data collected to test the hypothesis and interpretation of the collected data (Nachmias, 1996). Due to lack of empirical data on the association between financial determinants and the demand for micro insurance products/services; a cross sectional study allowed the

research to review the existing conditions and develop the link between the research variables.

3.3 Target population

Mugenda and Mugenda (2003) point out that the population of a study entails all the individuals or objects that have an observable characteristic. This study targeted players in the insurance industry that are involved penetration of micro-insurance. The study purposed to determine the determinants of demand for micro-insurance in Kenya. The study therefore targeted the managers in the insurance companies, banc assurance and the insurance brokerage firms because they are in direct contact with clients and are not just aware of the concept of micro-insurance but are in the best position to accurately respond on the levels of demand of micro-insurance. The population of interest composed of all the 53 insurance companies in Kenya registered by the Insurance Regulatory Authority, the 216 registered insurance brokers and 25 registered banc assurance agencies. The population therefore consisted of a total of 294 elements. The unit of analysis being the firms, the respondents comprised of employees of the firms in key positions in the marketing departments or sections. (IRA 4th Quarter Report, 2016).

3.4 Sampling frame

A sampling frame contains some distinct characteristics that the researcher can identify with and include within a single sample (Saunders *et al*, 2007). A sample frame is a physical representation of the select target population and is made up of all the observable units within a sample (Kothari, 2012). In this study, the sampling frame was a list of 294 insurance service providers in Kenya obtained from the directory of Insurance Regulatory Authority (IRA, 2016). This is composed of insurance companies, banc assurance agencies, and brokers. The sampling frame was selected from the category of respondents that possess the required information.

3.5 Sample and Sampling Technique

A sample is a portion or part of the population of interest. The purpose of sampling is to gain an understanding about some features or attributes of the whole population based on the characteristics of the sample. The study adopted stratified random sampling technique where the subjects are selected in such a way that the existing subgroups in the population are more or less reproduced in the sample (Kombo & Tromp, 2009). This technique involved diving the population into three levels of homogeneous strata and applying simple random sampling to each stratum based on its proportion in the entire population. According to Kothari (2004), a population is stratified if founded on different characteristics of the population and a random sample is selected from each stratum.

The sample drawn should be representative of its population (Reading & Shaughnessy, 2000). Kerlinger (1986) is of the view that a sample size of 10% is adequate enough for reliable data analysis that allows for significance testing and is representative of the entire population of the research. Mugenda and Mugenda (2003) recommends a sample size of 10% of the population is enough, and at least 30 cases are required for statistical data analysis. Whereas Orodho (2005) states that most social researchers recommend at least 100 cases. The larger the sample, the more representative of the population from which they are drawn (Saunders *et al*., 2007). Statisticians have attested that the higher the size of a sample, the more closely its distribution is to the normal distribution (Namusonge, 2010).

The selected sample size determination was also guided by the 5% level of significance at which the formulated hypotheses were tested. The level of significance is the statistical standard which is utilized in the testing of a hypothesis (Namusonge, 2010). The level of confidence is 95%, being the level of confidence generally used for research in social science (Saunders et al., 2007). For calculation of sample size of a finite population, Israel (1992) provided a formula stated below. This formula was adopted in this study to calculate the sample size as shown. Basing on a 95% confidence level and e=0.05.

$$n = \frac{N}{1 + Ne^2}$$

Where

n is the sample size

N is the finite population size

$e = 0.05$

This study considered a population of 294 entities

Thus

$$n = \frac{294}{1 + (294 \times e^2)}$$

$$n = 170$$

The total sample size considered for the study was therefore 170 questionnaires were distributed across the 3 strata as shown in table 3.1 below.

Table 3.1 Sampli

ng Size

Strata	Population	Proportion	Sample Size
Insurance Companies	53	0.18	31
Insurance Brokers	216	0.73	125
Bancassurance Agencies	25	0.09	14
Total	**294**	**1**	**170**

3.6 Data Collection Instruments

Data collection is the different means through which a researcher collects information regarding the subject of the study (Creswell, 2007). Kothari (2012) supports the notion that a questionnaire gives the respondents the ability to answer the research questions adequately. The questions in the questionnaire were a mixture of open-ended and matrix type (Likert type scales). Kothari and Pals (1993), notes that open-ended questions enable the respondent to have freedom in expressing their opinions. Questionnaires are ideal as the enable faster data collection across large populations of study. Further, through utilization of questionnaire the pre-designed questionnaires ensure that only relevant information is obtained for the research. Sources of secondary data included published literature on the subject, journal articles, relevant books, websites, reports, Government of Kenya documents, working papers and discussion papers. Various policy documents from the Government of Kenya were used in order to provide an understanding of the institutional context of the study; these included Economic survey of 2015, Finance Bill 2015 and the Medium Term Plan I of the Vision 2030.

3.7 Data Collection Procedure

Questionnaires were self-administered and three research assistants were recruited and trained to assist in data collection. The target participants were managers who filled in the

questionnaires. The target participants were easy to identify, have adequate knowledge about the firm's micro insurance products, considering their crucial role and involvement. Organizations were first contacted and the intention to drop the questionnaires and the request to do so explained to the HR managers. The questionnaires were then delivered to the respondents and were waited for to fill them. The number of questionnaires that were utilized to collect data for this study was 170, since the firm was the unit of analysis and the sample size was 170 insurance services providers.

3.8 Pilot Test

A pilot test is an initial test of one or more components of a survey which helps disclose a concealed problem preceding to the administration of the survey. A pilot test was carried out on the questionnaire by distributing to selected colleagues and the target respondents. The result of the pilot tests aided the study to enhance the questions so as to integrate the feedback that was availed.

According to Miller and Yang (2007), Pilot testing is a form of mini survey which involves testing the entire research instrument so as to assist in organizing the questions, approximate the length of the questionnaire and improve on the efficiency of data collection. A pilot study was carried out in order to assist the study to identify more questions that do not make sense to participants, or problems with the questionnaire that might lead to biased answers. A pilot test was also done to test on the reliability and validity of the questionnaire. The research instruments were pre-tested using a sample of 5%, which is 8 respondents from the population of 157 of the sample size as per recommendations by Mugenda and Mugenda (2003) who observed that a successful pilot study uses 1% to 10% of the actual sample size. In these study, five percent of the sample questionnaire designed as the main data collection instrument was used to pre-test effectiveness and relevance of the instrument. In this case, eight questionnaires were used in the pilot test. The questionnaires pre-testing was done using randomly selected micro insurance providers which were not included in the final data collection.

3.8.1 Validity of Data Collection instruments

Validity refers to the extent to which an instrument will generate results which are consistent over time and an accurate representation of the total population under study (Joppe, 2000). The questionnaire was presented to ensure clarity and content validity prior to them being administered. A simple random sampling was used to choose organizations for pilot testing. According to Orodho (2005), the probability of being chosen is high with simple random sampling, and it represents the entire population. Its statistical properties allow the researcher to make interpretations about the population based on the result attained from the sample.

3.8.2 Reliability of Data Collection Instruments

Reliability analysis for testing reliability and internal consistency of the data items was conducted using the Cronbach's alpha; according to Kline (1999) as a rule of thumb, a coefficient of between 70% and 80% is acceptable. Cronnbach's alpha is a technique of the Kunder-Richardson (K-R) 20 formula, coefficient which are closer to 1, which is the maximum limit for correlation coefficient, representing perfect correlation are acceptable.

The formula is as follows:

$$KR_{20} = \frac{(K)\,(S_2 - \Sigma s^2)}{(S^2)\,(K - 1)}$$

KR_{20} = Reliability coefficient of internal consistency

K = Number of items used to measure the concept

S^2 = Variance of all scores

s^2 = Variance of individual items

3.9 Data Analysis and Presentation

The data was evaluated using SPSS version 22 for quantitative and qualitative analysis. The closed-ended questions were well thought out and coded making data easy to analysis. The qualitative data collected using open ended questions were analyzed using the content analysis technique so as to identify the main idea provided by respondents.

A descriptive statistical analysis was carried out on data collected to sum variables in terms of central tendency and measures of dispersion such as mean, median, standard deviation and skewness. The reliability test was carried out using Cronbach's alpha. Pearson's Product correlation, ANOVA tests were performed using SPSS. The linear regression analysis was used to prove the causality between independent and dependent variables. ANOVA test were useful in analyzing the differences between datasets as collected from managers.

3.9.1 Statistical Measurement model

Multiple regression analysis endeavors to determine if a cluster of variables together predict a given dependent variable, (Mugenda & Mugenda (2003)). The general multiple regression model for this study was:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon}$$

Where Y = Demand on micro insurance services

β_0=Intercept

β_1 - β_4 = Slopes coefficients representing the effect of the associated independent variables over the dependent one.

X_1 = Risk exposure

X_2 = Price

X_3 = Access to credit

X_4 = Income level

ε = Error term

To draw conclusions on the moderating effect of customers' personal characteristics on the demand for micro insurance services, a moderated multiple regression model was fitted and tested for significant. The model included interaction variables of the moderating variable and the demand for micro insurance services. The following MMR regression model was used for this study:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_{1z} X_1 Z + \beta_{2z} X_2 Z + \beta_{3z} X_3 Z + \beta_{4z} X_4 Z + \varepsilon$$

Where:

Y = Demand for micro insurance services β_0 = Constant term Beta

β_i is the coefficient for X_i (i=1,2,3,4)

X_1 = Risk exposure

X_2 = Price

X_3 = Access to Credit

X_4 = Income level

Z = Moderating variables

ε = Error term assumed to be a constant

X_iZ = Interaction term of personal characteristic with each of the independent variables (X_1, X_2, X_3, X_4)

3.9.2 Measurement of Variables

Factors that affect micro insurance demand, on purchase of insurance; depends on the perceived difference between the level of expected utility with insurance and expected utility without insurance given relative prices, income, and preference (Eling *et al*,. 2013). Demand for micro insurance was measured mainly using sales, number of policies underwritten and market share. A five-point likert scale (5=Strongly agree, to 1=Strongly disagree) was used for each of the statement corresponding to the various parameters for demand for micro insurance.

Risk exposure is seen as an event that causes financial liability. Risk exposure was measured using product on offer, default rate, distribution channel and transactional costs. Direct likert scale questions were also used for each of the statements corresponding to the various dimensions under risk exposure.

Price is the amount of money expected, required, or given in payment for something. Insurers expect premium to be paid for offering services. Price was measured based on cost, flexibility of payment and subsidies. A ratio scale was used to gauge the effect of price on demand for micro insurance.

Access to credit denotes the wealth an individual has the more one has access to credit the more one can increase their wealth. Access to credit was measured on eligibility to credit services, credit facilities and accessibility to loan, a five-point likert scale (5=Strongly agree, to 1= Strongly disagree) was used for each of the statements corresponding to the various dimensions on accessibility to credit.

Income is the consumption and savings prospect gotten by an individual within a definite timeframe. Income level was gauged on fixed or seasonal or from informal employment and the ability to pay on cash and carry basis. A five-point likert scale (5=Strongly agree, to 1= Strongly disagree) was used to gauge the effect of income level on demand for micro insurance.

Control variables; the main control variables in this study were customers' personal characteristics influencing the demand for micro insurance services. Gender, age and level of education may play a crucial role in determining whether or not to purchase insurance. Personal characteristics were measured on the gender, age, level of education, illness and death experience. A five-likert scale (5=Strongly agree, to 1= Strongly disagree) was used to determine the effect of personal characteristics on demand for micro insurance.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter describes the findings and discussion of results of the study on the financial determinants affecting the demand for micro insurance in the insurance industry in Kenya. The data collected in this study is evaluated, discussed and inferences made, in an effort to address the specific objectives of the study. Descriptive and inferential statistics were used to analyze the data on each variable. Data is further presented in the form of frequency distribution and various types of charts to facilitate description and explanation of the study findings. The inferential statistical analysis was conducted for the purpose of testing hypothesis that were stated in chapter one and determining the relationship between independent, moderating and dependent variables.

4.2 Response Rate

The target population for the study was three members of senior management from 294 insurance practicing firms listed by IRA. The sample was picked on the basis of a formula by Morris (2004), which was in line with the central limit theorem in statistical theory which implies that any sample equal to or greater than 30 is representative enough irrespective of the population size. The study obtained a response rate of 92% of the targeted sample. The response rate was as a result of the researcher's efforts in follow ups on the data collection where out of the 170 questionnaires issued, 157 were returned that were also examined to be well completed and valid for the study. The results show a good response rate as recommended by Mugenda and Mugenda (2003) in the description of a response rate for a study. According to the recommendation, a response rate of 50% is good as a representative of the sample whereas a response rate of above 70% is excellent.

Table 4. 1 Response rate

Strata	Sampled	Returned	Response rate
Insurance Companies	32	30	93%
Insurance Brokers	121	111	92%
Bancassurance Agencies	17	16	94%
Total	**170**	**157**	**92%**

4.3 Results of reliability and validity tests

4.3.1 Reliability test

Reliability is the measure of the instrument's ability to produce consistent and stable measurements (Mugenda and Mugenda, 2003). Reliability in research is affected by random error. As random error increases, reliability decreases. Radom error is the deviation from a true statement due to factors that have not effectively been addressed by the researcher. According to Zikmund (2010), errors may arise from inaccurate coding, ambiguous instructions interviewer fatigue or biasness. Reliability was tested using Cronbach's alpha statistics to measure the reliability of the questionnaire. An alpha coefficient of 0.8 or higher indicates that the collected data are reliable and have relatively high internal consistency and can be generalized to reflect opinions of all respondents in the target population (Zinbarg, 2005). From the analysis of the pilot data, the study found that all the constructs had Cronbach's alpha statistics greater than 0.8 implying that the indicators used to measure each of the constructs gave reliable measurements. The items used to measure the constructs were therefore accepted.

Table 4. 2: Reliability Cronbach

Variable	Cronbach's Alpha	Comment
Risk Exposure	0.975	Accepted
Price	0.851	Accepted
Credit Accessibility	0.895	Accepted
Income Level	0.844	Accepted
Customers' Personal Characteristics	0.956	Accepted
Demand For Micro Insurance Services	0.864	Accepted

4.3.2 Factor Analysis

Factor analysis was used for dimension reduction to help assess the validity of the instrument used to collect the data. Factors are underlying unobserved structures of smaller sets of composite dimensions relative to the larger set of observed indicators. Factor analysis reduces the dimensions from the larger set of observed variables to the smaller set of unobserved variables. This study used Confirmatory Factor Analysis (CFA) techniques to assess the validity of the questionnaire measurements and for dimension reductions. CFA is adopted when the underlying structures of the observed variables are based on existing theories. CFA confirms that the observed indicators belong to the constructs based on the theories. Factor loadings which are the extracted variances of the indicators to the factors are used to assess relationship between indicators and their factors. An observed indicator belongs to the construct if it loads the construct with a factor loading above 0.4. The factor loadings were there extracted as shown in the factor loadings matrix in appendix 4. All the indicators were found to load the constructs with loadings above 0.4 thus none of the indicators were expunged. Further to the factor loadings, factor scores were extracted that were used as weight to generate total scores used the latent variables of the constructs for inferential analysis.

4.3.3 Construct validity

The measure of construct validity is a measure of both convergent and discriminant validity using factor analysis. Convergent validity was conducted to confirm that constructs that are expected to be related are related while discriminant validity tested whether constructs that are expected to have no relationships are truly not related.

4.3.4 Convergent validity

To measure convergent validity, the researcher computed the average extracted variances from the factor loadings for each construct. The computed average variances were then compared with the threshold of 0.5. Each construct has an average variance extracted above 0.5 as shown in table 4.3 implying convergent validity of the instrument used to collect data.

Table 4. 3: Average Variance Extracted

Construct	AVE
Risk Exposure	0.684
Price	0.683
Credit Accessibility	0.772
Income Level	0.720
Characteristics	0.672
Demand for micro insurance	0.687

4.3.5 Discriminant validity

Discriminant validity is the confirmation of non-relationship between the items measuring the constructs. To confirm this, the average variance extracted for each construct is compared with the squared correlations. Table 4.4 shows the computed and tabulated squared correlations while table 4.5 shows the comparison with the AVE on the diagonal

and highlighted. As shown, all the AVEs are greater than the squared correlations between the constructs implying that the instrument exhibits discriminant validity.

Table 4. 4: Squared Correlations

	Risk Exposure	**Price**	**Credit Accessibility**	**Income Level**	**Customers' Personal Characteristics**	**Demand For Micro Insurance**
Risk Exposure	1	0.198	0.279	-0.228	0.41	0.146
Price	0.198	1	-0.028	-0.204	0.101	0.249
Credit Accessibility	0.279	-0.028	1	-0.012	0.381	0.155
Income Level	-0.228	-0.204	-0.012	1	-0.187	0.278
Customers' Personal Characteristics	0.41	0.101	0.381	-0.187	1	0.041
Demand For Micro Insurance Services	0.146	0.249	0.155	0.278	0.041	1

Table 4. 5: Squared correlations and AVE

	Risk Exposure	**Price**	**Credit Accessibility**	**Income Level**	**Customers' Personal Characteristics**	**Demand For Micro Insurance**
Risk Exposure	0.684	0.198	0.279	-0.228	0.41	0.146
Price	0.198	0.683	-0.028	-0.204	0.101	0.249
Credit Accessibility	0.279	-0.028	0.772	-0.012	0.381	0.155
Income Level	-0.228	-0.204	-0.012	0.720	-0.187	0.278
Customers' Personal Characteristics	0.41	0.101	0.381	-0.187	0.672	0.041
Demand For Micro Insurance Services	0.146	0.249	0.155	0.278	0.041	0.687

4.3.6 KMO and Bartlett's test

The KMO and Bartlet's test are sampling adequacy tests and help confirm the reliability and compactness of the results from factor analysis. The KMO is the proportion of variance that is caused by underlying factors. A value of zero or close to zero indicate that the factor analysis results are likely to be inappropriate due to diffusion in the patterns of correlation (Nachmias & Nachmias, 2008). The KMO value for this study was found to be equal to 0.814 which is close to 1 (Cooper & Schindler, 2010). This implies the correlations are relatively compact and thus factor analysis yielded reliable factors. Bartlett's test is a test of sphericity. The test uses a chi-square statistic to check if the correlation matrixes of the observed variables are an Identity matrix which would imply that they are not related and would not be suitable for factor analysis. The p-value of the chi-square statistic for the Bartlett's test was found to be 0.000 which is less than 0.05. This implies that the observed indicators are related and would therefore be suitable for factor analysis.

Table 4. 6: KMO and Bartlett's

Test		**Value**
Kaiser-Meyer-Olkin measure of sampling adequacy.		.814
Bartlett's test of sphericity	Approx. Chi-square	2640.195
	df	780
	sig.	.000

4.4 General Information

The section gives results on the proportion of business that the companies generated from micro insurance services.

Proportion of business generated from micro insurance

According to the findings, majority of the respondents (78%) reported that their organizations generated about 0 – 25% of the premium amount from micro insurance businesses. The least (22%) reported that their organizations generated about 26 – 50% of their premiums from the micro insurance business. This clearly indicates that majorly, micro insurance businesses were not effective in the insurance companies

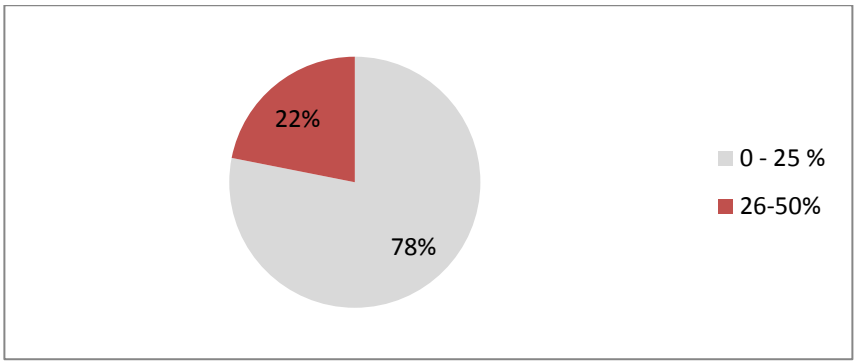

Figure 4. 1 Proportion of business generated from micro insurance

Subsidization through donor funding

According to the findings, majority of the respondents (94.1%) reported that their organizations had not been subsidized by donor funding in their businesses. Only 5.9% of the respondents reported that their businesses had been subsidized through donor funding.

On examining on the micro insurance products sold in the insurance companies, the study established that the major products (services) were agricultural, pension, medical and funeral products.

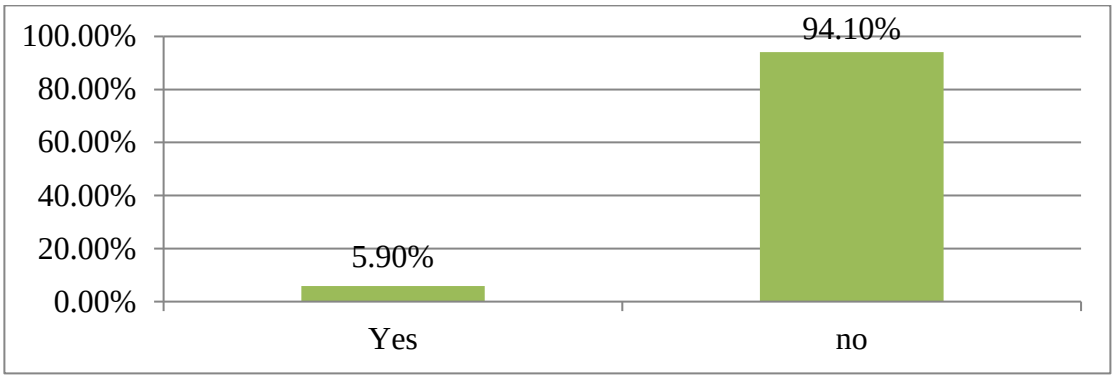

Figure 4. 2 Subsidization through donor funding

4.4 Descriptive Statistics

This section presents the descriptive analysis of the outcomes on financial determinants on demand for micro insurance services which include; risk exposure, price, access to credit, income level, personal characteristics such as gender and age and the demand for micro insurance services. Descriptive statistics were used to define the phenomenon in question and enable the study to come up with conclusions about characteristics of data used.

4.4.1 Risk exposure

The study sought to find out the effect of risk exposure on demand for micro insurance services in Kenya. To measure this variable risk exposure, the respondents were asked how much they agreed with the statement that insurance companies prefers agency and brokerage in selling traditional insurances than micro insurance; 3 respondents strongly disagreed that insurance companies prefers agency and brokerage in selling traditional insurances than micro insurance, 13 respondents just disagreed while 47 respondents remained neutral. There are 60 respondents who are in agreement that insurance companies prefer agency and brokerage in selling traditional insurances than micro insurance and 34 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4, implying that on average, there is agreement

in the perception that insurance companies prefers agency and brokerage in selling traditional insurances than micro insurance. This confirms findings by Gitonga (2009) that insurance firms need to formulate innovative distribution channel such as using agents. Whereas Maleika and Kuriakose (2008) recommend insurance providers to use available distribution channels such as banks (bancassurance), retailers or micro-finance institutions (MFIs). Churchill (2007) attributes the difficulties with distribution channels to the use of traditional channels that work for the established market.

The questionnaire sought to find out how much the respondents agreed that there are high transactional costs of managing micro insurance in the company; 3 respondents strongly disagreed that there are high transactional costs of managing micro insurance in the company, 14 respondents just disagreed while 52 respondents remained neutral. There are 49 respondents who are in agreement that there are high transactional costs of managing micro insurance in the company and 39 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 3, implying that on average, there is neutrality in the perception that there are high transactional costs of managing micro insurance in the company. The findings on high transactional costs were in line with Chaudhury and Kanti (2014) whom established that high costs in administration charges and other hidden costs were noted to discourage uptake in rural India. Njuguna *et al*, (2012) noted that micro insurance providers were using technology to reduce high administration costs.

To measure this variable, the respondents were also asked how much they agreed with the statement that the company associates micro insurance with fraudulent activities; 6 respondents strongly disagreed that the company associates micro insurance with fraudulent activities, 7 respondents just disagreed while 49 respondents remained neutral. There are 50 respondents who are in agreement that the company associates micro insurance with fraudulent activities and 45 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. This implies that on average, there is agreement in the perception that the company associates micro insurance

with fraudulent activities. According to Chummun (2012), low income markets are susceptible to fraudulent schemes.

Another indicator for this variable was based on the level of agreement that micro insurance attracts high risk individuals leading to adverse selection; 4 respondents strongly disagreed that micro insurance attracts high risk individuals leading to adverse selection, 12 respondents just disagreed while 63 respondents remained neutral. There are 35 respondents who are in agreement that micro insurance attracts high risk individuals leading to adverse selection and 43 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 3. This implies that on average, there is neutrality in the perception that micro insurance attracts high risk individuals leading to adverse selection. The study findings concur with Mbogo (2009) who established mitigating against adverse selection by excluding clients of high risk probability and reduce selection by screening applicants.

Respondents were also asked to state how much they agreed that the company has a rigid regulatory framework; 6 respondents strongly disagreed that the company has a rigid regulatory framework, 15 respondents just disagreed while 38 respondents remained neutral. There are 54 respondents who are in agreement that the company has a rigid regulatory framework and 44 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4, implying that on average, there is agreement in the perception that the company has a rigid regulatory framework. According to IRA policy paper on micro insurance, there are regulatory hurdles such as stringent definitions of what type of person or organization is allowed to underwrite or sell insurance products.

Another indicator for this variable was based on the level of agreement that there is a mismatch between affordability and suitability in the services offered by the company; 3 respondents strongly disagreed that there is a mismatch between affordability and suitability in the services offered by the company, 16 respondents just disagreed while 49

respondents remained neutral. There are 51 respondents who are in agreement that there is a mismatch between affordability and suitability in the services offered by the company and 38 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. This implies that on average, there is agreement in the perception that there is a mismatch between affordability and suitability in the services offered by the company. Study by Brown and McCord (2000) confirmed that low-income earners purchase insurance only if the products are tailored for their needs and are priced correctly.

The next indicator was on the level of agreement that the company has appropriate tools for data collection especially in weather forecasting for index-based weather insurance; 6 respondents strongly disagreed that the company has appropriate tools for data collection especially in weather forecasting for index-based weather insurance, 15 respondents just disagreed while 44 respondents remained neutral. There are 57 respondents who are in agreement that the company has appropriate tools for data collection especially in weather forecasting for index-based weather insurance and 35 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. The implication here is that on average, there is agreement in the perception that the company has appropriate tools for data collection especially in weather forecasting for index-based weather insurance. The study results differ with Njuguna *et al,* 2012 who established that there were inappropriate tools for data collection in weather forecasting for index-based weather insurance though offers strategies such as partnering with organizations such as weather station for index insurance.

Considering the indicator on the level of agreement with the statement that there are adequate distribution channels of insurance services in the company; 2 respondents strongly disagreed that there are adequate distribution channels of insurance services in the company, 16 respondents just disagreed while 48 respondents remained neutral. There are 47 respondents who are in agreement that there were adequate distribution channels of insurance services in the company and 44 respondents strongly agreed with the

statement. The modal class of the responses to this indicator was found to be 3. This has an implication that on average, there is neutrality in the perception that there are adequate distribution channels of insurance services in the company. This study differs with Njuguna *et al,* 2012 who found out that there is limited distribution channels for micro insurance products whereas Garand and Wipf (2006) conquered with the findings, found out that the main distribution involved community based organizations, MFI's NGO's and co-operative societies hence adequate distribution channel.

The key respondents from the firms were also to state their extent of agreement that the products offered by the company usually meet the clients' needs; 2 respondents strongly disagreed that the products offered by the company usually meet the clients' needs, 12 respondents just disagreed while 50 respondents remained neutral. There are 48 respondents who are in agreement that the products offered by the company usually meet the clients' needs and 45 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 3, implying that on average, there is neutrality in the perception that the products offered by the company usually meet the clients' needs. Gitau (2013) on the contrary concluded that, company faces product design challenges such as failure of the product not meeting customers' expectations.

To measure risk exposure, the respondents were also asked how much they agreed with the statement that micro-insurance has a high prevalence of premium defaults (policy lapse) in the company; 4 respondents strongly disagreed that micro-insurance has a high prevalence of premium defaults (policy lapse) in the company, 11 respondents just disagreed while 41 respondents remained neutral. There are 56 respondents who are in agreement that micro-insurance has a high prevalence of premium defaults (policy lapse) in the company and 45 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. The implication here being that on average, there is agreement in the perception that micro-insurance has a high prevalence of premium defaults (policy lapse) in the company. This study concurs with Njuguna

(20120 who found out that there are high lapse rates especially where claims have not occurred.

Next, the respondents were asked whether they agreed that micro-insurance experiences low penetration hence diseconomies of scale in the company; 5 respondents strongly disagreed that micro-insurance experiences low penetration hence diseconomies of scale in the company, 12 respondents just disagreed while 39 respondents remained neutral. There are 55 respondents who are in agreement that micro-insurance experiences low penetration hence diseconomies of scale in the company and 46 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. This implies that on average, there is agreement in the perception that micro-insurance experiences low penetration hence diseconomies of scale in the company.
The study concurs with findings of Njuguna (2012) and Gikonyo (2014) who singled out diseconomies of scale as a result of low penetration.

Table 4. 7 Risk Exposure and Demand

	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mode
The company prefers agency and brokerage in selling traditional insurances than micro insurance	3	13	47	60	34	4
There are high transactional costs of managing micro insurance in the company	3	14	52	49	39	3
The company associates micro insurance with fraudulent activities	6	7	49	50	45	4
Micro insurance attracts high risk individuals leading to adverse selection	4	12	63	35	43	3
The company has a rigid regulatory framework	6	15	38	54	44	4
There is a mismatch between affordability and suitability in the services offered by the company	3	16	49	51	38	4
The company has appropriate tools for data collection especially in weather forecasting for index-based weather insurance	6	15	54	57	35	4
There are adequate distribution channels of insurance services in the company	2	16	48	47	44	3
The products offered by the company usually meet the clients' needs	2	12	50	48	45	3
Micro-Insurance has a high prevalence of premium defaults (policy lapse) in the company	4	11	41	56	45	4
Micro-Insurance experiences low penetration hence diseconomies of scale in the company	5	12	39	55	46	4

4.4.2 Price of micro insurance

Table 4.8 presents the study results on the effect of price on the demand for micro insurance services. The respondents were asked to respond to indicators of price that were measured on an interval scale. The measurements were grouped data of ratios of indicators of prices of micro insurance products. Based on the scale of measurements of the grouped data on indicators, it was possible to use the frequencies of to calculate the mean as a measure of central tendency and the with the standard deviation as a measure of dispersion for the price indicators.

The respondents were to indicate the average proportional reduction in insurance premium to accommodate their products under micro insurance as a measure of their pricing of micro insurance products. The mean average proportional reduction in insurance premium to accommodate products under micro insurance was found to be 30.3% across the firms with a standard deviation of 6.7%. The average proportional reduction in insurance premium to accommodate products under micro insurance ranged between 19% and 40%. The low standard deviation shows that there was some homogeneity in how the firms' micro insurance products pricing were accommodated. The differences in proportional reduction in prices were not very large. Cole *et al*, (2013), noted that a price decline increases the probability of take up of rainfall insurance. According to Mobarak and Rosenzwig, (2012), a price decline relative to the actuarial price increases the probability of take up whereas Dercon *et al*, (2003) finds that a reduction in price leads to significant effects on health insurance demand increasing probability of purchase.

The mean proportion of subsidies and benefits of insurance products reduced to accommodate the reduced prices for micro insurance was found to be 44.3%. This shows that the average rate of reduction of subsidies, benefits and riders on products to accommodate the reduced prices in much higher than the average rate of the reduced premiums. This is an implication that individuals purchasing normal product get more value for money as compared to those purchasing micro insurance products. The standard

deviation of the proportion of subsidies and benefits of insurance products reduced to accommodate the reduced prices for micro insurance was found to be 13.3% and it ranged between 23% and 65%. According to Thornton *et al*., (2010) observed that randomized subsidies increase takes up of health insurance.

The average monthly interest rate attracted from premium financed micro insurance products ranged between 8% and 15%. This shows that the firms use homogeneous interest which is also shown by the very low standard deviation of 2.3%. The mean average monthly interest rate attracted from premium financed micro insurance products was found to be 11.4%.

The study also sought to measure price of micro insurance product by the payment mode. The researcher therefore sought to determine the proportion of payments for micro insurance products that are made and accepted in non-liquid payments such as post-dated cheques. This was found to have a mean of 55.1% with a standard deviation of 9.1%. The proportion of payments for micro insurance products that are made and accepted in non-liquid payments such as post-dated cheques ranged between 40% and 70%. The standard deviation is also low implying some level of homogeneity across the firms in accepting with payments that are non-liquid and postdated payments. The mean of 55.1% is above half implying that the firms are geared to improving demand of micro-insurance by flexibility in payment modes. Akter, Brower, Chowdhury and Aziz (2008) found out availability of periodic rather than lump-sum payments are relevant to demand of insurance. Liu and Myers (2012) propose an insurance design where farmers can delay payment of the premium until the end of the insured period.

The mean maximum acceptable loss ratio above which the micro products premiums are loaded up was found to be 83.9% with a standard deviation of 14.4%. Insurance firms make losses when the loss ratios are above 100%. On average the firms tend to load up premiums of micro insurance products when they experience loss ratios of 90%. This is to avoid possible losses. Loading up premium is due to loss ratios would however be

expected to reduce consumption of the product. The standard deviation is however 14% implying that there is some level of heterogeneity in the cut-off loss ratios for the firms implying large differences in the cut-off across the firms.

The mean average rate of premium loading with every increase in loss ratio exceeding your acceptable loss ratio for micro insurance products was found to be 9.8% with a standard deviation of 3.1%. The average rate of premium loading with every increase in loss ratio exceeding your acceptable loss ratio for micro insurance products ranged between 5% and 15%. The standard deviation is quite low' implying homogeneity and thus on average many of the firms would load up premium by 10% when the loss ratios exceed their bare acceptable maximum for micro insurance products. Olila, Nyikal and Otieno (2015) concluded that the price of insurance was a predictor of insurance uptake among farmers.

Table 4. 8 Price of Micro Insurance

	Mean	Standard deviation
The average proportional reduction in insurance premium to accommodate products under micro insurance	0.303	0.067
Proportion of subsidies and benefits of insurance products reduced to accommodate the reduced prices for micro insurance	0.443	0.133
The average monthly interest rate attracted from premium financed micro insurance products	0.114	0.023
Proportion of payments for micro insurance products that are made and accepted in non-liquid payments such as post-dated cheques	0.551	0.091
The maximum acceptable loss ratio above which the micro products premiums are loaded up	0.839	0.144

The average rate of premium loading with every increase in loss ratio exceeding your acceptable loss ratio for micro insurance products	0.098	0.031

4.4.3 Credit Accessibility

The section presents the findings on the effect of the credit accessibility on the demand for micro insurance services. The findings are based on mode as measure of central tendency. With a scale of 1 to 5, a mean value towards zero (0) indicated a strong extent of disagreement whereas a mean value close to 5 indicated a strong extent of agreement among the respondents. The findings are as presented in Table 4.9.

To measure the construct credit accessibility, the respondents were also asked how much they agreed with the statement that micro insurance clients can access loans against their policies in the company; 4 respondents strongly disagreed that micro insurance clients can access loans against their policies in the company, 15 respondents just disagreed while 45 respondents remained neutral. There are 42 respondents who are in agreement that micro insurance clients can access loans against their policies in the company and 51 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 5. This has an implication that on average, there is strong agreement in the perception that micro insurance clients can access loans against their policies in the company.

Analysis of the level of agreement of the respondents that access to potential risk-coping possibilities, other than credit, correlate with insurance take up; 3 respondents strongly disagreed that access to potential risk-coping possibilities, other than credit, correlate with insurance take up, 13 respondents just disagreed while 48 respondents remained neutral. There are 57 respondents who are in agreement that access to potential risk-coping possibilities, other than credit, correlate with insurance take up and 36 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4, implying that on average, there is agreement in the perception that access

to potential risk-coping possibilities, other than credit, correlate with insurance take up. The study is in line with Saqware (2012), who found out that some risk exposure had significant effect on demand while others had less significant effect. Study of Weiss (2006) found out that risk is a major challenge to micro insurance service providers.

The other indicator considered for measuring this variable was on how much respondents agree that there is limited eligibility to credit services amongst the low income earners in the company; 2 respondents strongly disagreed that there is limited eligibility to credit services amongst the low income earners in the company, 18 respondents just disagreed while 43 respondents remained neutral. There are 62 respondents who are in agreement that there is limited eligibility to credit services amongst the low income earners in the company and 32 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. The implication here is that on average, there is agreement in the perception that there is limited eligibility to credit services amongst the low income earners in the company. Ito and Kono 2010, and Karlan *et al*., 2012, find little or no effect of credit constraints on micro insurance demand. Respondents were also asked to state how much they agreed that credit facilities available in the company are economically sustainable beyond the project period; 3 respondents strongly disagreed that credit facilities available in the company are economically sustainable beyond the project period, 18 respondents just disagreed while 46 respondents remained neutral. There are 44 respondents who are in agreement that credit facilities available in the company are economically sustainable beyond the project period and 46 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 3, implying that on average, there is neutrality in the perception that credit facilities available in the company are economically sustainable beyond the project period.

Table 4. 9 Credit Accessibility

	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mode
Micro insurance clients can access loans against their policies in the company	4	15	45	42	51	5
Access to potential risk-coping possibilities, other than credit, correlate with insurance take up	3	13	48	57	36	4
There is limited eligibility to credit services amongst the low income earners in the company	2	18	43	62	32	4
Credit facilities available in the company are economically sustainable beyond the project period	3	18	46	44	46	3

4.4.4 Income Level

This section presents the results on the effect of income level on the demand for micro insurance services. The findings are based on mode as measure of central tendency. With a scale of 1 to 5, a mean value towards zero (0) indicated a strong extent of disagreement whereas a mean value close to 5 indicated a strong extent of agreement among the respondents. The findings are as presented in Table 4.10.

To measure income level, the respondents were asked how much they agreed with the statement that seasonal flows of income and expenditures of low end clients affect premium payments; 7 respondents strongly disagreed that seasonal flows of income and expenditures of low end clients affect premium payments, 12 respondents just disagreed while 39 respondents remained neutral. There are 55 respondents who are in agreement that seasonal flows of income and expenditures of low end clients affect premium payments and 44 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. This has an implication that on average,

there is agreement in the perception that seasonal flows of income and expenditures of low end clients affect premium payments. The result on this was in line with findings of Morris *et al*, (2000) that income affects household's ability to afford insurance.

The key respondents from the firms were also to state their extent of agreement that micro insurance prospects are mainly in informal employment and this affects the uptake of insurance; 3 respondents strongly disagreed that micro insurance prospects are mainly in informal employment and this affects the uptake of insurance, 16 respondents just disagreed while 40 respondents remained neutral. There are 60 respondents who are in agreement that micro insurance prospects are mainly in informal employment and this affects the uptake of insurance and 38 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. This has an implication that on average, there is agreement in the perception that micro insurance prospects are mainly in informal employment and this affects the uptake of insurance. The study is in collaboration with Saqware (2012) findings, that self-employed household has positive and significant effect to the demand for micro insurance.

Considering the indicator on the level of agreement with the statement that most micro insurance do not meet insurance requirements of cash and carry; 3 respondents strongly disagreed that most micro insurance do not meet insurance requirements of cash and carry., 12 respondents just disagreed while 38 respondents remained neutral. There are 59 respondents who are in agreement that most micro insurance do not meet insurance requirements of cash and carry and 45 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. This implies that on average, there is agreement in the perception that most micro insurance do not meet insurance requirements of cash and carry.

Table 4. 10 Income Level

	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mode
Seasonal flows of income and expenditures of low end clients affect premium payments	7	12	39	55	44	4
Micro insurance prospects are mainly in informal employment and this affects the uptake of insurance	3	16	40	60	38	4
Most micro insurance do not meet insurance requirements of cash and carry.	3	12	38	59	45	4

The study of Jutting (2003) observes that low income is the main reason as to why people do not subscribe to community based health insurance scheme in rural Senegal. Masese (2013) finds out that, there is a positive relationship between income level and life insurance uptake.

As illustrated in the Figure 4.3, the major source of income for the micro-insurance clients is from their savings. This represented 56% of the sources given followed by salaries which had 34% and other sources standing at 10%. Other sources were such as donation from families and friends, and business sources.

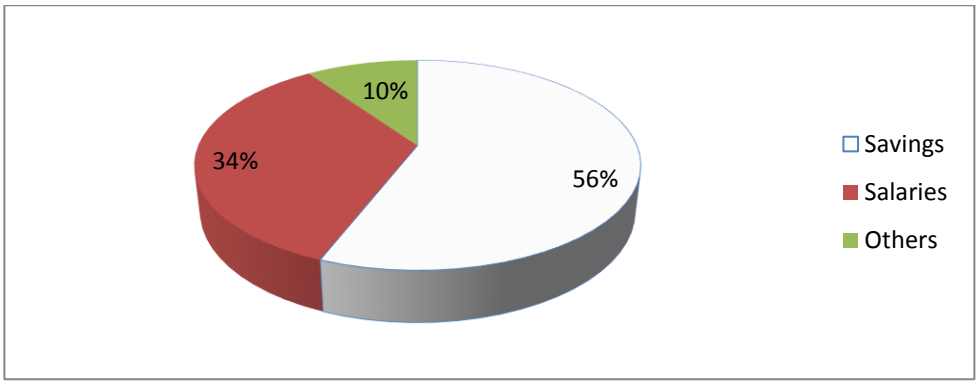

Figure 4. 3 Sources of income of micro insurance clients

Findings from Figure 4.4 illustrate that, majority of the micro insurance clients were above minimum wage rate (56.7%). 23.2% were at the minimum wage rate and the least (20.1%) were below minimum wage rate. This shows that the uptake of the micro insurance services is determined greatly by the level of income of the clients. The study can be supported by Saqware (2012) findings that the effect of income is negatively and statistically significant for insurance demand.

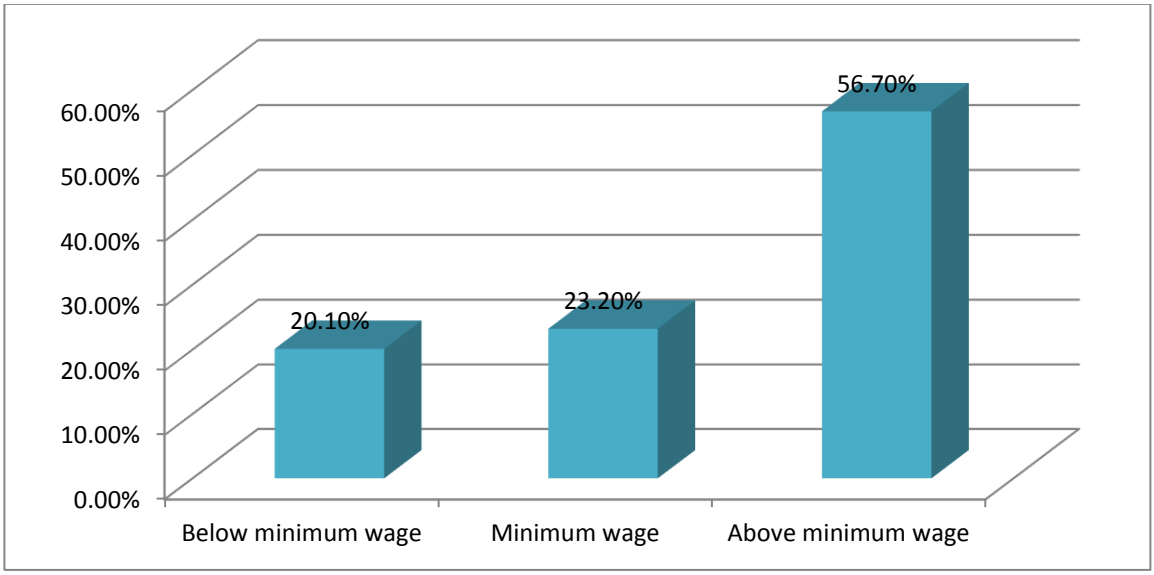

Figure 4. 4 Income levels of majority of the micro insurance clients

According to the findings (fig, 4.5), majority of the micro insurance clients (75.1%) paid the premiums through cash. 24.9% on the other hand used cheques as the mode of payment for their premiums. This clearly shows that cash payment was the main payment mode regarded by the micro insurance services consumers in the country.

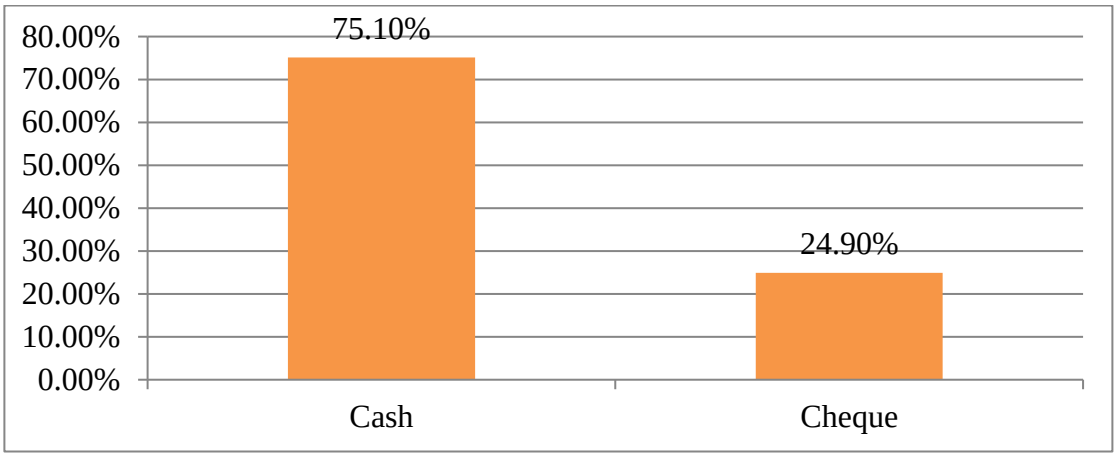

Figure 4. 5 Mode of premium payment

4.4.5 Customers' Personal Characteristics

This section presents the study findings on the effect of customers' personal characteristics on the demand for micro insurance services. The findings as presented in Table 4.11 shows the level of agreement of the respondents on the given aspects of customer characteristics and their effect on demand for micro insurance services. The results are on means and standard deviation which are based on the likert scale data collected.

To measure the moderating variable, the respondents were also asked how much they agreed with the statement that age of an individual affects the uptake of insurance; 5 respondents strongly disagreed that age of an individual affects the uptake of insurance, 13 respondents just disagreed while 45 respondents remained neutral. There are 48 respondents who are in agreement that age of an individual affects the uptake of insurance and 46 respondents strongly agreed with the statement. The modal class of the responses

to this indicator was found to be 4. This has an implication that on average, there is agreement in the perception that age of an individual affects the uptake of insurance. According to study by Cao and Zhang (2011), they found out that age has a positive effect on demand while Gine *et al*, (2008) found a negative effect, whereas Cole *et al*, (2013) found none.

Considering the indicator on the level of agreement with the statement that income status of an individual affects the uptake of micro insurance products; 4 respondents strongly disagreed that income status of an individual affects the uptake of micro insurance products, 18 respondents just disagreed while 39 respondents remained neutral. There are 54 respondents who are in agreement that income status of an individual affects the uptake of micro insurance products and 42 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4, implying that on average, there is agreement in the perception that income status of an individual affects the uptake of micro insurance products. The studies of Arun (2012), found out that the affordability of an insurance cover is directly associated with one's income and lack of money is a major reason why people do not purchase micro insurance products.

Respondents were also asked to state how much they agreed that level of education affects the demand for micro insurance products; 2 respondents strongly disagreed that level of education affects the demand for micro insurance products, 15 respondents just disagreed while 48 respondents remained neutral. There are 55 respondents who are in agreement that level of education affects the demand for micro insurance products and 37 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. This has an implication that on average, there is agreement in the perception that level of education affects the demand for micro insurance products. Studies of Akter *et al*, (2008), Chen, Hu, Xiao and Xing (2013), and Jehu-Appiah Aryeety, Agyepong, Spaan and Baltussen (2011) found that educated people are more likely to take up insurance.

The response to the question on whether they agreed that effect of peers indeed mattered in the purchase of insurance; 3 respondents strongly disagreed that effect of peers indeed matters in the purchase of insurance, 20 respondents just disagreed while 49 respondents remained neutral. There are 47 respondents who are in agreement that effect of peers indeed matters in the purchase of insurance and 38 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 3. The implication here is that on average, there is neutrality in the perception that effect of peers indeed matters in the purchase of insurance. The study of Patankar (2011) and Gine *et al*, (2008) found out that insurance purchases by people close to each other are correlated.

The other indicator considered for measuring this variable was on how much respondents agree that mode of insurance premium payment affects insurance uptake; 4 respondents strongly disagreed that mode of insurance premium payment affects insurance uptake, 13 respondents just disagreed while 47 respondents remained neutral. There are 58 respondents who are in agreement that mode of insurance premium payment affects insurance uptake and 35 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4, implying that on average, there is agreement in the perception that mode of insurance premium payment affects insurance uptake.

The other indicator considered for measuring this variable was on how much respondents agree that illness and death constitute the most important risks for households; 1 respondent strongly disagreed that illness and death constitute the most important risks for households, 17 respondents just disagreed while 53 respondents remained neutral. There are 50 respondents who are in agreement that illness and death constitute the most important risks for households and 36 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 3. This has an implication that on average, there is neutrality in the perception that illness and death constitute the most important risks for households. Study of Saqware (2012) on risk exposure related to

health and death crisis, he found negative estimates with demand for micro insurance as people will use common and familiar informal techniques.

The next indicator was on the level of agreement that client perceptions of communications from the insurance provider about product affect demand for insurance; 4 respondents strongly disagreed that client perceptions of communications from the insurance provider about product affect demand for insurance, 16 respondents just disagreed while 47 respondents remained neutral. There are 50 respondents who are in agreement that client perceptions of communications from the insurance provider about product affect demand for insurance and 40 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. This implies that on average, there is agreement in the perception that client perceptions of communications from the insurance provider about product affect demand for insurance. Muriuki (2013), established that ineffective advertisement and lack of customer awareness on insurance services greatly hinders marketing of insurance services.

The study sought to find out the perception of respondents on the indicator that gender and marital status relates to differences in vulnerabilities; 7 respondents strongly disagreed that gender and marital status relates to differences in vulnerabilities, 9 respondents just disagreed while 44 respondents remained neutral. There are 62 respondents who are in agreement that gender and marital status relates to differences in vulnerabilities and 35 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. The implication here is that on average, there is agreement in the perception that gender and marital status relates to differences in vulnerabilities. There is mixed evidence on gender likely to affect purchase of insurance with Jehu-Appiah *et al.*, (2011) finding women to be more likely to purchase insurance, while Bonan, Dagnelio, LeMay-Boucher and Tenikwe (2011), Schneider and Diop (2004) observe a higher take up rate among men. De Allegri, Sanon, Bridges and Sauerborn (2006) found out that household heads make the decision on their own without consulting their spouse.

To measure this variable, the respondents were also asked how much they agreed with the statement that quality of living conditions relates to the risk profile of individuals or households; 6 respondents strongly disagreed that quality of living conditions relates to the risk profile of individuals or households, 13 respondents just disagreed while 45 respondents remained neutral. There are 50 respondents who are in agreement that quality of living conditions relates to the risk profile of individuals or households and 43 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. The implication here is that on average, there is agreement in the perception that quality of living conditions relates to the risk profile of individuals or households. Helms (2006) and United Nations (2006) in their study found that micro insurance services help the poor manage risks and improve standard of living.

The next indicator was on the level of agreement that clients' perception on complicated claims processes affect demand for insurance; 6 respondents strongly disagreed that clients' perception on complicated claims processes affect demand for insurance, 12 respondents just disagreed while 50 respondents remained neutral. There are 50 respondents who are in agreement that client's perception on complicated claims processes affect demand for insurance and 39 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 3. This implies that on average, there is neutrality in the perception that client's perception on complicated claims processes affect demand for insurance. In line with study of McCord (2008) who found out that if insurers honor their legal responsibilities by making prompt payment for claims, then people will be encouraged to purchase micro insurance products.

Table 4. 11 Customer Characteristics

	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mode
Age of an individual affects the uptake of insurance	5	13	45	48	46	4
Income status of an individual affects the uptake of micro insurance products	4	18	39	54	42	4
Level of education affects the demand for micro insurance products	2	15	48	55	37	4
Effect of peers indeed matters in the purchase of insurance	3	20	49	47	38	3
Mode of insurance premium payment affects insurance uptake	4	13	47	58	35	4
Illness and death constitute the most important risks for households	1	17	53	50	36	3
Client perceptions of communications from the insurance provider about product affect demand for insurance	4	16	47	50	40	4
Gender and marital status relates to differences in vulnerabilities	7	9	44	62	35	4
Quality of living conditions relates to the risk profile of individuals or households	6	13	45	50	43	4
Clients perception on complicated claims processes	6	12	50	50	39	3

As shown in the Figure 4.6, most of the micro insurance policy holders (45%) were in the age group 38 – 47 years. 29% were aged between 48 – 57 years whereas 26% were in the age limit of 28 – 37 years. This clearly indicates that; the micro insurance policy holders were the aged with the uptake among the young being poor. One's age therefore affected the demand for micro insurance services. Cohen and Einav (2007) and Halek and Eisenhauer (2001) observed a u-shaped relationship between age and risk attitudes on choices of insurance. Study by Cao and Zhang (2011) find that age has a positive effect on demand.

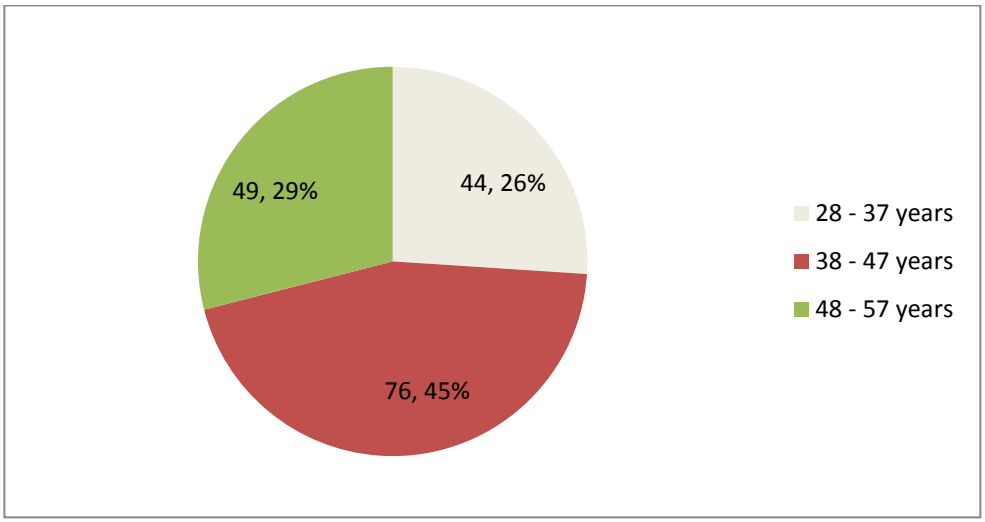

Figure 4. 6 Average age Bracket of Micro insurance policy holders

According to the findings (Fig.4.7), majority (62.7%) of the micro insurance policy holders are university graduates. The rest (37.3%) were holders of secondary education as the highest level achieved. Based on the findings therefore, the level of education determined the level of utilization of the micro insurance services in Kenya.

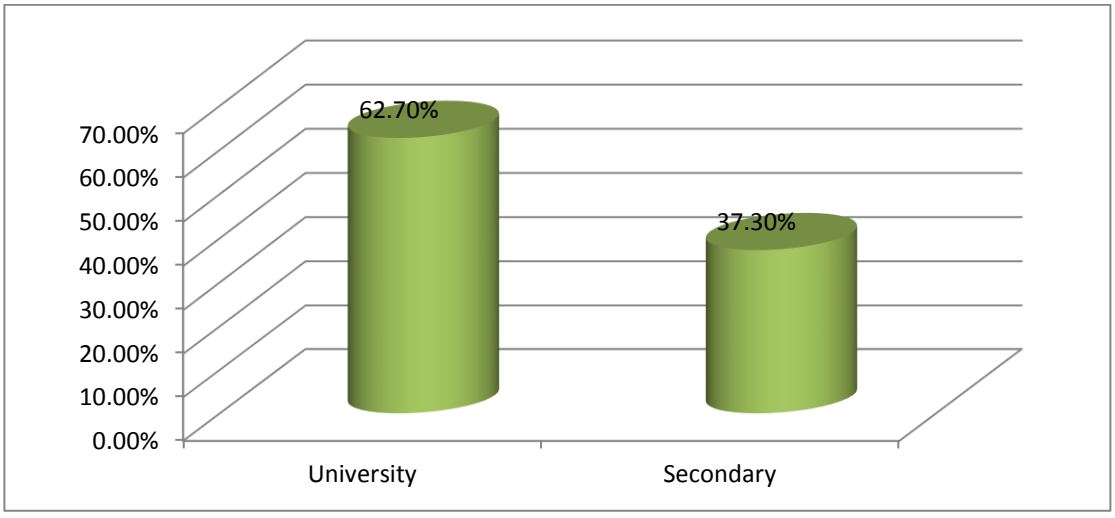

Figure 4. 7 Highest educational level of micro insurance clients

As shown in the table, majority of the respondents (75.7%) reported that majorly, the consumers of micro insurance services sought to protect from future losses. 20.1% of the respondents reported that the consumers sought the insurance covers to save money for the future and 2.4% was so as to share the possible losses within a group against regular contribution. The least (1.8%) reported that the purchasing of micro insurance services as to provide the policy holders with investment opportunity. This therefore illustrate that, the perceived losses effected the decision of the policy holders to secure some insurance. Empirical evidence shows that the relationship between education and micro insurance demand is ambiguous; Akter *et al,* (2008) finds that educated respondents are more likely to purchase insurance.

Table 4. 12 Main reason for the clients to purchase insurance

	Percent
Protect from future losses	75.7
Share possible losses within a group against regular contribution	2.4
Provide with investment opportunity	1.8
Save money for future	20.1
Total	**100**

4.6 Demand for Micro Insurance Services

This section presents the results on the demand for micro insurance services in the country. To measure the dependent variable, the respondents were also asked how much they agreed with the statement that the firm has successfully been achieving sales target for micro insurance products; 1 respondent strongly disagreed that the firm has successfully been achieving sales target for micro insurance products, 16 respondents just disagreed while 39 respondents remained neutral. There are 59 respondents who are in agreement that the firm has successfully been achieving sales target for micro insurance products and

42 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. This has an implication that on average, there is agreement in the perception that the firm has successfully been achieving sales target for micro insurance products.

Analysis of the level of agreement of the respondents that the firm has gradually been increasing the year after year sales for micro insurance products; 6 respondents strongly disagreed that the firm has gradually been increasing the year after year sales for micro insurance products, 14 respondents just disagreed while 48 respondents remained neutral. There are 51 respondents who are in agreement that the firm has gradually been increasing the year after year sales for micro insurance products and 38 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4, implying that on average, there is agreement in the perception that the firm has gradually been increasing the year after year sales for micro insurance products.

Another indicator for this variable was based on the level of agreement that the firm has decreased its transaction costs when selling the micro insurance products; 5 respondents strongly disagreed that the firm has decreased its transaction costs when selling the micro insurance products, 11 respondents just disagreed while 40 respondents remained neutral. There are 62 respondents who are in agreement that the firm has decreased its transaction costs when selling the micro insurance products and 39 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4, implying that on average, there is agreement in the perception that the firm has decreased its transaction costs when selling the micro insurance products.

The study sought to find out the perception of respondents on the indicator that the firm has successfully been increasing its market share for micro insurance products; 3 respondents strongly disagreed that the firm has successfully been increasing its market share for micro insurance products, 15 respondents just disagreed while 51 respondents remained neutral. There are 47 respondents who are in agreement that the firm has

successfully been increasing its market share for micro insurance products and 41 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 3. This implies that on average, there is neutrality in the perception that the firm has successfully been increasing its market share for micro insurance products.

Analysis of the level of agreement of the respondents that the firm has increased its profit margin due to the micro insurance products; 3 respondents strongly disagreed that the firm has increased its profit margin due to the micro insurance products, 10 respondents just disagreed while 61 respondents remained neutral. There are 53 respondents who are in agreement that the firm has increased its profit margin due to the micro insurance products and 30 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 3, implying that on average, there is neutrality in the perception that the firm has increased its profit margin due to the micro insurance products.

The respondents also responded the question on whether they agree that the firm has increased its number of clients due to micro insurance products; 2 respondents strongly disagreed that the firm has increased its number of clients due to micro insurance products, 15 respondents just disagreed while 46 respondents remained neutral. There are 50 respondents who are in agreement that the firm has increased its number of clients due to micro insurance products and 44 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4. The implication here is that on average, there is agreement in the perception that the firm has increased its number of clients due to micro insurance products.

Analysis of the level of agreement of the respondents that the firm has shown an increase in the growth rate of micro insurance products; 4 respondents strongly disagreed that the firm has shown an increase in the growth rate of micro insurance products, 15 respondents just disagreed while 38 respondents remained neutral. There are 57 respondents who are

in agreement that the firm has shown an increase in the growth rate of micro insurance products and 43 respondents strongly agreed with the statement. The modal class of the responses to this indicator was found to be 4, implying that on average, there is agreement in the perception that the firm has shown an increase in the growth rate of micro insurance products.

Table 4. 13 Demand for Micro Insurance Services

	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mode
Has successfully been achieving sales target for micro insurance products	1	16	39	59	42	4
Has gradually been increasing the year after year sales for micro insurance products	6	14	48	51	38	4
Has decreased its transaction costs when selling the micro insurance products	5	11	40	62	39	4
Has successfully been increasing its market share for micro insurance products	3	15	51	47	41	3
Has increased its profit margin due to the micro insurance products	3	10	61	53	30	3
Has increased its number of clients due to micro insurance products	2	15	46	50	44	4
Has shown an increase in the growth rate of micro insurance products	4	15	38	57	43	4

4.5 Inferential Analysis

The objective of the study was to establish the financial determinants of demand for micro insurance services in the insurance industry in Kenya. The study used inferential statistical techniques in achieving the aim of the study. The analysis was done with the aim of

achieving each objective to determine the relationships between the independent variables and the dependent variable - demand for micro-insurance.

The inferential analysis methods used involved parametric estimations for continuous variables. The indicators that were measured on likert categorical scales were used to generate latent variables by dimension reduction techniques of factor analysis. The resulting latent variables from factor scoring were continuous which were thus used for parametric estimations in the inferential stage of analysis.

4.5.1 Correlation analysis

Correlation analysis is the measure of the strength of relationship between 2 variables. The strength of relationship between the dependent variable and the independent variables was measured using Pearson correlation coefficient. Table 4.14 shows the results of the Pearson product moment correlation matrix. The correlation coefficients between the demand for micro insurance and the independent variables risk exposure, price, credit accessibility and income level were found to be .546, -.589, .629 and .566 respectively. These show moderate and strong relationships between the demand for micro insurance and the determinants. The relationship between price and demand is negative while the remaining independent variables have positive relationships with demand for micro insurance. The correlation coefficients are all significant due to the p-values of each that were all found to be equal to 0.000 which is less than 0.05 implying significance of the correlation statistics.

Table 4. 14: Correlation matrix

		Risk Exposure	**Price**	**Credit Accessibility**	**Income Level**	**Demand for micro insurance**
Risk exposure	Pearson's ρ	1.000	-.036	.094	-.182*	.546**
	2-tailed Sig.		0.256	0.130	0.023	0.000
	N	157	157	157	157	157
Price	Pearson's ρ	-.036	1.000	-.033	0.071	-.589**
	2-tailed Sig.	0.256		0.082	0.374	0.000
	N	157	157	157	157	157
Credit accessibility	Pearson's ρ	.094	-.033	1.000	0.051	.629**
	2-tailed Sig.	0.130	0.082		0.528	0.000
	N	157	157	157	157	157
Income level	Pearson's ρ	-.182*	0.071	0.051	1.000	.566**
	2-tailed Sig.	0.023	0.374	0.528		0.000
	N	157	157	157	157	157
Demand for micro insurance	Pearson's ρ	.546**	-.589**	.629**	.566**	1.000

	2-tailed Sig.	0.000	0.000	0.000	0.000	
	N	157	157	157	157	157

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.5.2 Bivariate analysis of risk exposure and the demand for micro insurance

The first objective of the study was to determine the effect of risk exposure on the demand for micro insurance Table 4.15 is the summary table of the bivariate model with risk exposure as the predictor. The R and R^2 of the model are 0.546 and 0.298 respectively. The R is equal to the correlation coefficient between risk exposure and demand for micro insurance. The R^2 is the coefficient of determination.

The R^2 of 0.298 is implies that 29.8% of the variation in the demand for micro insurance is explained by the variation in risk exposure. The remaining 70.2% of the variation in the dependent variable is explained by other factors not considered in the bivariate model.

Table 4. 15 Model summary risk exposure and demand

R	R Square	Adjusted R Square	Std. Error of the Estimate
.546a	0.298	0.293	0.917

a. Predictors: (Constant), Risk Exposure

The Analysis of variance table measures the general significance of the model. The ANOVA is presented in table 4.16. The p-value of the F-statistic is 0.000 which is less than 0.05. This means that considering the one predictor model, risk exposure has significant effect on demand of micro insurance. A study conducted by Arun *et al*., (2012)

showed a strong positive relationship between past shocks and rising probability of using micro insurance.

Table 4. 16: ANOVA table risk exposure and demand

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	54.887	1.000	54.887	65.341	.000b
Residual	129.362	154.000	0.840		
Total	**184.249**	**155.000**			

a. Dependent Variable: Demand for Micro Insurance Services

b. Predictors: (Constant), Risk Exposure

The coefficient estimate of risk exposure I the model was found to be 0.590 with a T statistic of 8.083 and p-value of 0.000. This P-value is less than 0.05 implying that considering a bivariate model at 0.05 level of significance, risk exposure has a significant effect on demand of micro insurance. A unit increase in the levels of risk exposure is expected to increase the level of demand for micro insurance by 0.590. The parameters estimated generates the equation given by; $Y = 0.002 + 0.590X_1$

Table 4. 17: Coefficients table risk exposure and demand

Variable	β coefficient	Std. Error	Standardized β	T	P-value.
(Constant)	0.002	0.074	0.025	0.025	0.980
Risk Exposure	0.590	0.073	8.083	8.083	0.000

a. Dependent Variable: Demand for Micro Insurance Services

4.5.3 Bivariate analysis of price and the demand for micro insurance

The model summary table 4.18 for the bivariate model with price as the predictor shows an R and R^2 of 0.589 and 0.347 respectively. This was the bivariate analysis based on the objective to determine the effect of price on the demand for micro insurance.

The R^2 which is the explanatory power of the model implies that 34.7% of the variation in the demand for micro insurance is explained by the variation in price. The remaining 65.3% of the variation in the dependent variable is explained by other factors not considered in the bivariate model.

Table 4. 18 Model summary; price and demand

R	R Square	Adjusted R Square	Std. Error of the Estimate
.589a	0.347	0.342	0.884

a. Predictors: (Constant), price

The ANOVA results show that there is a general significance of the bivariate model. The p-value of the F-statistic as shown in the ANOVA table 4.20 is 0.000 which is less the 0.05. With price as the only predictor in the model this thus implies that the effect of price on the demand of micro insurance is significant. Dercon *et al*, (2012) found out that discounts in price lead to substantial effects on health insurance demand, with a 20% discount leading to a 12% increase in probability of purchase.

Table 4.19: ANOVA table; price and demand

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	63.872	1.000	63.872	81.712	.000b
Residual	120.377	154.000	0.782		
Total	**184.249**	**155.000**			

a. Dependent Variable: Demand for Micro Insurance Services

b. Predictors: (Constant), Price

Table 4.20 is the coefficients table showing the parameter estimates of the model fitted. The results confirm the ANOVA results that price has a significant effect on the demand for micro insurance. The estimated parameter coefficient of price in the bivariate model was found to be -0.640 implying a negative linear relationship between price and demand for micro insurance. The p-value for the t-statistic to the estimated coefficient implies significance of the estimate at 0.05 level of the significance due to the value of 0.000 which is less than 0.05. The value of the estimate shows that increasing the price level of micro insurance by a unit would lead to a decrease in the level of micro insurance demand by 0.640.

Table 4. 20: Coefficients table; price and demand

Variable	β coefficient	Std. Error	Standardized β	T	P-value.
(Constant)	0.032	0.071	0.454	0.454	0.650
Price	-0.640	0.071	-9.039	-9.039	0.000

a. Dependent Variable: Demand for Micro Insurance Services

4.5.4 Bivariate analysis of credit accessibility and the demand for micro insurance

Another objective of the study was to determine the effect of credit accessibility on the demand for micro insurance Table 4.21 is the summary table of the bivariate model with credit accessibility as the predictor. The R and R^2 of the model are 0.629 and 0.396 respectively. The R is equal to the correlation coefficient between credit accessibility and demand for micro insurance. The R^2 is the explanatory power of the model.

The R^2 of 0.396 is implies that 39.6% of the variation in the demand for micro insurance is explained by the variation in credit accessibility. The remaining 60.4% of the variation in the dependent variable is explained by other factors not considered in the bivariate model.

Table 4. 21 Model summary; credit accessibility and demand

R	R Square	Adjusted R Square	Std. Error of the Estimate
.629a	0.396	0.392	0.850

a. Predictors: (Constant), credit accessibility

The ANOVA results show that there is a general significance of the bivariate model. The p-value of the F-statistic is 0.000 which is less the 0.05 implying that the only predictor in the model; credit accessibility has a significant effect on the demand of micro insurance. Credit accessibility also refers to borrowing opportunities thus this is in line with study of Norton, Holthaus, Madagewicz, Osgood, Peterson, Bremichael, Mullaly and Teh (2011) where the uptake for index insurance increased from 6 to 36%.

Table 4. 22: ANOVA table; credit accessibility and demand

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	72.943	1.000	72.943	100.922	.000b
Residual	111.306	154.000	0.723		
Total	**184.249**	**155.000**			

a. Dependent Variable: Demand for Micro Insurance Services

b. Predictors: (Constant), Credit Accessibility

As shown in table 4.23, the study results revealed a statistically significant positive linear relationship between credit accessibility and the demand for micro insurance (β= .883, p-

value = 0.000). The p-value is less than 0.05 implying significance of the estimated coefficient. The model shows that every unit increase in the levels of credit accessibility leads to a 0.883 increase in the demand for micro insurance. The resulting regression model that predicts the level of demand for micro insurance for a given level of credit accessibility is given by the equation below:

Table 4. 23: Coefficients table; credit accessibility and demand

Variable	β coefficient	Std. Error	Standardized β	T	P-value.
(Constant)	0.026	0.068	0.387	0.387	0.699
Credit Accessibility	0.883	0.088	10.046	10.046	0.000

a. Dependent Variable: Demand for Micro Insurance Services

4.5.5 Bivariate analysis of income levels and the demand for micro insurance

The study also assessed the effect of income levels on the demand for micro insurance. Table 4.24 presents a summary of regression model results. The value of R was found to be 0.566 and R^2 0.320. The value of the R statistic shows that there is a positive linear relationship between income levels and the demand for micro insurance.

The R^2 indicates that explanatory power of the independent variables is 0.320 which means that 32.0% of the variation in the demand for micro insurance is explained by income levels and the remaining 68.0% of the variation in the dependent variable is unexplained by this one predictor model but by other factors.

Table 4. 24 Model summary; income levels and demand

R	R Square	Adjusted R Square	Std. Error of the Estimate
.566a	0.320	0.316	0.902

a. Predictors: (Constant), Income levels

The ANOVA results show that there is a general significance of the bivariate model. From the ANOVA table 4.25, the p-value of the F-statistic is 0.000 which is less the 0.05. With price as the only predictor in the model this thus implies that the effect of income levels on the demand of micro insurance is significant. In the study of Jutting (2003) it was observed that low income plays a crucial part in refraining in a community based health insurance scheme.

Table 4. 25: ANOVA table; income levels and demand

	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Regression	58.956	1.000	58.956	72.464	.000b
Residual	125.293	154.000	0.814		
Total	**184.249**	**155.000**			

a. Dependent Variable: Demand for Micro Insurance Services

b. Predictors: (Constant), Income Level

The study results of the coefficient estimates of the model revealed a statistically significant positive linear effect of income levels on the demand of micro insurance (β= .570, p-value = 0.000). This parameter estimate was statistically significant because the p-value is less than 0.05. The resulting regression model that predicts the level of demand of micro insurance for a given level of income is given by the equation below:

The model shows that every unit increase in the levels of income leads to a 0.570 increase in the demand for micro insurance.

Table 4. 26: Coefficients table; income levels and demand

Variable	β coefficient	Std. Error	Standardized β	T	P-value.
(Constant)	0.091	0.072	1.258	1.258	0.210
Income Level	0.570	0.067	8.513	8.513	0.000

a. Dependent Variable: Demand for Micro Insurance Services

4.5.6 Combined effect

The study sought to establish the combined effect of the independent variables on the demand for micro insurance jointly. A multivariate ordinary least squares model was thus fitted with the independent variables; X_1 = risk exposure, X_2 = price, X_3 = credit accessibility, X_4 = income levels as the predictors, simultaneously affected the dependent variable Y= demand for micro insurance. The fitted OLS model was tested for assumptions to determine how well the model fitted the data. The fitted OLS model is fitted on the basis that these assumptions of normality, homoscedasticity, non-autocorrelation and non-multicollinearity are met.

The multiple regression model was of the form:

$$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where

β_0 = constant

β_i = coefficient of X_i for $i = \{1,2,3,4\}$

e = error term

Normality

The normality of data dissemination was evaluated by examining its skewness and kurtosis (Kline, 2005). Fitting an unbiased OLS model assumes that the residuals have a mean of zero and follow a normal distribution. The histogram of the residuals shown on figure 4.8 is a virtual indication of a plausible normal distribution curve of the residuals from the model fitted. The curve is not skewed and has with a mean of 0.000 and a standard deviation of 0.987

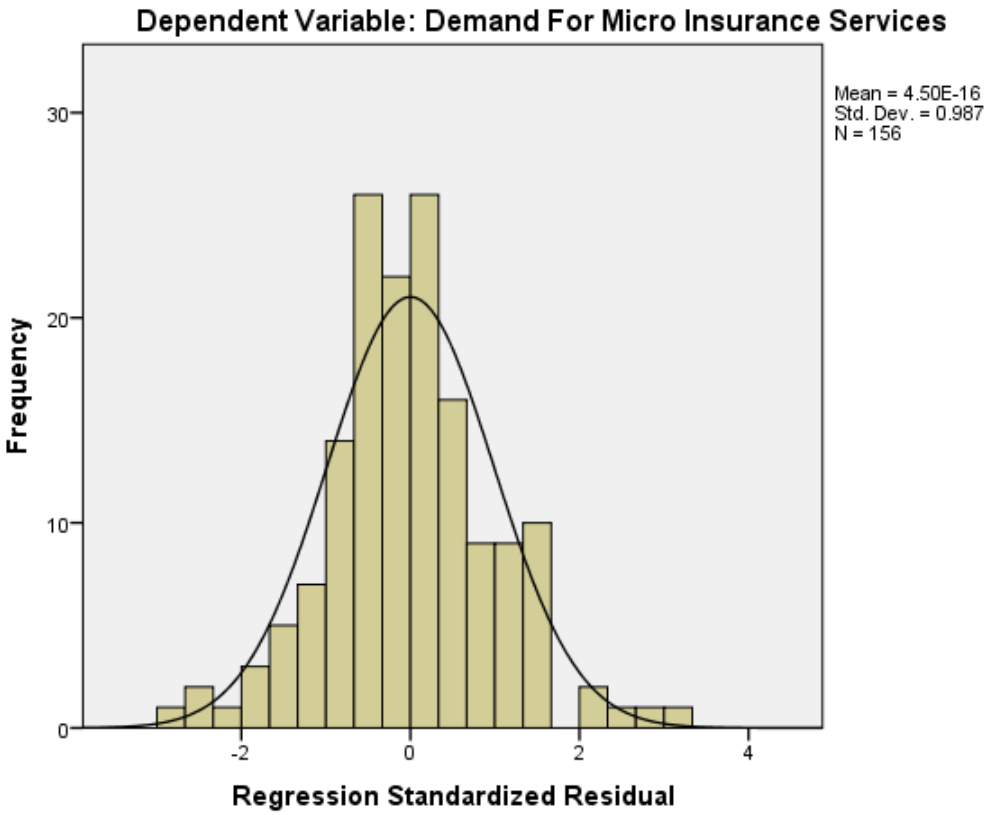

Figure 4. 8 Histogram

Further to the histogram, a statistical test was carried out on the residuals from the model to confirm normality with statistical significance. The Shapiro-Wilk statistic was calculated with its p-value which was found to be 0.152 that is greater than 0.05 implying that the residuals follow a normal distribution.

Table 4. 27: Normality test

Kolmogorov-Smirnov[a]			Shapiro-Wilk		
Statistic	**Df**	**Sig.**	**Statistic**	**df**	**Sig.**
0.058	156.000	.200*	0.987	156.000	0.152

Auto correlation

Fitting OLS models also assumes that the residual terms are not auto correlated. With violation of the serial correlation assumption, the model may have predictors with underestimated the standard errors. The calculated Durbin Watson value is 2.070, while the upper limit of the tabulated Durbin Watson for 5 predictors including the constant is 1.809 and the lower limit is 1.728. The calculated value 2.070 is higher than the upper limit implying that the residuals are not auto correlated.

Table 4. 28: Autocorrelation

Durbin-Watson statistic	Tabulated lower limit	Tabulated Upper limit
2.070	1.728	1.809

Homoscedasticity

Homoscedasticity is the measure of constant variance. OLS regression models are fitted with the assumption that the variance of the residual term is constant. If the error term has constant variance it is referred to as homoscedastic error term while if its variance is not

constant it is referred to as heteroscedastic. The study therefore required to test and confirm that the residuals of the model fitted is homoscedastic as assumed in OLS regression. A graphical output of the scatter plot of the residuals against the predicted values of the dependent variable is shown in figure 4.9. This gives a virtual indication of homoscedasticity of the residuals. The graph shows random plots of the residuals about zero with no indication of an increasing or a decreasing pattern. A pattern of increasing or decreasing plots would imply heteroscedasticity.

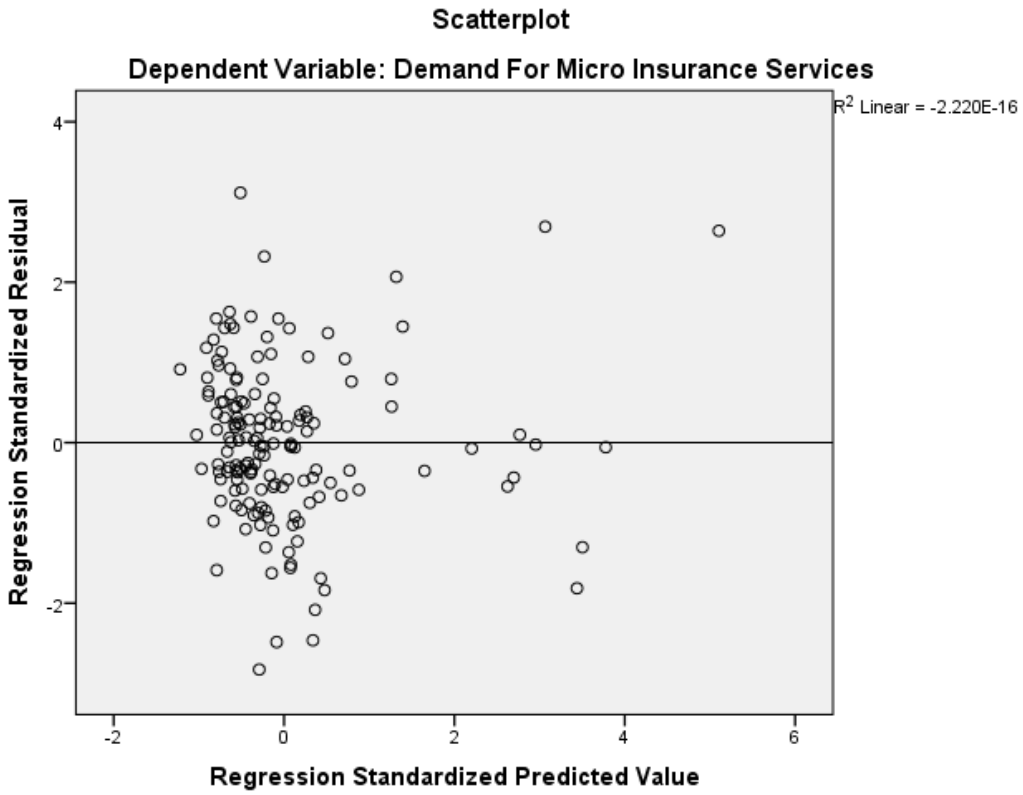

Figure 4. 9: Scatter plot of residuals

Further to the scatter plot the study tested for homoscedasticity based in statistical significance. The researcher performed an A Breuch-pagan test on the residuals. This tested the null hypothesis that there is a constant variance of the residual terms. The results of the BP test are shown in table 4.29. From the results the P-value of the Chi-square

statistic is 0.255 which is greater than 0.05. The null hypothesis was therefore not rejected and conclusion drawn is that the residuals were homoscedastic.

Table 4. 29: H_0: The residuals exhibit homoscedasticity

	Breusch-Pagan statistic	P-value	Conclusion
Residuals	5.334	0.255	Fail to reject H_0

Mulitcollinearity

Multicollinearity refers to the situation where the independent variables exhibit significant association amongst themselves. According to Mugenda and Mugenda (2012), multi-collinearity can occur in multiple regression models where some of the independent variables are significantly correlated between themselves. OLS regression model fitting requires the independent variable not to be multicollinear. The multicollinearity statistics of the predictors is shown in table 4.30. mulicollinearity was tested using the variance inflation factors (VIF) and the tolerance. The tolerance is the reciprocal of the VIF. Multicollinearity is exhibited if one or more variables can be expressed in terms of the other independent variables that is shown by one or more VIFs being greater than 0.5. From the results, all the VIFs are less than 0.5 implying that the independent variables of the model do not exhibit multicollinearity.

Table 4. 30 Mulitcollinearity

	Tolerance	VIF
Risk Exposure	0.615	1.627
Price	0.801	1.248
Credit Accessibility	0.742	1.349
Income Level	0.940	1.063

4.5.7 Multiple regression

The aim of the study was to establish the financial determinants of demand for micro insurance services in the insurance industry in Kenya focusing on the variables risk exposure, price, credit accessibility and income level. The multiple regression technique was used to fit the model to investigate the joint effect of these variables. Table 4.31 presents the model summary statistics.

The R and R^2 of the multivariate model were found to be 0.996 and 0.992 respectively. This implies a high joint positive relationship between the determinants and demand for micro insurance. The R^2 value of 0.992 implies a very high predictive power of the joint model. It shows that the variation in the predictors in the model explain 99.2% of the variation in the dependent variable.

Table 4. 31 Model summary multiple regression

R	R Square	Adjusted R Square	Std. Error of the Estimate
.996a	0.992	0.992	0.099

a. Predictors: (Constant), Income Level, Credit Accessibility, Price, Risk Exposure

ANOVA in multiple regression shows the general significance of the model. It is used to test if at least one of the estimated parameters in the model is not equal to zero. Table 4.32 shows the ANOVA results for the multivariate model. The P-value of the F-statistic is equal to 0.000 which is less than 0.05. This implies that not all estimated coefficients are equal to zero. At least one of them is not equal to zero implying that the model is generally significant.

Table 4. 32: ANOVA table multiple regression

	Sum of Squares	df	Mean Square	F	Sig.
Regression	182.768	4.000	45.692	4661.115	.000b
Residual	1.480	151.000	0.010		
Total	**184.249**	**155.000**			

a. Dependent Variable: Demand for Micro Insurance Services

b. Predictors: (Constant), Income Level, Credit Accessibility, Price, Risk Exposure

A further analysis of the estimated coefficients of the model shows that the multiple regressions are all significant. The parameters of the variables risk exposure; price, credit accessibility and income level were found to be 0.341, -0.44, 0.491 and 0.643 respectively. All the p-values were equal to 0.000. With all the p-values being equal to 0.000, it implied that all the coefficients estimated were significant. The p-value for the constant is however greater than 0.05 implying that the model should pass through the origin. The resulting regression model that predicts the level of demand for micro insurance is significantly affected by all the independent variables jointly is given by the equation below:

$$Y = -0.006 + 0.341\mathrm{X}_1 - 0.44\mathrm{X}_2 + 0.491\mathrm{X}_3 + 0.643\mathrm{X}_4$$

The study of Fofie (2016) concluded that the independent variables of socio-economic demographic (education, age, gender and income) have direct and significant positive relationship with the dependent variable of demand for insurance.

Hypothesis Testing

The results from the multivariate model were used to test the hypothesis of the study and draw conclusions on the objectives. The criterion used was to reject the null hypothesis if the p-value of the t-statistic to the coefficient estimate of the independent variable is less than 0.05.

H_{01}: Risk exposure has no significant effect on the demand for micro insurance services in the insurance industry in Kenya.

From the results of the multivariate model, the p-value of the t-statistic to this variable was found to be equal to 0.000 which is less than 0.05. The null hypothesis was therefore rejected and a conclusion drawn that risk exposure has an effect on the demand for micro insurance services in the insurance industry in Kenya.

H_{02}: Price sensitivity has no significant effect on the demand for micro insurance services in the insurance industry in Kenya.

From the results of the multivariate model, the p-value of the t-statistic to price was found to be equal to 0.000 which is less than 0.05. The null hypothesis was therefore rejected and a conclusion drawn that price has an effect on the demand for micro insurance services in the insurance industry in Kenya.

H_{03}: Access to credit has no significant effect on the demand for micro insurance services in the insurance industry in Kenya.

From the results of the multivariate model, the p-value of the t-statistic to access to credit was found to be equal to 0.000 which is less than 0.05. The null hypothesis was therefore rejected and a conclusion drawn that access to credit has an effect on the demand for micro insurance services in the insurance industry in Kenya.

H_{04}: Income level does not affect the demand for micro insurance services in the insurance industry in Kenya.

From the results of the multivariate model, the p-value of the t-statistic to income level was found to be equal to 0.000 which is less than 0.05. The null hypothesis was therefore rejected and a conclusion drawn that income level has an effect on the demand for micro insurance services in the insurance industry in Kenya.

4.5.8 Moderation effect

To make conclusions on the objective involving the moderating variable, the researcher fitted a moderated multiple regression (MMR) model that brought about the effect of the moderating effect of customers' personal characteristics on the relationship between the dependent variable the demand for micro insurance and the determinants of the demand for micro insurance. To bring out and measure the moderating effect, the researcher generated interaction variables between each independent variable and the moderating variable customers' personal characteristics. This was achieved by generating transformation of intersections between each pair of the independent variables.

Table 4.33 shows the model summary of the moderating effect model. The computed statistics included, the R, R^2, change in R^2, change in F and the p-value of the change statistics. The study fitted 3 hierarchical regression models stepwise to assess the effect of moderation each of the steps involving addition of variables as per the objective of the study. Model one only constituted of the four determinants of demand that were being analyzed without considering the moderating variable. Model two was fitted adding the moderating variable customers' personal characteristics as another additional predictor to assess the effect the addition of the moderator as another predictor has on the model. Finally model 3 included in addition to all the 5 predictors in model 2 the 4 interaction variables generated between the independent variables and the moderator. As shown in table 4.33, the first model had an R^2 of 0.992 implying that 99.2% of the variation in the demand for micro insurance is explained by the variation in the predictors in model 1.

Model two was found to have an R-square of 0.640 to imply that the variance of the demand for micro insurance explained in this 2nd model is 64%. The R-square change from model 1 to model 2 due to addition of the customer's characteristic was found to be 0.059. This change statistic from the second step is significant as shown by the change in F that has a p-value of 0.002 which is less than 0.05. The implication is that there is a

significant improvement in the model by adding customer's characteristic as another predictor. The equation due to model 3 is given by;

$$Y = -0.006 + 0.335X_1 - 0.438X_2 + 0.483X_3 + 0.648X_4 + 0.023Z$$

The third step of the MMR model was to add the interaction variables between the determinants of demand and customer's characteristics. The R^2 of model 3 was found to be 0.993 implying that 99.3% of the variation in demand for micro insurance is explained in the model 3. Model 3 was found to be an improvement and a better of the first 2 models. The R^2 change was found to be 0.001 which implied that the explanatory power of the model increased by 0.001 due to addition of the interaction variables that bring about the moderating effect. The p-value of these change statistics was 0.001 which is less than 0.05, this implies that the change in the explanatory power is significant. This shows that there is a moderating effect of customer's characteristics on the relationship between demand for micro insurance and the independent variables. The study evidenced on gender has mixed outcomes affecting purchase of insurance, Jehu-Appiah *et al*, (2011) found out women are more likely to purchase insurance, Bonan *et al*, (2011) and De Allegri *et al*, (2006) also Schneider and Diop (2004) observed that a higher take up rate among men. Kirigia *et al*., (2005) found out that there exists a positive direct relationship between health insurance consumption and women, according to Ibok (2006) age has been identified as a statistically significant variable and have a positive prediction on insurance uptake. The level of education as a variable, Ibok (2012) observed that education is an important determinant of the insurance uptake.

Table 4. 33 Model summary moderating effect

	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.996[a]	0.992	0.992	0.099	0.992	4661.115	4	151	0.000
2	.996[b]	0.992	0.992	0.098	0.000	4.440	1	150	0.037
3	.997[c]	0.993	0.993	0.093	0.001	4.760	4	146	0.001

a. Predictors: (Constant), Income Level, Credit Accessibility, Price, Risk Exposure

b. Predictors: (Constant), Income Level, Credit Accessibility, Price, Risk Exposure, Customers' Personal Characteristics

c. Predictors: (Constant), Income Level, Credit Accessibility, Price, Risk Exposure, Customers' Personal Characteristics, X1nZ, X4nZ, X2nZ, X3nZ

Table 4.34 shows the analysis of the coefficients table for the 3 stage hierarchical MMR. Stage one of the MMR only includes the estimates of the 4 independent variables of the study. The coefficients showed significant effects of all the independent variables risk exposure, price, credit accessibility and income level. All the variables had p-values that are equal to 0.000 which is less than 0.05 implying significance of all the predictors. The equation due to the first model is given by;

$$Y = -0.006 + 0.341X_1 - 0.44X_2 + 0.491X_3 + 0.643X_4$$

Model 2 was due to the addition of the variable customer's characteristics to the model. The second model thus has 5 predictors. The added predictor resulted to a significant change in R^2. The p-value of the coefficient estimate of the added variable also has had a p-value of 0.037 which is less than 0.05 implying significance of the additional predictor customer's characteristics.

The equation due to the second model is given by;

$$Y = -0.006 + 0.335\mathrm{X}_1 - 0.438\mathrm{X}_2 + 0.483\mathrm{X}_3 + 0.648\mathrm{X}_4 + 0.023Z$$

The third step of the MMR was the introduction of the interaction variables between the moderating variable customers' characteristic and each of the independent variables risk exposure, price, credit accessibility and income level. The introduction of these interaction variables as predictors had a significant improvement to the model due to the significant positive change in the predictive power. Coefficients of the interaction variables between customer characteristic and variables risk exposure, price, credit accessibility and income level were also found to be significant with p-values 0.04, 0.001, 0.011 and 0.01 respectively which are all less than 0.05 implying significance of the effects.

The equation due to model three is less given by;

$$Y = -0.006 + 0.331\mathrm{X}_1 - 0.421\mathrm{X}_2 + 0.475\mathrm{X}_3 + 0.636\mathrm{X}_4 + 0.022Z - 0.207\mathrm{X}_1 * \mathrm{z} - 0.033\mathrm{X}_2 * \mathrm{Z} + 0.033\mathrm{X}_3 * \mathrm{Z} - 0.021\mathrm{X}_4 * \mathrm{Z}$$

Table 4. 34 Coefficients table moderating effect

Model	Variable	β coefficient	Std. Error	t	P-value.
1	(Constant)	-0.006	0.008	-0.695	0.488
	Risk Exposure	0.341	0.010	33.970	0.000
	Price	-0.440	0.009	-49.696	0.000
	Credit Accessibility	0.491	0.012	41.287	0.000
	Income Level	0.643	0.008	84.845	0.000
2	(Constant)	-0.006	0.008	-0.773	0.441
	Risk Exposure	0.335	0.010	32.082	0.000
	Price	-0.438	0.009	-49.782	0.000
	Credit Accessibility	0.483	0.012	39.077	0.000
	Income Level	0.648	0.008	83.052	0.000
	Customers' Personal Characteristics	0.023	0.011	2.107	0.037
3	(Constant)	-0.013	0.008	-1.607	0.110
	Risk Exposure	0.331	0.010	32.497	0.000
	Price	-0.421	0.009	-44.674	0.000
	Credit Accessibility	0.475	0.014	35.190	0.000
	Income Level	0.636	0.008	76.209	0.000
	Customers' Personal Characteristics	0.022	0.011	2.037	0.043
	Risk Exposure intersection customers' characteristics	-0.207	0.100	-2.072	0.040
	Price intersection customers' characteristics	-0.033	0.009	-3.474	0.001
	Credit Accessibility intersection customers' characteristics	0.033	0.013	2.576	0.011
	Income Level intersection customers' characteristics	-0.021	0.008	-2.610	0.010

a. Dependent Variable: Demand for Micro Insurance Services

To test the hypothesis on the moderating effect, the effect of model three when the interaction variables were added of the model was used. The criterion used the significance of the change in R^2 to reject or accept the hypothesis.

Considering the moderating effect on the relationship between the individual independent variable risk exposure and the dependent variable, customers' characteristic was found to have a negative moderating effect. The effect of moderation is presented in figure 4.10. Risk exposure has a positive effect on the demand for micro insurance. However, increasing levels of customer's characteristics reduces the slope of the graph between risk exposure and demand. This implies that with increases in levels of effect of customer's characteristics the rate of effect of risk exposure on the demand for micro insurance reduces.

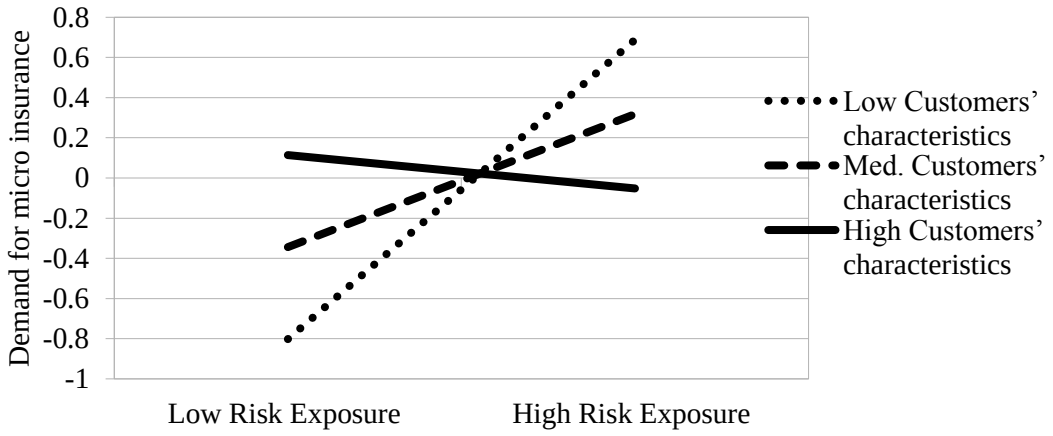

Figure 4. 10: Moderating effect on the relationship between risk exposure and demand for micro insurance

Analysis of the moderating effect of the relationship between price and demand for micro insurance has been shown graphically on figure 4.11. Price has a negative effect on the demand for micro insurance. Implying that increasing price of micro insurance products reduces their demand. However, the rate of negative effect is lower for low levels of effect in customer's characteristics. The negative slope gets steeper with higher effect of customer's characteristics. This implies that with increases in levels of effect of customer's characteristics the rate of negative effect of risk exposure on the demand for micro insurance increases.

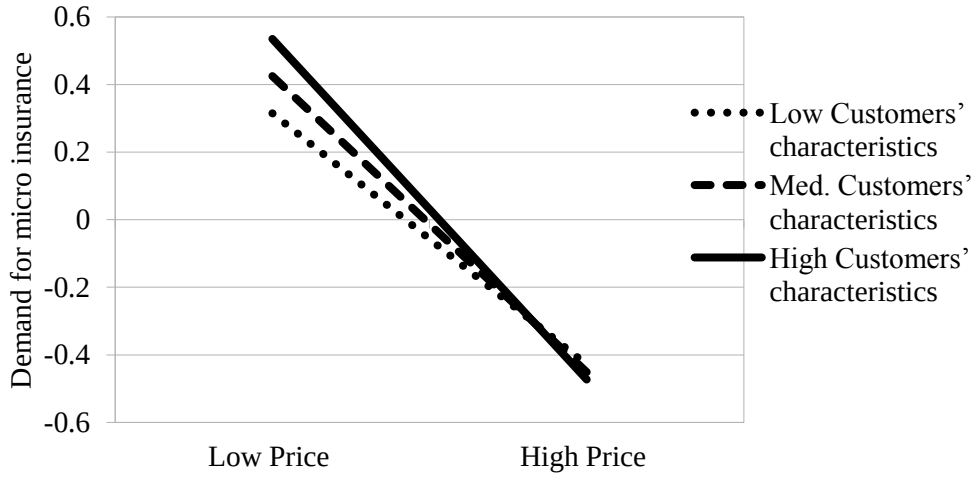

Figure 4. 11 Moderating effect on the relationship between price and demand for micro insurance

Considering the moderating effect on the relationship between the individual independent variable credit accessibility and the dependent variable, customers' characteristic was found to have a positive moderating effect. This effect of moderation is presented in figure 4.12. Credit accessibility has a positive effect on the demand for micro insurance. However, increasing levels of customer's characteristics increases the slope of the graph between credit accessibility and demand. The slope of the graph between credit accessibility and demand is steeper for higher effects of customer's characteristics. This

implies that with increases in levels of effect of customer's characteristics the rate of effect of credit accessibility on the demand for micro insurance increases at an even faster rate.

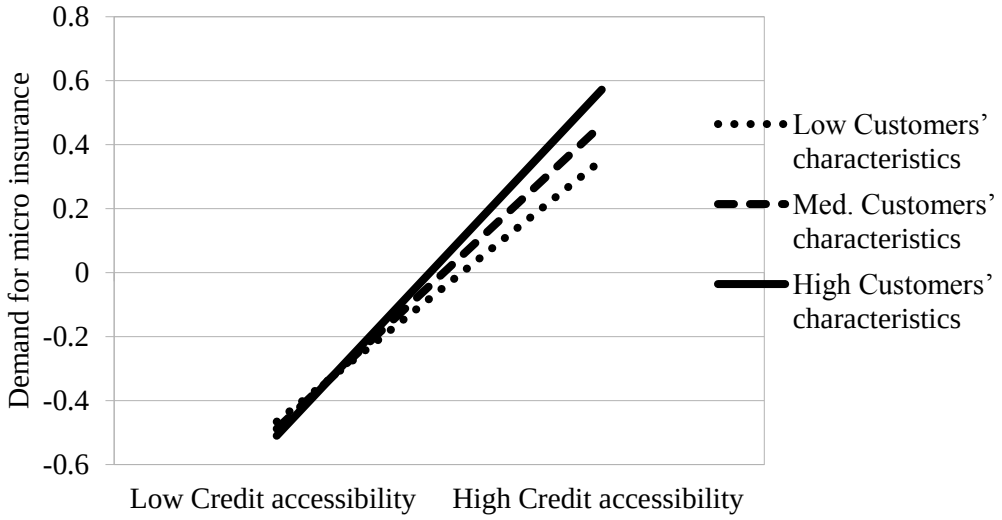

Figure 4. 12 Moderating effect on the relationship between credit accessibility and demand for micro insurance

Analysis of the moderating effect of the relationship between income levels and demand for micro insurance has been shown graphically on figure 4.13. Income level has a positive effect on the demand for micro insurance but increasing levels of customer's characteristics reduces the slope of the graph between income level and demand. The slope of the graph between income level and demand is steeper for lower effects of customer's characteristics. This implies that increasing the levels of effect of customer's characteristics reduces the rate of effect of income level on the demand for micro insurance.

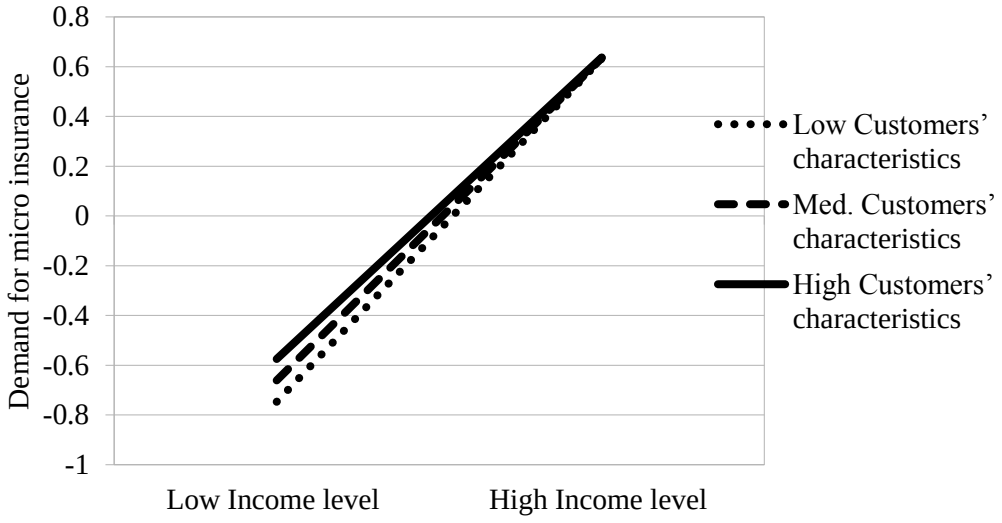

Figure 4. 13 Moderating effect on the relationship between income level and demand for micro insurance

The fifth objective was made based on the moderated regression model. The fifth hypothesis was also tested and concluded on based on the same model.

H_{05}: Customers personal characteristics have no moderating effect on the relationship between the determinants of demand and the demand for micro insurance services in the insurance industry in Kenya.

The Change in R^2 from model two to model three due to the addition of the interaction terms had a p-value of 0.001 which is less than 0.05, the null hypothesis was thus rejected and a conclusion drawn that the customer's personal characteristics has significant moderating effect on the relationship between the determinants of demand and the demand for micro insurance services in the insurance industry in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the major findings of this study and also sets to draw conclusions and make recommendations in line with the topic that is financial determinants of demand for micro insurance in the insurance industry in Kenya and suggestions for further research.

5.2 Summary of Findings

5.2.1 Risk Exposure on Demand for Micro Insurance Services

The study findings established that the insurance organizations in Kenya preferred agency and brokerage in selling traditional insurances than micro insurance. However, the findings showed that the transactional costs of managing micro insurance in the insurance companies are high. According to the findings, micro insurance attracts also high risk individuals leading to adverse selection. The insurance companies have a rigid regulatory framework for micro insurance services offering. Insurance companies in Kenya have appropriate tools for data collection especially in weather forecasting for index-based weather insurance. This facilitates the determination of the insurance cover extent and the premiums to be paid as a cover of the risks. The insurance firms have adequate distribution channels for the services in the country where these services have yielded satisfaction to the customers. The findings show that, micro-Insurance has a high prevalence of premium defaults (policy lapse) in the insurance companies. The Micro-Insurance experiences low penetration hence diseconomies of scale in the respective insurance companies. The findings show that the demand for the risk coverage leads to the acquisition of an insurance cover.

The findings as well showed that there is a mismatch between affordability and suitability in the services offered by the insurance companies. Further, the findings indicated that insurance companies have appropriate tools for data collection especially in weather forecasting for index-based weather insurance. The study findings as well indicated that there are adequate distribution channels of insurance services in the companies. The products offered by the insurance companies were also found to be serving the clients' needs based on the findings. According to the findings, micro-Insurance has a high prevalence of premium defaults (policy lapse) in the insurance companies.

Testing the effect of risk exposure on demand for micro insurance services, the study found out that the there is a positive linear effect that was statistically significant. The estimated coefficient of risk exposure on the multivariate regression between demand for micro insurance services and the determinants was positive.

5.2.2 Price on the Demand for Micro Insurance Services

With regard to the effect of price sensitivity on demand for micro insurance services, the study found out that reducing the price of micro insurance is likely to increase demand to some extent. The findings also revealed that the micro-insurance pricing presents significant challenges (need to balance prices, costs, sustainability and affordability) in some of the service providers. The findings also established that the increasing subsidies increases uptake of health insurance services.

According to the findings also, the retention rates drop significantly following expiration of subsidies in the insurance services. According to the findings also, the GDP growth effect the micro insurance uptake. The price sensitivity amongst the clientele on the low income earners was found to be greatly affecting micro insurance uptake. Findings further established that, irregular payment of premiums affects the performance of micro insurance. According to the findings also, the level of satisfaction or utility each individual derives from subscribing to the policy affects demand to some extent. The individual's

level of wealth was also found to effect the purchasing decision of a micro insurance product.

The multivariate regression analysis found that price had a negative linear relationship with demand of micro insurance. The study found out that there is a significant and positive effect of price on demand for the micro insurance services. This study however found that rate of effect of price on micro insurance is not as high as that of income levels and access to credit. Price is not the most influential determinant of micro insurance demand. This implies that increasing prices would increase the demand for micro insurance however not at a very high rate as high accessibility to credit and income levels would.

5.2.3 Credit Accessibility on the Demand for Micro Insurance Services

The study illustrated that micro insurance clients can access loans against their policies in the insurance companies which affected the demand level of the services. The findings also illustrated that access to potential risk-coping possibilities, other than credit, moderately correlate with insurance take up. Further, the study established that there is limited eligibility to credit services amongst the low income earners in the insurance companies. According to the findings also, credit facilities available in the insurance companies are economically sustainable beyond the projects period. The study also showed that there is a relationship between the accessibility of credits to meet the premium payments and the level of uptake among the policy holders. In line with this, the study also illustrated that access to potential risk-coping possibilities, other than credit, moderately correlate with insurance take up.

The multiple regression results also showed a significant effect of credit accessibility on the demand for micro-insurance. Access to credit was found to have a positive linear effect on the demand for micro-insurance.

5.2.4 Income Level on Demand for Micro Insurance Services

The study also sought to find the effect of income level on the demand for micro insurance in Kenya. The findings on the effect of income on demand for micro insurance services indicated that the seasonal flows of income and expenditures of low end clients affect premium payments to some extent. Findings also showed that micro insurance prospects are mainly in informal employment and this affects the uptake of insurance services in Kenya. The study further indicated that most micro insurance do not meet insurance requirements of cash and carry. This gave evidence of a relationship between the accessibility of credits to meet the premium payments and the level of uptake among the policy holders. In line with this, the study also illustrated that access to potential risk-coping possibilities, other than credit, moderately correlate with insurance take up.

According to findings of the multiple regressions, the income levels positively effect the demand for micro insurance. The relationship between the variables was also tested through t-test as well as the regression statistics. According to the findings, there is a significant relationship between the customers' level of income and the demand for micro insurance services.

5.2.5 Moderating effect of Customers' Personal Characteristics

With regard to the moderating effect of customers' personal characteristics on the demand for micro insurance services, the study found out that the age of an individual, level of education and income status affects the uptake of insurance. The findings as well illustrated that the effect of peers indeed matters in the purchase of insurance services. The study findings also showed that the mode of insurance premium payment affects insurance uptake as well that the illness and death constitute the most important risks for households. Further, the study found out that the client perceptions of communications from the insurance provider about product affect demand for insurance. The findings also showed that the gender and marital status relates to differences in vulnerabilities.

According to the findings as well, the quality of living conditions relates to the risk profile of individuals or households which also affects the demand for micro insurance. It is also evident from the findings that the clients' perception on complicated claims processes affects the demand for micro insurance services.

5.3 Conclusions

The study sought to examine how risk exposure affects demand for micro insurance services. Based on the results of this study, it was established that micro insurance attracts high risk individuals leading to adverse selection and the insurance service providers have a rigid regulatory framework for micro insurance services offering, increases in the levels of risk exposure inclines the customers to take up micro insurance products. The study therefore concluded that risk exposure positively affects the demand for insurance by customers.

The study also established the effect that price has on the demand for micro insurance services. According to the findings, reducing the price of micro insurance is likely to increase demand to some extent. This study's findings also showed that the micro-insurance pricing presents significant challenges (need to balance prices, costs, sustainability and affordability). Decreasing the price levels of micro-insurance products subsidies increases the uptake of the products as the study findings suggested. The study concluded that price negatively affects the demand for micro insurance services.

The study findings showed that credit accessibility has a great effect on the demand for micro insurance services. Customers with high levels of access to credit seem to have higher demand for micro insurance as compared to those with low levels of credit accessibility. With access to credit a household increases its wealth and hence uptake of insurance. The study concluded that credit accessibility has a positive effect on the demand for micro insurance in Kenya.

The study also found that income level has effect on the demand for micro insurance in Kenya. The study findings indicated that seasonal flows of income and expenditures of low end clients affect premium payments. However, micro insurance prospects are mainly in informal employment and this affects the uptake of insurance services in Kenya.

According to the findings there is linear effect of the customers' level of income on the level of demand for micro insurance. The level of effect was found to be significant. Hence, the results showed clearly that the level of uptake depends on the target markets' level of income. The study concluded that there is a positive effect of customers' level of income on the demand for micro insurance.

The study also sought to find the moderating effect on the relationship between customer's personal characteristics on the demand for micro insurance services in Kenya. The MMR results showed that the effect is significant. The study thus concluded that there was moderating effect of customers' personal characteristics on the demand for micro insurance.

5.4 Recommendations

Following the findings of the study on financial determinants of demand for micro insurance services, the study gives the following recommendations.

5.4.1 Managerial recommendations

As one of the economic pillars of the Kenya Vision 2030, insurance was considered to be a key platform to mobilize financial resources for national development. Therefore, understanding demand perceptions assists participants of the insurance service industry to improve their product development, policy formulations and implementation.

The study recommends awareness and education on micro insurance services which can assist in alleviating poverty as the culture of dependency will be reduced through incentives such as medical expenses, loss of property and death. Strengthening of informal sector and SMEs' where the bulk of uninsured are and offering alternative from mainstream/conventional insurance. Having a coping mechanism in place rather than informal risk sharing such as fund raising for medical expenses or funeral, hence covers which can cater for low income households should be designed and made affordable.

Insurers should offer flexible and convenience payment options of insurance premium to the low income earners so as to attract and retain customers. The pricing should be in line with the risk covered and no hidden extra charges. Proper pricing should be done prior to roll out of products as these will minimize risk exposure and withdrawal of products such as Linda jamii and Bima ya jamii, a health product offered by British American Insurance Company and CIC Insurance Company (partnered with NHIF) respectively.

With affordable access to credit, the number of credit life insurance will increase, more people will borrow and insure the loan, the hustle of looking for a guarantor will cease. Access to credit will also increase a persons' wealth to seek insurance in order to protect the wealth in the event of a risk occurring. As credit is linked to insurance an increase in demand for credit will increase demand for insurance. Also, access to credit should not only be pegged on loans, but an individual should be able to access credit in other forms, such as insurance premium finance tailored to the suit the low income cadre.

The more a person earns the more the desire to have better life and goods, hence the greater the potential loss and hence, the greater the demand for insurance. Lower income individuals may have a greater need for insurance but encounter resource constraints making insurance uptake infeasible. The study recommends micro insurance service providers to tap at the gap and ensure their products are tailored for the niche market and are affordable.

The study recommends that customers' characteristics should be taken into consideration for the demand of micro insurance services as it plays a crucial role on demand perspective. Individuals are educated on the importance of insurance, so as to embrace insurance. Negative perceptions and low public confidence should not limit insurance uptake. Training and end to end customer service should be a key factor to help with insurance penetration.

5.4.2 Policy recommendations

Bodies that are charged with responsibility of regulating insurance should make law which is favorable to micro insurance by putting in place a regulatory framework. Informal sectors as well as SMEs' though contributing a significant value to our national GDP are underserved in insurance. IRA on its' part should ensure that micro insurance, which is underwritten as a miscellaneous class of business, should have its own regulation different from the conventional insurance. The regulator (IRA) should coordinate with other financial services regulator on financial literacy to its members'; educate both consumers and insurance providers on the role of insurance as a risk management tool.

Government should offer subsidies on micro insurance services as the initial capital outlay may not be affordable by many insurers, due to the target market as micro insurance targets the mass (bottom of the pyramid). With micro insurance as one of the ways of poverty eradication, the government should entrench it in its program and offer support. Government should encourage uptake of insurance by offering tax incentives on all types of insurance premium, currently only long term premium payment is exempted from tax.

5.5 Areas for Further Research

This study provides more empirical evidence on financial determinants on demand for micro insurance services in the insurance industry in Kenya. This research however concentrated on four independent variables; these being risk exposure, price, access to credit and income level. There are other independent and moderating variables that may affect the observed findings but which are not incorporated in the model.

The study only concentrated on service providers, further research need to be carried out on other consumers of micro insurance as well. The research also concentrated on the demand side, more research can be explored on the supply side. There is huge need therefore for future studies to be conducted which shall put into consideration the views

of the service users and examine the different factors and determinants of uptake of micro insurance services and also on the supply of micro insurance services.

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APPENDICES

Appendix I: Letter of Introduction

Dear Répondent,

I am a doctoral student at Jomo Kenyatta University of Agriculture and Technology (JKUAT).

As part of my course work requirements, I am required to conduct a research in my area of study.

I hereby do request your permission to collect information from your company. Your responses will be treated with utmost confidentiality and will only be used for the purpose of this study.

Please do not indicate your name anywhere on this questionnaire.

Yours Faithfully,

Zulekha Ndurukia

Appendix II: Questionnaire

Dear Respondent,

My name is Zulekha Ndurukia, a doctoral student at JKUAT. I am undertaking an academic research on "Financial determinants of demand for micro insurance services in the insurance industry in Kenya". You have been randomly selected to participate in this survey. Your responses will present in aggregates and used for research purposes only.

SECTION A: GENERAL INFORMATION

---

1. Name of the organization ……
2. What proportion of business (premium amount) do you think your company is generating from micro insurance?

   0-25% { } 26-50% { } 51-75% { } 76-100% { }

3. Is your organization being subsidized by donor funding?

   Yes { } No { }

4. If yes to Q3 indicate the products that are supported

   --

5. What kind of micro insurance product (s) does your company sell? Please tick appropriately: Savings { } Life { } Personal accident{ }Medical{ } Other (please specify)……

6. Please (tick) indicate how your company targets the micro insurance potential consumers.

   Mobile technology { } Intermediaries { } Through an aggregator { }
   Other (please specify)……

SECTION B: RISK EXPOSURE

Please tick appropriately in the table using the scale given below on your consideration to the following on the effect of risk exposure on the demand for micro insurance services in your insurance company

SA-Strongly agree, A-Agree, N-Neutral, D-Disagree, SD-Strongly disagree

Risk Exposure and Demand	**SD**	**D**	**N**	**A**	**SA**
i. There are high transactional costs of managing micro insurance in the company					
ii. The company associates micro insurance with fraudulent activities					
iii. Micro insurance attracts high risk individuals.					
iv. The company has a rigid regulatory framework.					
v. There is a mismatch between affordability and suitability in the services offered by the company					
vi. The company has appropriate tools for data collection especially in weather forecasting for index-based weather insurance.					
vii. There are adequate distribution channels of insurance services in the company					

iii.	The products offered by the company usually meet the clients' needs					
ix.	Micro-Insurance has a high prevalence of premium defaults (policy lapse) in the company					
x.	Micro-Insurance experiences low penetration hence diseconomies of scale in the company					

14. What other risk exposure factors do you think have an effect on the demand for micro insurance services in your insurance company?

……
……
……..

SECTION C: PRICE

15. Please tick appropriately

Price and Demand	**0-10%**	**11-20%**	**21-30%**	**31-40%**	**Above 40%**
i. What is your average proportional reduction in insurance premium to accommodate the same product under micro insurance?					
ii. By what proportion do you reduce the subsidies and benefits of insurance products to accommodate the reduced prices for micro insurance?					

iii. What is the average monthly interest rate attracted from your premium financed micro insurance products?					
iv. What proportion of payments made for your micro insurance products are made and accepted in non-liquid payments such as post-dated cheques?					
v. What is your maximum acceptable loss ratio above which your company would load up premiums for micro insurance products?					
vi. On average by how much do you load premiums with every increase in loss ratio exceeding your acceptable loss ratio?					

SECTION D: CREDIT ACCESSIBILITY

16. Please tick appropriately in the table using the scale given below on your consideration to the following on the effect of credit accessibility on the demand for micro insurance services in your insurance company

SA-Strongly agree, A-Agree, N-Neutral, D-Disagree, SD-Strongly disagree

Credit Accessibility and Demand	**SD**	**D**	**N**	**A**	**SA**
i. Micro insurance clients can access loans against their policies in the company					

ii.	Access to potential risk-coping possibilities, other than credit, correlate with insurance take up.					
iii.	There is limited eligibility to credit services amongst the low income earners in the company					
iv.	Credit facilities available in the company are economically sustainable beyond the project period.					

SECTION E: INCOME LEVEL

17. Please tick appropriately in the table using the scale given below the following factors as relates to effect of income level on the demand for micro insurance.

SA-Strongly agree, A-Agree, N-Neutral, D-Disagree, SD-Strongly disagree

Income Level and Demand	**SD**	**D**	**N**	**A**	**SA**
i. Seasonal flows of income and expenditures of low end clients affect premium payments					
ii. Micro insurance prospects are mainly in informal employment and this affects the uptake of insurance					
iii. Most micro insurance do not meet insurance requirements of cash and carry.					

18. Please tick or indicate the sources of income of your micro insurance clients.

Employment { } Self-employed { } Others (please specify) { }

---

19. What are the income levels of majority of your micro insurance clients? Please tick

Below minimum wage < 10,954 { } Minimum Wage =10,954 { }
Above minimum wage >10,954 { }

20. What is the average annual premium of micro insurance products? Please tick

Below < 1,000 { } Minimum premium = 1,200 { }
Above minimum premium >1,200 { }

21. What is the mode of premium payment? Please tick

Cash { } Cheque { } Check off { } Mobile { }

Through an aggregator { } Other (please specify)……

SECTION F: CUSTOMERS' PERSONAL CHARACTERISTICS

22. Please tick appropriately in the table using the scale given below on the following factors as relates to effect of income level on the demand for micro insurance.

SA-Strongly agree, A-Agree, N-Neutral, D-Disagree, SD-Strongly disagree.

Customers' Personal Characteristics and Demand	**SD**	**D**	**N**	**A**	**SA**
i. Age of an individual determines the uptake of insurance					
ii. Income status of an individual determines the uptake of micro insurance products.					
iii. Level of education determines the demand for micro insurance products					
iv. Effect of peers indeed matters in the purchase of insurance					
v. Mode of insurance premium payment determines insurance uptake					
vi. Illness and death constitute the most important risks for households.					
vii. Client perceptions of communications from the					

insurance provider about product determines demand for insurance					
viii. Gender and marital status relates to differences in vulnerabilities.					
ix. Quality of living conditions relates to the risk profile of individuals or households					
x. Clients perception on complicated claims processes determines demand for insurance					

23. Average age Bracket of Micro insurance policy holders

18 to 27 years { } 28 to 37 years { } 38 to 47 years { }

48 to 57 years { } Above 57 years { }

24. What is the highest educational level of your micro insurance clients?

University { } Tertiary { } Secondary { } Primary { }

No formal education { }

25. What is the main reason for your client to purchase insurance? Please tick

i. To protect them from future losses { }
ii. To share possible losses within a group against regular contribution { }
iii. To provide them with investment opportunities { }
iv. To save money for the future { }
v. Do not know { }

26. What is the length of proposal form for micro insurance products? Please tick

i. Less than < 2 pages { }

ii. ii. More than > 2 pages { }

27. What is the size of the policy document? Please tick

i. Less than < 2 pages { }

ii. More than > 2 pages { }

SECTION G: RISK MITIGATION STRATEGIES

28. Please tick appropriately in the table using the scale given below the following as relates to risk mitigation strategies and demand for micro insurance.

SA-Strongly agree, A-Agree, N-Neutral, D-Disagree, SD-Strongly disagree

		SD	D	N	A	SA
i.	Insurance firms need to reduce administration cost through technology and partnerships.					
ii.	Insurance firms need to formulate innovative distribution channel (like use of agents).					
iii.	Insurance firms need to conduct public awareness campaigns and education on Micro-Insurance benefits.					

iv.	Develop selective targeting of geographical areas and clientele demographic to reduce adverse selection.					
v.	Should enlist the use of sponsors/partners so as to offer Micro-Insurance at subsidized rate.					
vi.	Insurance companies should make use of flexible premium payment terms/mode.					
vii.	Prices adjustment to reflect loss or discount offered where perceived high risk areas turn-out not to be.					
viii.	Should invest in research and development or actuarial services to help in pricing of products.					
ix.	Insurance companies should come up 'risk reference bureaus' where clients' risk profile can be shared.					
x.	Legislation should allow micro-insurance policies be written in languages comprehensible to the locals.					

SECTION H: RECOMMENDATIONS

30. What would you like to be done by the micro insurance service providers to increase demand for micro insurance? ……...

Appendix III: Factor loadings matrix

Indicator	Comp 1	Comp2	Comp3	Comp4	Comp5	Comp6
The company prefers agency and brokerage in selling traditional insurances than micro insurance	0.630					
There are high transactional costs of managing micro insurance in the company	0.670					
The company associates micro insurance with fraudulent activities	0.708					
Micro insurance attracts high risk individuals leading to adverse selection	0.643					
The company has a rigid regulatory framework	0.746					
There is a mismatch between affordability and suitability in the services offered by the company	0.698					
The company has appropriate tools for data collection especially in weather forecasting for index-based weather insurance	0.742					
There are adequate distribution channels of insurance services in the company	0.611					

The products offered by the company usually meet the clients' needs	0.647	
Micro-Insurance has a high prevalence of premium defaults (policy lapse) in the company	0.692	
Micro-Insurance experiences low penetration hence diseconomies of scale in the company	0.741	
Reducing the price of micro insurance is likely to increase demand		0.622
Micro-insurance pricing presents significant challenges (need to balance prices, costs, sustainability and affordability) in the company		0.729
The average proportional reduction in insurance premium to accommodate products under micro insurance		0.642
Proportion of subsidies and benefits of insurance products reduced to accommodate the reduced prices for micro insurance		0.723
The average monthly interest rate attracted from premium		0.655

financed micro insurance products		
Proportion of payments for micro insurance products that are made and accepted in non-liquid payments such as post-dated cheques	0.712	
The maximum acceptable loss ratio above which the micro products premiums are loaded up	0.596	
The average rate of premium loading with every increase in loss ratio exceeding your acceptable loss ratio for micro insurance products	0.725	
Micro insurance clients can access loans against their policies in the company		0.785
Access to potential risk-coping possibilities, other than credit, correlate with insurance take up		0.756
There is limited eligibility to credit services amongst the low income earners in the company		0.768
Credit facilities available in the company are economically sustainable beyond the project period		0.780

Seasonal flows of income and expenditures of low end clients affect premium payments	0.773	
Micro insurance prospects are mainly in informal employment and this affects the uptake of insurance	0.680	
Most micro insurance do not meet insurance requirements of cash and carry.	0.763	
What are the income levels of majority of your micro insurance clients	0.637	
Indicate the average annual premium of micro insurance products.	0.693	
What is the mode of premium payment	0.777	
Age of an individual affects the uptake of insurance		0.694
Income status of an individual affects the uptake of micro insurance products		0.675
Level of education affects the demand for micro insurance products		0.644
Effect of peers indeed matters in the purchase of insurance		0.680

Mode of insurance premium payment affects insurance uptake	0.599
Illness and death constitute the most important risks for households	0.654
Client perceptions of communications from the insurance provider about product affect demand for insurance	0.685
Gender and marital status relates to differences in vulnerabilities	0.685
Quality of living conditions relates to the risk profile of individuals or households	0.737
Clients perception on complicated claims processes	0.685
Average age Bracket of Micro insurance policy holders	0.694
What is the highest educational level of your micro insurance clients	0.675
What is the main reason for your client to purchase insurance	0.686
What is the length of proposal form for micro insurance products	0.633
What is the size of the policy document	0.658

Has successfully been achieving sales target for micro insurance products	0.630
Has gradually been increasing the year after year sales for micro insurance products	0.713
Has decreased its transaction costs when selling the micro insurance products	0.697
Has successfully been increasing its market share for micro insurance products	0.693
Has increased its profit margin due to the micro insurance products	0.619
Has increased its number of clients due to micro insurance products	0.645
Has shown an increase in the growth rate of micro insurance products	0.756
Should invest in research and development or actuarial services to help in pricing of products	0.697
Insurance companies should come up ‘risk reference bureaus’ where clients’ risk profile can be shared	0.731

Legislation should allow micro-insurance policies be written in languages comprehensible to the locals	0.686

Appendix IV: Durbin Watson Tables

Critical Values for the Durbin-Watson Test: 5% Significance Level

T=200,210,220,500, K=2 to 21

K includes intercept

T	K	dL	dU	T	K	dL	dU	T	K	dL	dU
200	2	1.75844	1.77852	210	10	1.6855	1.86394	220	18	1.61562	1.9471
200	3	1.74833	1.78871	210	11	1.67532	1.87445	220	19	1.60547	1.95776
200	4	1.73815	1.79901	210	12	1.66508	1.88505	220	20	1.59527	1.96852
200	5	1.72789	1.80942	210	13	1.65478	1.89574	220	21	1.58503	1.97935
200	6	1.71755	1.81994	210	14	1.64441	1.90653	230	2	1.77525	1.7927
200	7	1.70713	1.83057	210	15	1.63398	1.91742	230	3	1.76647	1.80154
200	8	1.69663	1.84133	210	16	1.62348	1.92839	230	4	1.75763	1.81045
200	9	1.68607	1.85219	210	17	1.61293	1.93947	230	5	1.74873	1.81945
200	10	1.67543	1.86316	210	18	1.60232	1.95063	230	6	1.73977	1.82854
200	11	1.66471	1.87423	210	19	1.59165	1.96188	230	7	1.73075	1.83771
200	12	1.65394	1.88541	210	20	1.58094	1.97323	230	8	1.72168	1.84697
200	13	1.64308	1.89671	210	21	1.57015	1.98467	230	9	1.71254	1.85632
200	14	1.63216	1.9081	220	2	1.77003	1.78829	230	10	1.70335	1.86574
200	15	1.62117	1.91961	220	3	1.76086	1.79753	230	11	1.6941	1.87524
200	16	1.61011	1.93122	220	4	1.75161	1.80686	230	12	1.68479	1.88483
200	17	1.599	1.94292	220	5	1.74229	1.81628	230	13	1.67544	1.8945
200	18	1.58781	1.95473	220	6	1.73292	1.82581	230	14	1.66602	1.90424
200	19	1.57657	1.96665	220	7	1.72348	1.83543	230	15	1.65655	1.91407
200	20	1.56527	1.97865	220	8	1.71398	1.84513	230	16	1.64703	1.92398

200	21	1.5539	1.99075	220	9	1.70441	1.85492	230	17	1.63746	1.93397
210	2	1.76445	1.78358	220	10	1.69477	1.86482	230	18	1.62784	1.94403
210	3	1.75483	1.79326	220	11	1.68509	1.87479	230	19	1.61816	1.95417
210	4	1.74513	1.80305	220	12	1.67533	1.88486	230	20	1.60844	1.96439
210	5	1.73537	1.81295	220	13	1.66552	1.89502	230	21	1.59868	1.97467
210	6	1.72554	1.82294	220	14	1.65566	1.90526	240	2	1.78012	1.79685
210	7	1.71563	1.83305	220	15	1.64573	1.91559	240	3	1.77171	1.8053
210	8	1.70566	1.84325	220	16	1.63575	1.92601	240	4	1.76325	1.81384
210	9	1.69561	1.85355	220	17	1.62571	1.93651	240	5	1.75473	1.82246

Appendix V: Number of Insurance Companies in Kenya

1 AAR Insurance Kenya Limited
2 Africa Merchant Assurance Company Limited
3 AIG Kenya Insurance Company Limited
4 APA Insurance Limited
5 APA Life Assurance Limited
6 Barclays Life Assurance Kenya Limited
7 Britam General Insurance Company (Kenya) Limited
8 British-American Insurance Company (K) Limited
9 Cannon Assurance Limited
10 Capex Life Assurance Company Limited
11 CIC General Insurance Limited
12 CIC Life Assurance Limited
13 Continental Reinsurance Limited
14 Corporate Insurance Company Limited
15 Directline Assurance Company Limited
16 Allianz Insurance Company Limited
17 Fidelity Shield Insurance Company Limited
18 First Assurance Company Limited
19 GA Life Assurance Limited
20 GA Insurance Limited
21 Gateway Insurance Company Limited
22 Geminia Insurance Company
23 ICEA LION General Insurance Co Limited
24 ICEA LION Life Assurance Company Limited
25 Intra Africa Assurance Company Limited
26 Invesco Assurance Company Limited
27 Kenindia Assurance Company Limited

28 Kenya Orient Insurance Limited
29 Kenya Orient Life Assurance Limited
30 Kenya Reinsurance Corporation Limited
31 Liberty Life Assurance Kenya Limited
32 Madison Insurance Company Kenya Limited
33 Mayfair Insurance Company Limited
34 Metropolitan Cannon Life Assurance Limited
35 Occidental Insurance Company Limited
36 Old Mutual Life Assurance Company Limited
37 Pacis Insurance Company Limited
38 Pan Africa Life Assurance Limited
39 Phoenix of East Africa Insurance Company Limited
40 Pioneer Assurance Company Limited
41 Prudential Life Assurance Kenya Limited
42 Resolution Insurance Company Limited
43 Saham Assurance Company Kenya Limited
44 Takaful Insurance of Africa Limited
45 Tausi Assurance Company Limited
46 The Heritage Insurance Company Limited
47 The Kenyan Alliance Insurance Company Limited
48 The Jubilee Insurance Company of Kenya Limited
49 The Monarch Insurance Company Limited
50 Trident Insurance Company Limited
51 UAP Insurance Company Limited
52 UAP Life Assurance Limited
53 Xplico Insurance Company Limited

b) **Number of Banc assurance in Kenya**

1 Barclays Bank Insurance Agency
2 Liberty Africa Insurance Agency
3 Consolidated Bank Insurance Agency Limited
4 KCB Insurance Agency Limited
5 Orient Insurance Agencies Limited
6 Equity Insurance Agency
7 Family Bank Insurance Agency Limited
8 CBA Insurance Agency Limited
9 Chase Insurance Agencies Limited
10 Co-op Consultancy & Insurance Agency Ltd
11 Diamond Trust Insurance Agency Ltd.
12 Faulu MFB Insurance Agency Ltd
13 GAB Takaful (Insurance) Agency Limited
14 Housing Finance Insurance Agency Ltd
15 I&M Insurance Agency Limited
16 Jamii Bora Insurance Agency Limited
17 Sidian Insurance Agency Limited
18 KWFT Insurance Agency Limited
19 Myfriend Insurance Agency Limited
20 NBK Insurance Agency Ltd
21 NIC Insurance Agents Limited
22 Rafiki Microfinance Insurance Agencies Limited
23 SMEP Insurance Agency
24 Stanbic Insurance Agency Limited
25 Standard Chartered Insurance Agency Limited

c) Number of registered brokerages firms in Kenya

1	Aa insurance brokers limited
2	Abc insurance brokers limited
3	Aboo insurance brokers limited
4	Acentria insurance brokers co. Ltd
5	Acropolis insurance brokers limited-broker
6	Acuity insurance brokers limited
7	African continent insurance brokers limited
8	Afrishield insurance brokers limited
9	Al- amin insurance brokers limited
10	Al-fawzein insurance brokers limited
11	Allied assurance brokers limited
12	Allion insurance brokers limited
13	Alpha-levits insurance brokers limited
14	Alpine insurance brokers limited
15	Amana insurance brokers
16	Amro insurance brokers limited
17	Ams insurance brokers limited
18	Andalus insurance brokers limited
19	Aon kenya insurance brokers limited-broker
20	Apis insurance brokers
21	A-plan insurance brokers limited
22	Arena africa insurnce brokers limited
23	Aris insurance brokers limited
24	Aristocrats insurance brokers limited
25	Arkchoice insurance brokers limited
26	Armchair insurance brokers limited

27 Aspen insurance brokers limited
28 Associated insurance brokers limited
29 Assured insurance brokers limited
30 Atlas insurance brokers limited
31 Aum insurance brokers limited
32 Avila insurance brokers limited
33 Avocet insurance brokers limited
34 Bafana insurance brokers limited
35 Bafana insurance brokers limited
36 Bahari insurance brokers limited
37 Bapa insurance brokers limited
38 Batlex insurance brokers limited
39 Baylor insurance brokers ltd
40 Bental insurance brokers limited
41 Berke insurance brokers limited
42 Berkley insurance brokers ltd
43 Bilmax insurance brokers limited
44 Blossom insurance brokers limited
45 Boma insurance brokers limited
46 Boma insurance brokers limited
47 Bottomry insurance brokers limited
48 Broadcover insurance brokers ltd
49 Btb insurance brokers limited-broker
50 Busam insurance brokers limited
51 Canopy insurance brokers limited
52 Centaur insurance brokers limited
53 Chancery Wright insurance brokers limited
54 Channel insurance brokers limited

55 Chartwell insurance brokers limited
56 Chester insurance brokers limited
57 Clarkson Notcutt insurance brokers limited-broker
58 Clear insurance brokers limited
59 Complete Solutions insurance brokers limited
60 Consolidated insurance brokers limited
61 Covermax insurance brokers limited
62 Crownscope insurance brokers limited
63 Crownscope insurance brokers limited
64 D & G insurance brokers limited
65 Disney insurance brokers limited
66 Dynamique insurance brokers limited
67 Eagle Africa insurance brokers limited
68 Ecb insurance brokers limited
69 Eden Rock insurance brokers limited
70 Enwealth insurance brokers limited
71 Executive insurance brokers limited
72 Fairsure insurance brokers limited
73 Fast Fit insurance brokers limited
74 Fcb Takaful insurance brokers
75 Finsure insurance brokers limited
76 First American insurance brokers ltd
77 Font insurance brokers limited
78 Formax insurance brokers limited
79 Fortress insurance brokers limited
80 Fortune insurance brokers ltd.
81 Four m insurance brokers limited
82 Four Stars insurance brokers limited

83 Fredblack insurance brokers

84 Gachichio insurance brokers limited

85 Gada insurance brokers ltd

86 Gef insurance brokers limited

87 Genesis International insurance brokers limited

88 Getrio insurance brokers limited

89 Globaleye insurance brokers limited

90 Goldfield insurance brokers limited

91 Gras Savoye Kenya insurance brokers limited

92 Great Five insurance brokers limited

93 GRM insurance brokers limited

94 H. G. Thanawalla insurance brokers limited

95 H. S. Jutley insurance brokers limited-broker

96 Habari insurance brokers limited

97 Harbinger insurance brokers limited

98 Harmony insurance brokers

99 Hillstone insurance brokers limited

100 Homeland insurance brokers limited

101 HP insurance brokers limited

102 Ick insurance brokers ltd

103 Image insurance brokers limited

104 Imperial insurance brokers ltd

105 Insco insurance brokers limited

106 Insol (E.A) insurance brokers ltd

107 Integrated insurance brokers limited

108 Interbroke insurance brokers limited

109 J W Seagon & co insurance brokers (k) ltd

110 Jani insurance brokers limited-broker

111 Johncele insurance brokers limited

112 Jurasic insurance brokers limited

113 Karen Direct insurance brokers limited

114 Karen insurance brokers limited

115 Kava insurance brokers limited

116 Kelon insurance brokers limited

117 Kenbright insurance brokers limited

118 Kenfident insurance brokers limited

119 Kenoki insurance brokers limited

120 Koolridge insurance brokers limited

121 Ksembi insurance brokers limited

122 Lalit Sodha insurance brokers limited

123 Laser insurance brokers limited

124 Legacy insurance brokers

125 Lema insurance brokers limited

126 Liaison group (insurance brokers) limited

127 Liberty insurance brokers co. Ltd

128 Lifecare international insurance brokers limited-broker

129 Losagi insurance brokers limited

130 M. A. Khan insurance brokers limited

131 Macly insurance brokers limited

132 Maj insurance brokers limited

133 Majani insurance brokers limited

134 Masilahi insurance brokers limited

135 Masumali Meghji insurance brokers limited

136 Methodist insurance brokers limited

137 Mic Global risks (insurance brokers) limited-brokers

138 MicroEnsure insurance brokers limited

139 Mik insurance brokers limited
140 Millenium insurance brokers
141 Mima insurance brokers limited
142 Minlet insurance brokers limited
143 Miran insurance brokers limited
144 Modern insurance brokers limited
145 Mombasa insurance brokers limited
146 Nanyuki insurance brokers limited
147 Nelion insurance brokers limited
148 Nexus insurance brokers limited
149 Niconat insurance brokers limited
150 Nile Capital insurance brokers ltd
151 Nomura insurance brokers limited
152 Northridge insurance brokers limited
153 Nyadwe insurance brokers ltd
154 Octagon insurance brokers limited
155 Online insurance brokers limited
156 Options insurance brokers limited
157 Pacific insurance brokers (ea) limited-broker
158 Package insurance brokers limted
159 Paladin insurance brokers limited
160 Palsha insurance brokers limited
161 Pasan insurance brokers limited
162 Peace of Mind insurance brokers limited
163 Pelican insurance brokers limited-broker
164 Pistis insurance brokers limited
165 Plan & Place insurance brokers limited-broker
166 Platinum insurance brokers limited

167 Porim insurance brokers limited
168 Prime Mover insurance brokers limited
169 Primeken insurance brokers limited
170 Prosperity insurance brokers limited
171 Real Alliance insurance brokers ltd
172 Richlands insurance brokers limited
173 Risk Care insurance brokers limited
174 Risk Shield insurance brokers limited
175 Risk Solutions insurance brokers limited
176 Roberts insurance brokers limited
177 Royal Associates insurance brokers ltd
178 Royal Shield of east africa insurance brokers ltd.
179 Safe n Sound insurance brokers limited
180 Safenet insurance brokers limited
181 Sakaka insurance brokers limited
182 Samnel insurance brokers limited
183 Sapon insurance brokers limited
184 Scanner insurance brokers limited
185 Sedgwick Kenya insurance brokers limited
186 Shashi insurance brokers limited
187 Shiv insurance brokers limited
188 Smartguard insurance brokers limited
189 Snowcaps insurance brokers limited
190 Sobhag insurance brokers limited-broker
191 Soin insurance brokers limited
192 Spire insurance brokers limited
193 Sunland insurance brokers limited
194 Superlink insurance brokers limited

195 Swinton insurance brokers (k) limited

196 Teevee insurance brokers limited

197 Transnep insurance brokers

198 Trisons insurance brokers limited

199 Trustmark insurance brokers limited

200 Underwriting Africa insurance brokers ltd

201 Unicorn insurance brokers limited

202 Unipolar insurance brokers limited

203 Universal insurance brokers limited

204 Uptrend insurance brokers

205 Utmost insurance brokers limited

206 Vefis insurance brokers (K) limited

207 Victoria insurance brokers limited

208 Vike insurance brokers limited

209 Waumini insurance brokers limited

210 Wilsmart insurance brokers limited

211 Youjays insurance brokers limited

212 Zainab Stegrap insurance brokers limited

213 Zebra Tracks insurance brokers

214 Zulmac insurance brokers limited